SOFTWARE USER'S GUIDE FOR

United States Coast Guard (USCG) Search And Rescue (SAR) Tools

Version 2.5.0.0 Release 2 for C2PC 5.5.8.0

Windows NT

3 April 2001

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SUG for USCG SAR Tools

Contents

Welcome to SAR Tools 1
About USCG SAR Tools 1
Referenced Documents 1
Copyrights 1
Using SAR Tools Help 3
Overview of SAR Tools Help 3
Using Help 3
Using Videos 5
Contents of Help 6
Additional Sources for Help 7
Help Conventions 8
What's New 10
Quick Start 14
C2PC and SAR Tools 14
SAR Tools Quick Start 14
SAR plan, search plans 15
Search patterns 18
Quick Overlays 24
Range and bearing 24
Icons 26
Range Rectangle 29
Range Ring 32
Web Applications 34
Flares 40
Loran Calculator 44
Sweep Width Tables 47
AMS cases, worksheets 49
Tides and Currents 53
C2PC Quick Start 58
C2PC Maps, Views 58
Icons 62
Overlays 65
Tutorials 68
Open a new SAR Plan and complete an Automated Manual Solution (AMS) worksheet. 68
Create your own search pattern. 70
Take a range and bearing. 70
Place a quick icon on the C2PC map. 71
Place a flare sighting. 71
Display tidal currents. 74
Display map features. 75
Change map colors. 75
Switch from a vector map to a BSB chart. 75

Set precision standards and units of measure. 75
Place an icon using quick point. 77
Turn on an overlay. 78
Plot a PIM Track. 78
Frequently Asked Questions 80
GDOC and C2PC Comparisons 80
C2PC 83
SAR Tools 86
SAR Tools Working Environment 88
The SAR Tools Window 89
The Menu Bar 90
The File Menu 90
The Edit Menu 92
The View Menu 98
The AMS Menu 98
The CASP Menu 99
The Tools Menu 104
The Help Menu 105
Toolbars 106
The Standard Toolbar 106
The Objects Toolbar 107
The AMS Toolbar 108
The CASP Toolbar 109
The Status Bar 110
Common Operations 110
Opening, editing, and saving search plans 111
File Sharing 114
Connecting to the C2PC Map 114
Editing search plans on the C2PC map 115
Editing SAR Tools Items on the C2PC map 118
Entering Data in Window Fields 119
Using Context Menus (Right Pop-up Menus) 119
Using Textual Windows 119
Disabling and enabling the informational dialog boxes 121
Using Quick Entry Mode 122
Using the Crosshairs button 122
Selecting Colors 123
Tides & Currents 125
Advanced SAR Tools 126
Automated Manual Solution 127
Datum Worksheets 127
Datum Worksheet, Page One 128
Datum Worksheet, Page Two 132
Datum Worksheet, Page Three 135
Datum Worksheet, Page Four 137
Area Worksheets 138
Area Worksheet, Page One 138
Area Worksheet, Page Two 140
Area Worksheet, Page Three 143

Area Worksheet, Page Four 146
Effort Worksheets 147
Effort Worksheet, Page One 149
Effort Worksheet, Page Two 153
Effort Worksheet (Excess Resource Planning) 156
Additional Worksheets 158
Datum Worksheet (Target Leeway) 158
Datum Worksheet (Observed Source) 161
Datum Worksheet (Tidal Current) 163
Incident/Times 164
Station/Velocity 165
Cycle Times 168
Chart 170
Cycle Factors/Speeds 171
Flood Cycle Factors 172
Ebb Cycle Factors 173
Vectors 174
Datum Worksheet (Wind Current) 174
Datum Worksheet (Other Current) 178
Datum Worksheet (Leeway) 178
AMS Utilities 181
AMS Viewing Properties 181
AMS Options 184
Decision Matrix 185
AMS Case Summary Window 186
Computer Aided Search Planning 187
CASP Cases 187
Situation 189
The Edit Situation Data Window 190
Location 191
The Edit Common Location Data Window 192
The Edit Position Data Window 193
Target 194
The Edit Target Data Window 195
Search Area 199
The Edit Search Area Data Window 200
The Edit Target Characteristics Window 202
Environment Data 202
The Edit Environment Record Window 204
Drift Calculation 206
Status Board 210
Replication Data 211
Probability Map 212
Replication Data 214
SRU Data 215
Optimal Search Data 217
Login 219
Using a CASP case with search patterns and search areas 220
Flares 221
Flare Summary 222
Quick Overlays 224

Icon 224
Range/Bearing Line....227
Range Rectangle 229
Range Ring 231
Search Patterns 233
Types of Search Patterns 233
Adding and Editing Search Patterns 235
For the Expanding Square Pattern 238
For the Sector Pattern 239
For the Parallel Pattern....240
For the Creeping Line Pattern 241
For the Track Line Pattern....242
Display 244
Sortie 246
Addl. Info 248
Evaluate 249
Calculating and plotting percent complete....253
Pattern Summary....254
Duplicating Search Patterns 256
Web Applications 258
AMVER website 258
SLDMB website 259
Appendix B: DESCRIPTIONS OF LEEWAY DRIFT OBJECTS

List of Figures

File Download Window 6
Video Player Controls 6
SAR Tools Icon on C2PC Map 17
Saving a New Search Plan Window 18
Pattern Properties Window 20
Effort Worksheet (Page 2): Patterns 21
Editing Search Patterns 22
Pattern Properties Window, Display tab 24
Range/Bearing Properties Window 26
Icon Properties Window, Geometry page 28
Icon Properties Window, Display page 29
Example of icon plot 30
Range Rectangle Properties Window, Geometry page 31
Range Rectangle Properties Window, Display page 32
Example of range rectangle plot 33
Range Ring Properties Window, Geometry page 34
Range Ring Properties Window, Display page 34
Example of range ring plot 35
Web Application Properties, General page 36
Web Application Properties, Additional Info Page 36

Select Search Area Magic File window 37
Web Application Properties, General page 38
Web Application Properties, Additional Info Page 39
Select Search Area Magic File window 39
Options window, Web Application Settings page 40
Flare Sighting Properties Window, Reporting Source Tab 41
Flare Sighting Properties Window, Flare Tab 42
Info Dialog Box, Apex to Origin 42
Info Dialog Box, On Horizon 43
Flare Sighting Properties Window, Additional Info Tab 44
Flare Sighting Properties Window, Display Tab 44
Loran Calculator Window 46
Loran Calculator TD -> LL Tab 47
Loran Calculator LL -> TD Tab 48
Sweep Width Tables Window 49
C2PC Tides and Currents Window 55
C2PC Tides and Currents Window 57
Installed Map Plug-Ins Window 59
Map Data Window 60
Example of Zooming into a BSB Chart Area 61
C2PC Options Window 62
Quick Point Dialog 63
Open (Icon) Window 64
The Overlays Pane 82
USCG SAR Tools Application Window 90
SAR Tools Icon on C2PC Map 114
Saving a New Search Plan Window 114
Options Window 115
Choose Directory Window 116
Copy of a Search Plan File 116
Edit Search Plan Label Window 118
Example of C2PC Context Menu for SAR Tools Item 121
Options Window, Directories Tab 124
Options Window, Reset Tab 125
Color Window 127
Expanded Color Window 127
Datum Worksheet (Page 1) Window 133
Datum W'sheet (Aerospace Drift) Window 134
Datum Worksheet (Page 2) Window 136
Clear Data Window 137
Datum Worksheet (Page 3) Window 139
Datum Worksheet (Page 4) Window 141
Area Worksheet (Page 1) Window 142
Area Worksheet (Page 2) Window 144
Area Worksheet (Page 2), Minimax Window 145
Area Worksheet (Page 2), Non-minimax Window 146
Area Worksheet (Page 3) Window 147
Area Worksheet (Navigational Fix Error) Window 148
Area Worksheet (Dead Reckoning Error) Window 149
Area Worksheet (Page 4) Window 150
Effort Worksheet (Page 1) Window 153

Effort W'sheet (Sweep Width - SRU #X) 154
Effort Worksheet (Page 2) Window 157
Effort Worksheet (Excess Resource Planning) Window 159
Target Leeway Worksheet Window 161
Target Leeway - Advanced Worksheet 162
Datum Worksheet (Observed Source) Window 164
Datum Worksheet (Tidal Current) Window 166
Datum Worksheet (Tidal Current) Window, Incident/Times Page 167
World Map Of Time Zones 169
Datum Worksheet (Tidal Current) Window, Station/Velocity Page, manual entry 170
Datum Worksheet (Tidal Current) Window, Station/Velocity Page, automatic entry 171
Datum Worksheet (Tidal Current) Window, Cycle Times Page, manual entry 172
Datum Worksheet (Tidal Current) Window, Cycle Times Page, automatic entry 173
Datum Worksheet (Tidal Current) Window, Chart Page 174
Datum Worksheet (Tidal Current) Window, Cycle Factor/Speeds Page 175
Datum Worksheet (Tidal Current) Window, Flood Cycle Factors Page 176
Datum Worksheet (Tidal Current) Window, Ebb Cycle Factors Page 177
Datum Worksheet (Tidal Current) Window, Vectors Page 178
Datum Worksheet (Wind Current) Window 179
Wind Crnt (Comp's Req'd - Min/Max) Window 179
Wind Current Computations (Min. #1) Window 180
Datum Worksheet (Other Current) Window 181
Leeway Worksheet Window 182
Leeway (Average Surface Winds - Maximum) Window 183
Leeway (Time Uncertainty) Window 184
AMS Case Properties Window, Customize Map View page 185
AMS Case Properties Window, Customize Summary View page 187
AMS Options Window 188
Search Planning Decision Matrix Window 189
AMS Case Summary Window 190
The CASP Tree 191
Edit Case Data Window 192
Edit Situation Data Window 194
Edit Situation Specific Location Data Window 195
Edit Common Location Data Window 196
Edit Position Data Window 197
Edit Target Data Window 199
Edit User Defined Target Leeway Data Window 200
Edit User Defined Target Leeway Data Subwindow 201
Edit Search Area Data Window 203
Edit Target Characteristics Window 205
Edit Environment Record Window 207
Drift Wizard, Target Select... Window 210
Drift Wizard, Compute Datum Window 211
Drift Wizard, Login Window 212
Status Board Window 214
Replication Data Window, Probability Map page 215
Replication Data Window, Replication Data page 216
Replication Data Window, SRU Data page 217

Edit SRU Window 218
Replication Data Window, Optimal Search Data page 219
Login Window 221
Example of a Flare 223
Flare Summary Window 224
Summary Properties Window 225
Icon Properties Window, Geometry page 228
Icon Properties Window, Display page 229
Example of icon plot 230
Range/Bearing Properties Window 231
Range Rectangle Properties Window, Geometry page 233
Range Rectangle Properties Window, Display page 234
Example of range rectangle plot 235
Range Ring Properties Window, Geometry page 235
Range Ring Properties Window, Display page 236
Example of range ring plot 236
Web Applications Properties, General page 238
Web Applications Properties, Additional Info Page 239
Web Applications Properties, General page 240
Web Applications Properties, Additional Info Page 241
The Five Search Patterns 243
Pattern Properties Window 244
Expanding Square Pattern Properties Window, Geometry tab 246
Sector Pattern Properties Window, Geometry tab 247
Parallel Pattern Properties Window, Geometry tab 248
Creeping Line Pattern Properties Window, Geometry tab 249
Track Line Pattern Properties Window, Geometry tab 250
Pattern Properties Window, Display tab 251
Example of Plotted Search Pattern 252
Pattern Properties Window, Sortie tab 253
Pattern Properties Window, Addl. Info tab 255
Pattern Properties Window, Evaluate tab 257
Edit Evaluation Target/POA Window 258
Plotting Percent Complete 260
Calculate Percent Complete Window 260
Pattern Summary Window 261
Summary Properties Window 262
Duplicate Pattern: Apply Offset Window 263

Welcome to SAR Tools

Welcome to SAR Tools

For information about SAR Tools, see About USCG SAR Tools.
For information about outside documents referenced in this help file, see Referenced Documents.
For information on copyrights, see Copyrights.

About USCG SAR Tools

United States Coast Guard (USCG) Search and Rescue Tools (SAR Tools) Version 2.5.0.0 for Command and Control Personal Computer (C2PC) Version 5.5.8.0
The purpose of USCG SAR Tools is to provide the capability within C2PC to perform Search and Rescue planning operations. USCG SAR Tools is designed as a separate application that uses C2PC as a common charting backdrop. It also uses C2PC-supplied facilities for performing common data handling tasks. Access to USCG SAR Tools is provided (by default) via the C2PC applications menu items and toolbars. Operators may make their own shortcuts on the Windows Start menu, desktop, or in the file system as desired.

Referenced Documents

- *Command and Control PC User's Guide*, Version 5.1.0.0 for Windows NT/Windows 95, 1 June 1998.
- *Geographic Display Operations Computer (GDOC) User Manual*, Version 4.5, 16 April 1996.
- *National Oceanographic and Atmospheric Administration (NOAA) Tidal Current Tables*.
- *National Search and Rescue Manual*, 1 February 1991, U.S. Coast Guard COMDTINST M16120.5A, The Joint Chiefs of Staff JOINT PUB 3-50.

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Using SAR Tools Help

Using SAR Tools Help

For general information about SAR Tools Help, see Overview of SAR Tools Help.
For information on using this help file, see Using Help.
For information on the videos used in this help file, see Using Videos.
For an outline of the help file contents, see Contents of Help.
For other help sources, see Additional Sources for Help.
For an explanation of special text styles and formats used in this help file, see Help Conventions.

Overview of SAR Tools Help

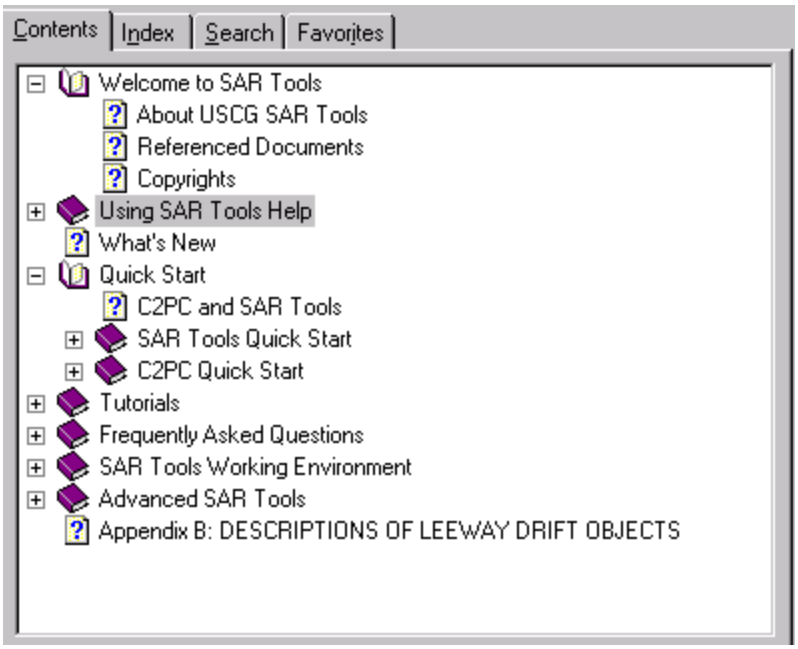
United States Coast Guard (USCG) Search and Rescue (SAR) Tools is designed to assist the user in planning search and rescue operations. USCG SAR Tools works with Command and Control PC (C2PC).
This help file assumes that you are familiar with both the Windows® working environment and Command and Control Personal Computer (C2PC). You should also be familiar with search and rescue mission planning for the U.S. Coast Guard.
Special colors and fonts are used throughout the help files to mark types of information. For an explanation of their usage, see Help Conventions.
To help you make easy connections between the help file and the programs, pictures of the many windows are included with the instructions. Also, videos are provided in key locations, to show you exactly what you should be doing. Each video is marked by a graphic: . See Using Videos for instructions.

Using Help

The left side of the help window contains navigation tools: contents, index, and search. To use one of these tools, click on its tab at the top. The right side contains the information that you select.

Note: This help file is written specifically for the SAR Tools application. Some help for the C2PC application is also included. C2PC help is explicitly described as such. All other instructions are for SAR Tools.

Contents



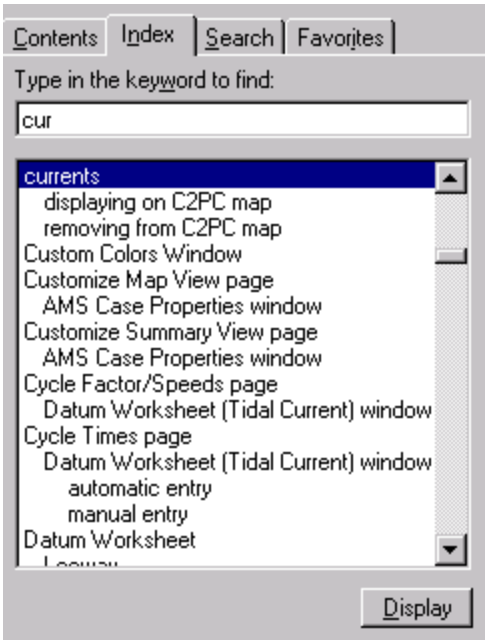
The Contents tab is arranged like the table of contents in a printed book.

A line that contains a book and a plus sign on the left indicates that there are subtopics. To display the subtopics, click the plus sign or double-click the title.

A line that contains a book and a minus sign has subtopics that are currently shown. To hide the subtopics, click the minus sign or double-click the title.

A line that contains a question mark is a page. To display the page in the right side of the help window, click the title.

Index



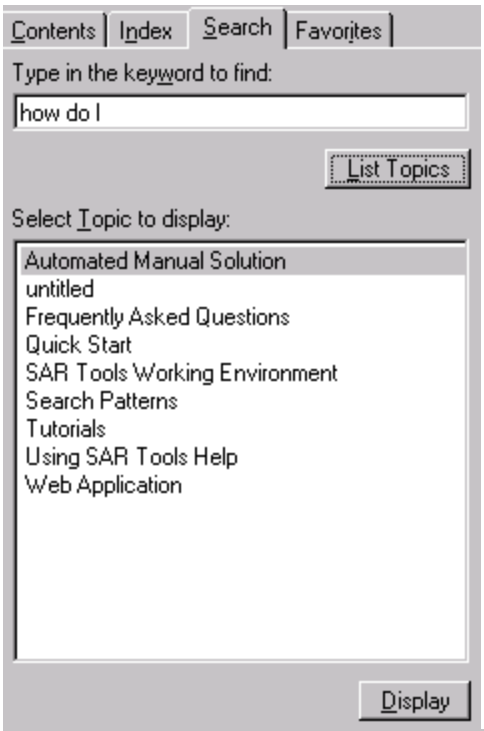
The Index tab contains an index to the entire help file, arranged alphabetically.

To find a word in the index, type the word in the box at the top. As you type, the index displays the first word that matches your entry and highlights it.

To display the page for a topic, either double-click the entry in the index, or select the entry and click the Display button.

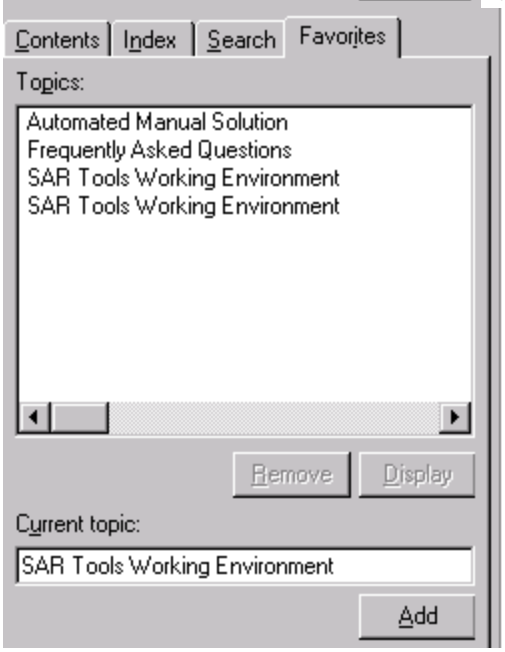
To browse through the index, use the scroll bar to scroll up and down.

Search



The Search tab contains a box for you to enter a word and a box below to display matches.
To search for a word, enter the word in the small box at the top. The box below displays all instances of that word in the help file.
To display the page for a topic, either double-click the entry in the index, or select the entry and click the Display button.
Note that search includes every single word in the help file, so it does not consider context. The index is probably the best place to start a search, but if the index does not include what you want, then try search.
For other help sources, see Additional Sources for Help.

Favorites



The Favorites tab allows you to bookmark topics and add them to your Favorites list.
To add a topic to your Favorites list, go the topic you want to bookmark. The current topic is displayed at the bottom of the window. Click Add to add it to your Favorites list.
The topics are displayed in alphabetical order.
To go to a topic in the list, highlight the topic and click Display or double click the topic. To remove a topic, highlight the topic and click Remove.
For other help sources, see Additional Sources for Help.

Using Videos

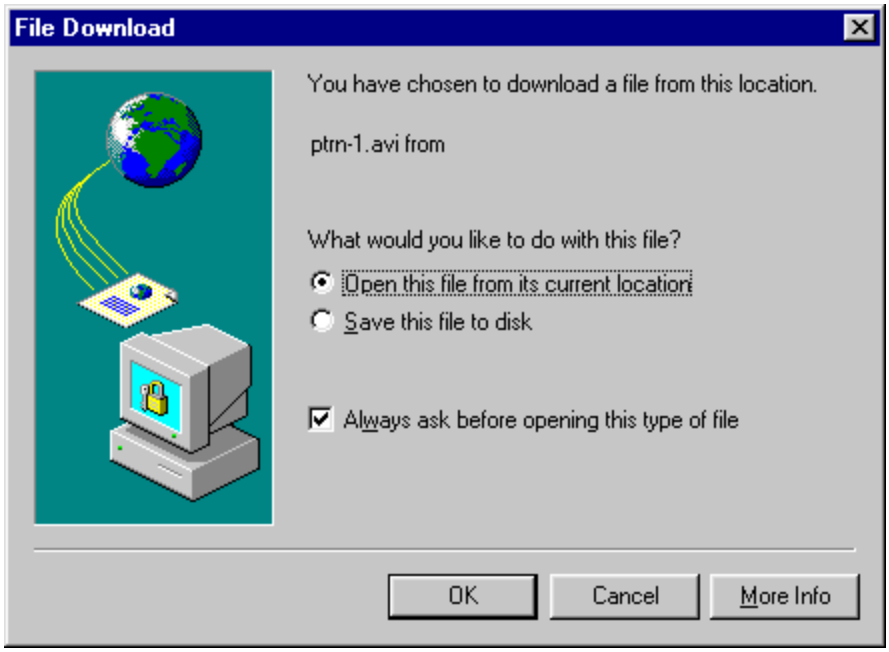
Throughout the help file, videos are available to help you see how to follow the instructions given. Each video is marked by a graphic. .

To view a video

1. Click on the movie graphic ().

The File Download window appears.

File Download Window



2. Select Open this file from its current location.
3. Click OK. The video starts playing. Under the video is a control bar.

Video Player Controls

The main portion of the window contains the video. The bottom portion contains two buttons, a slider, and a time indicator. The video immediately begins playing.
To stop the video, click the stop button (■).
To start the video from the beginning after stopping it, click the play button (▶).
To pause the video, click the pause button (❚❚).
To restart the video while it is paused, click the play button (▶).
To control the speed of the video, drag the slider left and right.
The time indicator displays the total length of the video (small, to the left), and the time elapsed in the video while playing (large, centered).

Contents of Help

This help file contains the following sections:

Quick Start

See Quick Start for operations that are common throughout SAR Tools. For a more in-depth explanation of concepts, see the corresponding section in this help file.

Tutorials

See Tutorials to practice certain common operations in both SAR Tools and C2PC. Each tutorial contains a link to instructions on the concepts used in it.

Frequently Asked Question (FAQ)

See Frequently Asked Questions for the answers to questions about SAR Tools and C2PC. For those who are familiar with GDOC, the FAQ also describes how to accomplish GDOC tasks using C2PC. See Additional Sources for Help if you'd like to ask a question that isn't contained within this FAQ.

SAR Tools Working Environment

See SAR Tools Working Environment for general information on using USCG SAR Tools. This sections contains basic information on the SAR Tools windows, the menu bar, the tool bar, common operations used throughout SAR Tools, and Tides&Currents.

Advanced SAR Tools

For detailed information on these SAR Tools functions, see the following sections:

- Automated Manual Solution
- Computer Aided Search Planning
- Flares
- Quick Overlays
- Search Patterns
- Web Applications

Additional Sources for Help

For general assistance

If you need additional help, contact the C2PC Center (C2CEN) support desk: Call 757-686-2156 or send an email message to smefdesk@c2cen.uscg.mil. You may also contact the SAR School for SAR procedural questions at 757-898-2380.

For help with C2PC

Use the help files that come with C2PC. Access them from the Help menu in C2PC.
Call the C2PC hot-line at the Operations Systems Center at 304-264-2500.

For computer-specific help

If your computer itself is having problems, contact your Regional Systems Manager (RSM).

To suggest changes

To report problems or suggest improvements, contact the C2CEN support desk at 757-686-2156 and they will help you submit a System Trouble Report (STR) or System Improvement Request (SIR).

Help Conventions

The following text styles and formats are used throughout this help file to enhance readability:

- Helvetica font is used to distinguish menu options, windows, buttons, and other text that appears on the screen (except for output that appears as a result of entering a command). Display text is spelled and punctuated exactly as it appears on the screen. Examples are:

  Click the Advanced button. The Aerospace Drift window appears.

  From the AMS menu, select Viewing Properties. The AMS Case Properties window appears.

  In the Radius field, enter the radius of the circle.

- Within a window, field names, menu items, and buttons are displayed in **bold**. A brief description of the field follows immediately below. Examples are:

  Show DateTime Groups
  Select this checkbox to display the Date-Time Groups in the summary table.

  Show Magnetic Course
  Select this checkbox to display the Magnetic Course in the summary table.

- *Italicized letters* are used for emphasis.

- `Courier` font is used to distinguish text that you should enter into a field.

- Notes, cautions, and other critical information are contained in text boxes. For example:

Note: When first entering the Pattern Properties window (i.e., with no center or radius defined), auto-input mode is enabled.

- Figures are designed to resemble on-screen graphics as closely as possible. Figure dimensions do not necessarily match the dimensions of actual menus and windows. All figures depicting windows contain *sample* data and should be used for reference purposes only.

- "Menu > Option" represents "From the Menu menu, select Option. Examples are:

File > New	From the File menu, select New.
Edit > Patterns >	From the Edit menu, select Patterns; then from the

New Patterns sub-menu, select New.

What's New

What's New

USCG SAR Tools has added the following new features for Version 2.5.0.0.
Overall SAR Tools Changes

- Datum: This seldom-used feature has been removed. Similar functionality can be achieved via Icons.
- The folders in the main SAR Tools tree view now appear in sorted order.

  See The SAR Tools Window.
- Loran calculator: This feature from GDOC has been updated and improved for inclusion in SAR Tools. Now, you can convert Loran Time Difference (TD) coordinates to latitude/longitude and vice-versa within SAR Tools. Multiple Loran calculators can be open simultaneously for performing "what if" analysis. Loran chains can be plotted on the C2PC map for visual validation of the calculations.

  See Loran Calculator.
- When starting up, SAR Tools will check the Most Recently Used Files list (shown near the bottom of the File menu) and remove any item from the list that is no longer accessible.

  See The File Menu.
- When presenting a list or SRU types for use with the sweep width tables, entries are now limited to the following categories: HELO, Fixed-Wing, Small Boat and Lg. Cutter. In previous versions of SAR Tools, SRU type could also be specified as an explicit asset type (e.g., C130 or WHEC378) but the tables really only deal with the categories. Since it was sometimes unclear which asset types belonged to which categories, limiting the type selection is best. SRU types saved by a previous version of SAR Tools will be automatically converted to the appropriate category when read.

  See How can I access sweep width tables?, Effort Worksheet, Page One, Evaluate, and SRU Data.
- Support for the obsolete .ams and .cse file formats has been removed. These file-based mechanisms for exchanging data have been replaced with clipboard operations such as copy/paste and drag/drop that are easier to understand and use.

AMS Changes

- Target leeway has been updated to conform to the latest guidance from the USCG R&D Center. The guidance contained in the report "Review of Leeway: Field Experiments and Implementation," dated April 1999, has been incorporated into the Target Leeway window.

  See Datum Worksheet (Target Leeway).

- The columns of the AMS Effort Allocation Worksheet can now be easily rearranged. This provides the ability to reorder search units to compensate for airborne asset altitude considerations and/or to maximize the efforts of the most productive asset.

  See Effort Worksheet, Page One.

- The Track Space Assignable field of the AMS Effort Allocation Worksheet is now automatically calculated.

  See Effort Worksheet, Page Two and Effort Worksheet (Excess Resource Planning).

- When calculating the leeway vector, wind speeds greater than 40 knots are treated the same as 40 knots. This change is consistent with SAR School policy, which argues that after 40 knots, the seas are so high that the target is sheltered from the wind for much of the time and the Leeway is no longer increasing significantly. Note that this rule does **not** apply to calculation of wind current vectors.

  See Datum Worksheet (Leeway)

- When planning a subsequent search, the Subsequent Search option is now available on the context menu. Just right click on an AMS case and choose Subsequent Search. This option is still available via the main AMS menu as Plan Subsequent Search.

  See The AMS Menu

CASP Changes

- Target leeway has been updated to conform to the latest guidance from the USCG R&D Center. The guidance contained in the report “Review of Leeway: Field Experiments and Implementation”, dated April 1999, has been incorporated into the Edit Target Data window when Target Leeway is “User defined leeway”. This allows target leeway *characteristics* for both AMS and CASP to be specified consistently even though the two models require different *raw data* to be supplied “under the covers”.

  See Edit Target Data Window.

- Locations and Replications now provide Plot On/Off check boxes (and equivalent menu items) so that the display of these items on the C2PC map can be more finely controlled.

  See CASP Cases

- The Replication Data window now provides the ability to save the current display settings as default settings. These default settings are used when generating new probability maps so each user can customize how they typically view probability map data on the C2PC map.

  See Probability Map.

- The Replication Data window now provides OK and Cancel buttons so that changes are not automatically applied to the search plan. Inadvertent changes can simply be canceled, maintaining the integrity of the search plan.

  See Replication Data.

- The Edit Situation Data window now provides a button to add a target to the case without leaving the window.

See Edit Situation Data Window.

Patterns Changes

- For Sector patterns, the CSP is now placed at the center of the pattern, not the edge. Also, the number of sectors has been limited to those values that may be reasonably used in practice.

  See For the Sector Pattern.

- The pattern summary now includes magnetic bearings in the upper portion when the "Show Magnetic Course" feature is on. (By default, "Show Magnetic Course" is on.) Also, the pattern summary can be shown in all uppercase, easing integration with certain other systems and message formats.

  See Pattern Summary.

Quick Overlays Changes

- The Quick Overlays folder has been added to the search plan. This folder groups icons, rng/brg lines, range rings, and range rectangles. With some exceptions, quick overlays can be exported as C2PC overlay "magic" (.mgc) files for sharing with other systems that understand the .mgc file format but not the search plan (.srp) file format.

  See Quick Overlays.

- Search Area: This feature has been replaced by the Range Ring and Range Rectangle features under Quick Overlays. Search Area objects contained in search plan files written by previous versions of SAR Tools will be automatically converted to quick overlays when opened by the latest version of SAR Tools.

  See Range Ring and Range Rectangle.

- Quick Icons: The Quick Icons folder has been removed from the search plan, but icons are now available under the Quick Overlays folder. Quick Icon objects contained in search plan files written by previous versions of SAR Tools will be automatically converted to quick overlays when opened by the latest version of SAR Tools.

  See Icon

- Rng/Brg Lines: The Rng/Brg Lines folder has been removed from the search plan, but range/bearing lines are now available under the Quick Overlays folder. Rng/Brg Line objects contained in search plan files written by previous versions of SAR Tools will be automatically converted to quick overlays when opened by the latest version of SAR Tools.

  See Range/Bearing Line.

Web Applications Changes

- The Web Applications folder has been added to the search plan. Web Applications allows partial integration of SAR Tools with other systems, such as AMVER and SLDMB, whose interface is "web –based", i.e. accessed via a browser such as Internet Explorer or Netscape Navigator. For example, with AMVER, you can generate a range ring with Quick Overlays, export it as a .mgc file, connect to AMVER, give it the .mgc file as the geofilter, then receive a .mgc file back as the query result for plotting on the C2PC map.

  See Web Applications.

For information about SAR Tools, see About USCG SAR Tools.
For instructions on using help, see Using Help.
For answers to common questions about SAR Tools and C2PC, see Frequently Asked Questions

Quick Start

Quick Start

- C2PC and SAR Tools
- SAR Tools Quick Start
- C2PC Quick Start

For answers to general questions about C2PC, SAR Tools, and GDOC, see Frequently Asked Questions.

C2PC and SAR Tools

C2PC and SAR Tools are two separate applications. C2PC is a command and control application that has been developed for the Marine Corps. SAR Tools is a search and rescue application that has been developed for the Coast Guard.
C2PC centers around the map display; SAR Tools uses this map display extensively. C2PC comes with its own on-line help system, and this is the on-line help system for SAR Tools. Since the help for C2PC is developed primarily for Marine Corps users of C2PC, the help for SAR Tools includes some basic help for C2PC as well. For more in-depth explanations, you need to use the C2PC help.
SAR Tools and C2PC, as released for the USCG, is partially integrated; you can manipulate SAR Tools graphics on the C2PC map directly. Right-click on a graphic on the C2PC map, and its context menu contains menu choices to affect it. You can also double-click on the graphic and its Properties window appears from the SAR Tools application.

SAR Tools Quick Start

- SAR plan, search plans
  - Tutorial: Open a new SAR Plan and complete an Automated Manual Solution (AMS) worksheet.
- Search patterns
  - Tutorial: Create your own search pattern.
- Quick Overlays
  - Range and bearing
    - Tutorial: Take a range and bearing.
  - Icons
    - Tutorial: Place a quick icon on the C2PC map.

    - Range Rectangle
    - Range Ring
- Web Applications
- Flares
  - Tutorial: Place a flare sighting.
- Loran Calculator
- Sweep Width Tables
- AMS cases, worksheets
  - Tutorial: Open a new SAR Plan and complete an Automated Manual Solution (AMS) worksheet.
- Tides and Currents
  - Tutorial: Display tidal currents.

See also the C2PC Quick Start.
For answers to general questions about C2PC, SAR Tools, and GDOC, see Frequently Asked Questions.

SAR plan, search plans

- How do I open a new SAR plan?
- How do I edit an existing SAR plan?
- How do I save a SAR plan?
- How do I open a new AMS worksheet?

Practice these operations: Open a new SAR Plan and complete an Automated Manual Solution (AMS) worksheet.

How do I open a new SAR plan?

To create a new search plan

1. In C2PC, select New Search Plan from the Tools menu. (**Note:** You can also click the USCG SAR Tools button ( ).

2. Click on the map to place the search plan.

   An icon is placed on the map where you clicked.

SAR Tools Icon on C2PC Map

The search plan placed in this manner is part of the map. If you save the map, the search plan is saved with it.

Warning: Do not close the C2PC map without first saving and closing the SAR Tools application editing the search plan. Doing so may lose any changes made in the search plan.

For instructions on working with a search plan within the C2P map, see Editing search plans on the C2PC map.

To open a new search plan within an open SAR Tools application

Note that the search plan currently open closes and the new search plan takes its place. You may open a new search plan using *one* of these methods:

- From the File menu, select New.
- On the Standard toolbar, click the New button ( ).

If you have not saved changes made in the open search plan, you are prompted to do so. <hr color="3030ff">Try it yourself: Open a new SAR Plan and complete an Automated Manual Solution (AMS) worksheet.

How do I edit an existing SAR plan?

1. Launch SAR Tools. See How do I open a new SAR plan? for details.

2. Open a saved search plan using *one* of these methods:

   - From the File menu, select Open.
   - On the Standard toolbar, click the Open button ( ).

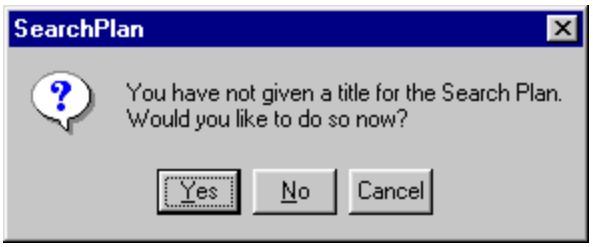
If the search plan is part of the C2PC map, see *To edit the search plan* for instructions.

Try it yourself: Open a new SAR Plan and complete an Automated Manual Solution (AMS) worksheet.

How do I save a SAR plan?

The search plan name as shown in the file view (see SAR Tools Working Environment for details) defaults to “Untitled Plan” when you start a new plan. When you first save a new plan, you are prompted for a new name.

Saving a New Search Plan Window



- To save the search plan with matching file and folder names, click Yes.
- To save the search plan with a new name and keep the folder name as “Untitled Plan”, click No.
- To cancel saving the search plan, click Cancel.

The Saving a New Search Plan window contains the following buttons:

Yes

The Plan Properties window appears. Enter a plan title and click OK to apply the name. This folder in the file view changes to the title you entered and the file is saved with the title you entered.

Example: You enter `Corpus Christi Search Plan` as a title. The folder in the file view is named “Corpus Christi Search Plan”. The file is named `Corpus_Christi_Search_Plan.srp`. Note that the spaces are changed to underscore characters in the file name.

To cancel saving the search plan, click Cancel.

No

The Save As window appears. Enter a file name and click OK. The file is saved with the name you entered. The folder in the file view remains “Untitled Plan”.

To cancel saving the search plan, click Cancel.

Cancel

You are returned to the search plan window and the search plan is *not* saved.

Try it yourself: Open a new SAR Plan and complete an Automated Manual Solution (AMS) worksheet.

Search patterns

- How do I draw a pattern?
- How do I associate a search pattern with an AMS case?
- How do I manually change a search pattern?
- How do I change a search pattern's color?
- How do I view and print a search pattern summary sheet?
- How do I save a pattern summary as a text file?

Practice these operations: Create your own search pattern.

How do I draw a pattern?

You can choose from five different search patterns: expanding square, sector, parallel line, creeping line, and track line. See Types of Search Patterns for detailed information on these search patterns.

To add a new pattern

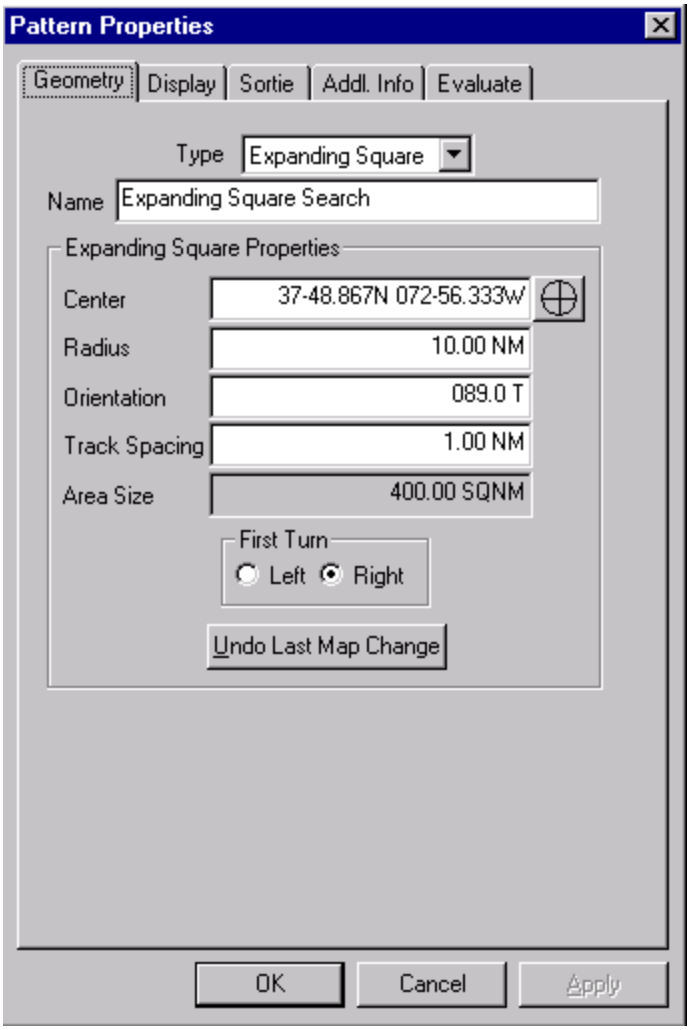
1. Open the Pattern Properties window using *one* of these methods:
   - On the Objects toolbar, click the button of the desired pattern.

	Expanding Square
	Sector
	Parallel
	Creeping Line
	Track Line

   - From the Edit menu, select Patterns > New > [pattern].
   - From the context menu for Patterns in the tree directory, select New: [pattern].

   The Pattern Properties window that appears is set up for the type of pattern you selected.

Pattern Properties Window



2. The Geometry tab must be filled out differently for each pattern. For details, see the following sections:

   - For the Expanding Square Pattern
   - For the Sector Pattern
   - For the Parallel Pattern
   - For the Creeping Line Pattern
   - For the Track Line Pattern

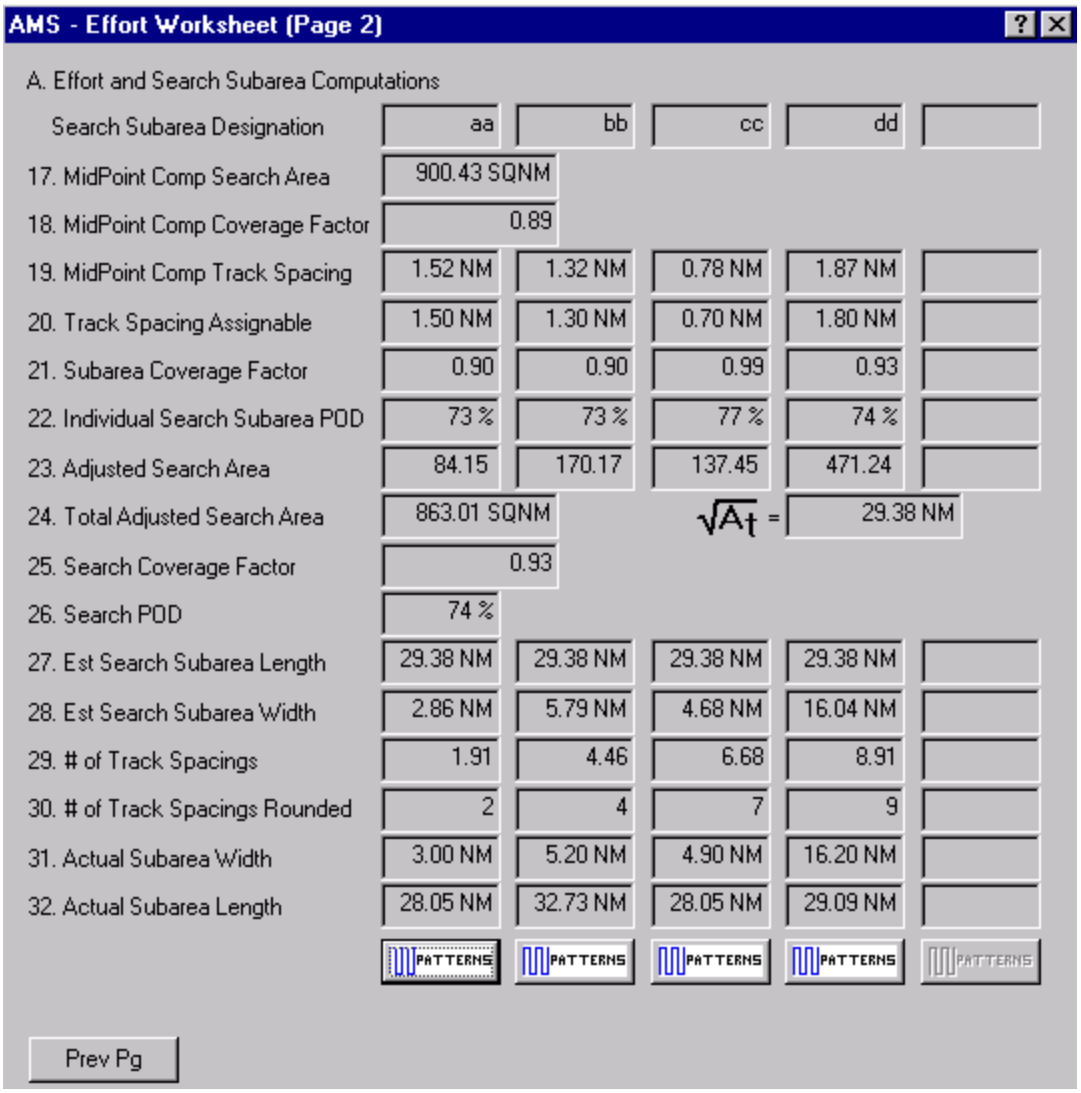
Try it yourself: Create your own search pattern.

How do I associate a search pattern with an AMS case?

You cannot take a search pattern and connect it to an AMS case, but you can generate a search pattern from an AMS case.

1. Select the AMS case from which you wish to generate a search pattern.
2. Open the first page of the Effort worksheet.
3. Ensure that at least one search is completely filled out, on both pages of the Effort worksheet. For more information on AMS, see How do I open a new AMS worksheet?. For a detailed description of the Effort worksheet, see Effort Worksheets.
4. On the second page of the Effort worksheet, click the Patterns button (PATTERNS).

Effort Worksheet (Page 2): Patterns



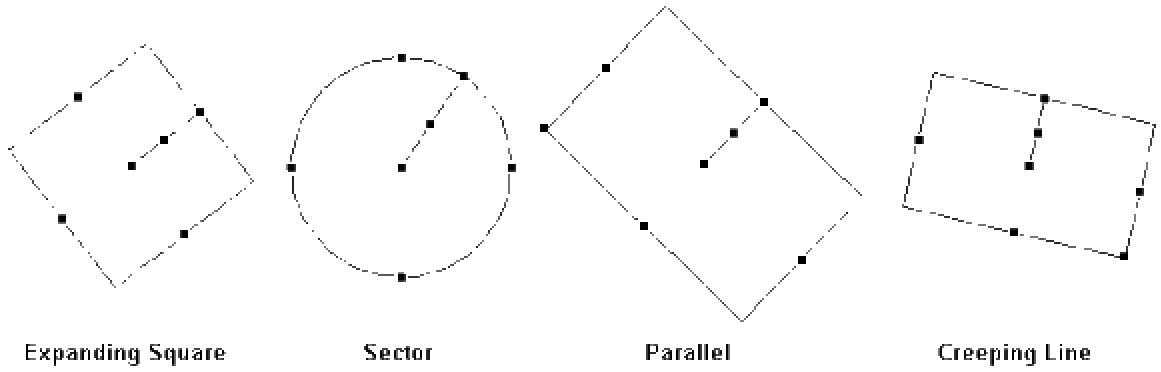
A search pattern is placed on the C2PC map using the information you have entered. You may generate five patterns from an AMS case.

To update a search pattern after changing information on the Effort worksheets, click the Patterns button again. The search pattern is then updated to reflect the new data.

How do I manually change a search pattern?

When the Pattern Properties window appears, the pattern on the map appears as a box or circle (according to the pattern) with handles. A track line search pattern cannot be edited in this manner: It has no size or orientation.

Editing Search Patterns



The available handles are as follows:

- Four handles on the pattern's edges;
- One handle in the center of the pattern;
- One handle in the middle of the radius line;
- For a sector search pattern only, one handle on the pattern's edge at the end of the radius line.

To change the pattern's size, orientation, or map position:

1. Open the Pattern Properties window for a pattern using one of the following methods:
   - Select a search pattern in the tree directory, and select Properties from the Edit menu.
   - Select a search pattern in the tree directory, and select Patterns > Properties from the Edit menu.
   - Right-click a search pattern in the tree directory. From its context menu, select Properties.
   - In the tree directory, double-click a search pattern.
   - On the C2PC map, double-click a plotted search pattern.

2. Select and move one of the handles as follows:

   - **To resize the pattern**, select one of the handles as described below. When you release the handle, the search pattern is resized to reflect the new edge location.

Resizing Search Patterns

Pattern	Handle	Effect
Expanding Square	Minor Axis	Changes the size of the square, keeping the width and height of equal length.
	Major Axis	Changes the size of the square as with the minor axis, but also changes the rotation.
Sector	Minor Axis	Changes the size of the circle.
	Major Axis	Changes the size of the circle.
Parallel	Minor Axis	Changes the width of the pattern (along the minor axis).
	Major Axis	Changes the height of the pattern (along the major axis) and also changes the rotation.
Creeping Line	Minor Axis	Changes the width of the pattern (along the minor axis).
	Major Axis	Changes the height of the pattern (along the major axis) and also changes the rotation.

   - **To change the position of the pattern**, select *either* the center handle *or* the handle in the center of the radius line and move the handle to the desired new position. When you release the handle, the search pattern is redrawn in the new location.

   - **To change the orientation of the pattern**, select the edge handle that is at the end of the radius line and move it to the desired angle. When you release the handle, the search pattern is redrawn to reflect the new orientation. The size and location of the pattern are unchanged. (Note that the handle on the opposite edge from the radius handle controls both the length and the orientation.)

Try it yourself: Create your own search pattern.

To undo an edit

Click the Undo Last Map Change button on the Geometry tab to undo the last edit made to any field except the Type and Name fields in the Geometry tab. For example, if you dragged the pattern to a new position on the map, this option will place the pattern back in its original position, if used immediately.

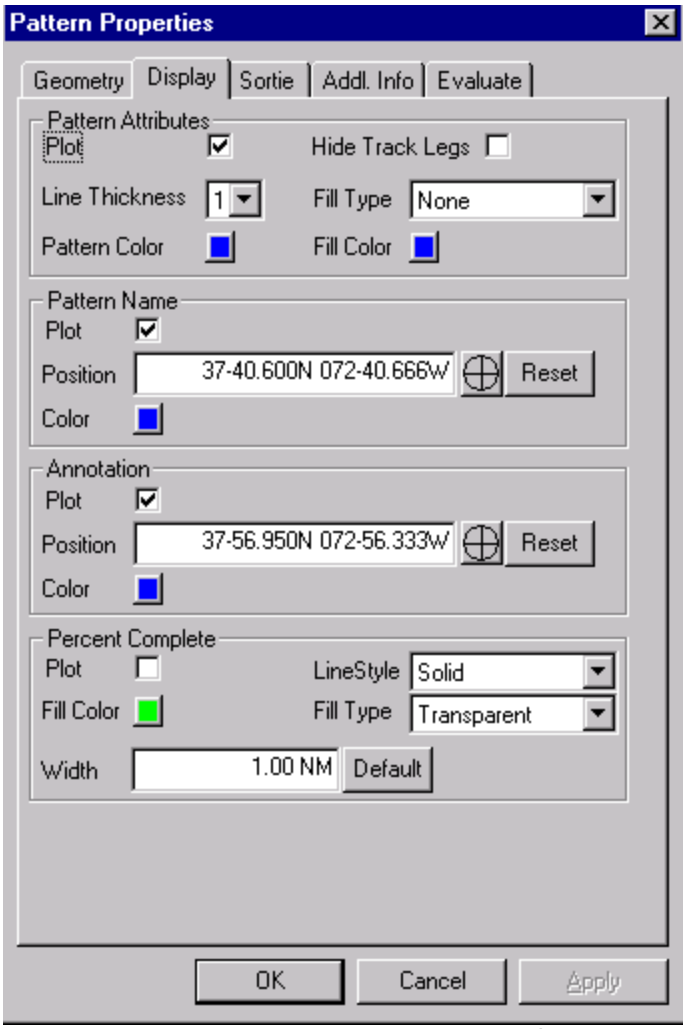
How do I change a search pattern's color?

1. Open the Pattern Properties window using *one* of these methods:

- Double-click the search pattern in the tree directory.
- Select the pattern, then select Edit > Properties.
- Select the pattern, then select Edit > Patterns > Properties.
- From the context menu of a pattern in the tree directory, select Properties.

2. Click the Display tab.

Pattern Properties Window, Display tab



3. To select a color for the search pattern, click the Pattern Color button and select a color. (See Selecting Colors for more details.)
4. To select colors for the pattern name and the annotation, click the associated Color button and select a color. (See Selecting Colors for more details.)

See Display for more information on this tab.
Try it yourself: Create your own search pattern.

How do I view and print a search pattern summary sheet?

To view the summary window for a search pattern:

1. In the tree view, click the search pattern.
2. From the Edit menu, select Patterns > Summary. The summary window for the selected search pattern appears.

To print a search pattern summary

1. Open the search pattern summary.
2. Click on the title bar icon ( ). The summary window menu appears.
3. Select Print.

For more information, see Pattern Summary and Using Textual Windows.

How do I save a pattern summary as a text file?

1. Open the Save As Text File window using *one* of these methods:
   - Select a pattern summary in the tree directory, and select Pattern > Save Summary from the Edit menu.
   - Right-click the pattern summary in the tree directory. From its context menu, select Save Summary.
2. Select the directory to save the file in click Save.

Quick Overlays

Range and bearing

This option is an enhancement of the Range Bearing option on the C2PC map. These lines are plotted on the map and remain until deleted. Also, more than one range/bearing line may be plotted within a SAR plan.

- How do I obtain a range and bearing?

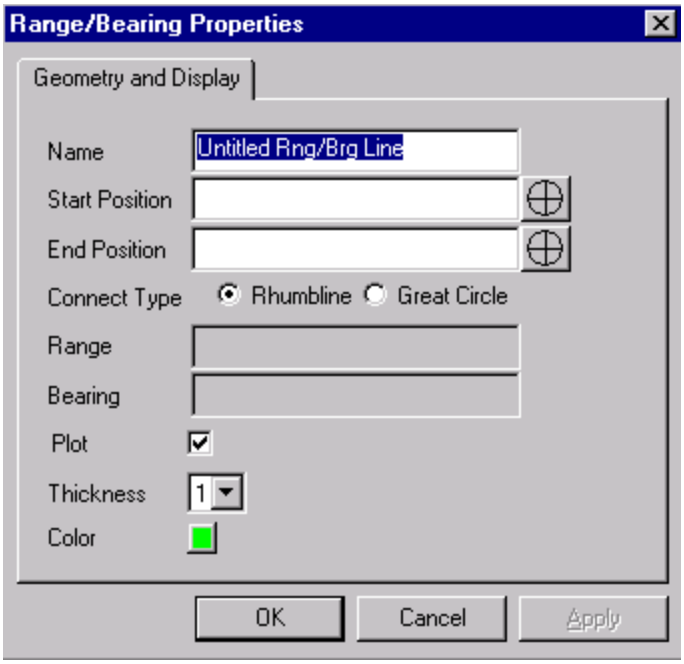
Practice this operation: Take a range and bearing.

- How do I save a set of quick overlay objects as a .mgc file?

How do I obtain a range and bearing?

1. Open the Range/Bearing Properties window using *one* of these methods:
   - From the Edit menu, choose Quick Overlays > New > Range/Bearing Line.
   - From the context menu for Quick Overlays in the Window Area, choose New > Range/Bearing Line.
   - Click the New Rng/Brg button ( ) in the Objects toolbar.

Range/Bearing Properties Window



2. In the Name field, enter an alphanumeric name for the range/bearing line.
3. In the Start Position field, enter the coordinates for the start position of the line either by entering the data in the following fields or by using the Crosshairs button (as described in Using the Crosshairs button).
4. In the End Position field, enter the coordinates for the end position of the line either by entering the data in the following fields or by using the Crosshairs button (as described in Using the Crosshairs button).

   The Range and Bearing fields automatically update according to your entries in the Name, Start Position, and End Position fields.
5. Select the type of range/bearing line: either Rhumbline or Great Circle.
6. To plot the datum on the map, ensure the Plot box is checked.
7. To select how thick you want the pattern's track legs to appear on the map, select the point size in the Thickness box.
8. To select a color for the range and bearing line, click the Color button and select a color. (See Selecting Colors for more details.)
9. Click OK. The Range/Bearing Properties window closes and the range/bearing line is plotted on the C2PC map.

Tip: If you have C2PC set to use either kilometers or nautical miles (Tools > Options), the distance for a SAR Tools Range/Bearing line adjusts the display unit according to length. If the line is over 10 KM, the map displays the distance in KM; if the line is under 10 KM, the map

displays the distance in meters. Likewise, if the line is over 10 NM, the map displays the distance in NM; if the line is under 10 NM, the map displays the distance in yards.

To edit an existing range and bearing line

1. Open the Range/Bearing Properties window using *one* of these methods:
   - From the context menu for an existing range/bearing line in the Window Area, choose Properties.
   - Select an existing range/bearing line. From the Edit menu, select Quick Overlays > Properties.
2. Edit the fields you wish to change.

Try it yourself: Take a range and bearing.

How do I save a set of quick overlay objects as a .mgc file?

1. Open the Save As Overlay File window using *one* of these methods:
   - Select Quick Overlays > Save as overlay (.mgc) from the Edit menu.
   - Right-click the quick overlay in the tree directory. From its context menu, select Save as overlay (.mgc).
2. Select the directory in which to save the file and click Save.

Icons

- How do I plot an icon using SAR Tools?

Practice this operation: Place a quick icon on the C2PC map.

How do I plot an icon using SAR Tools?

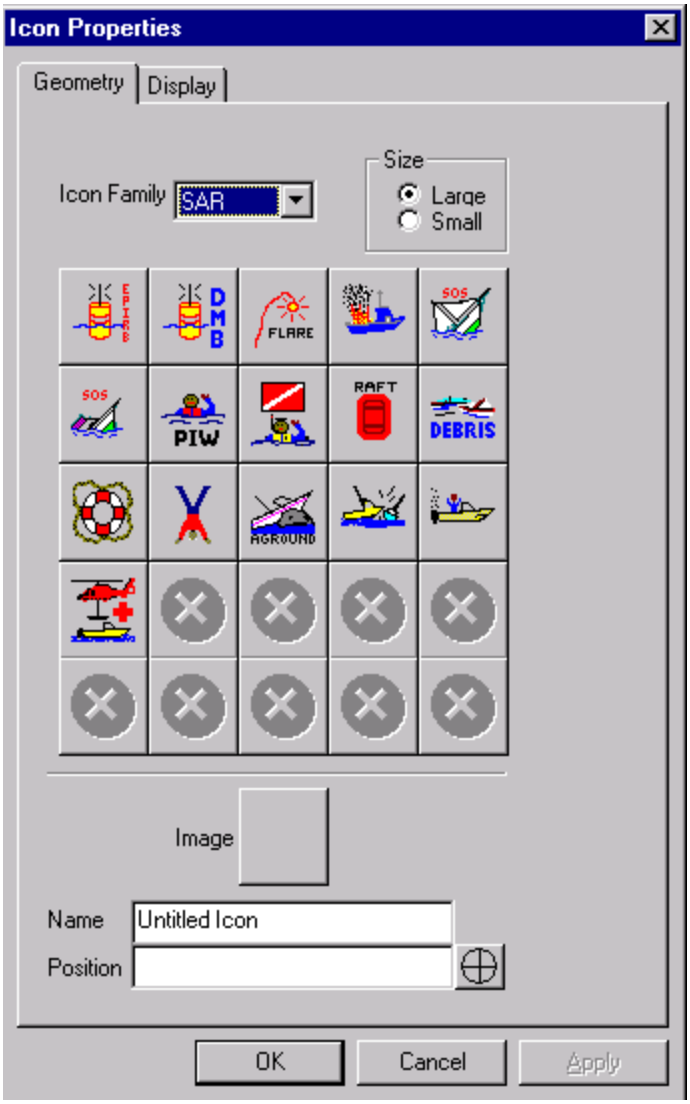
The Icons option enables you to place icons on the C2PC map to enhance Search and Rescue planning. Icons that are available include typical SAR icons, such as a flare or a person in water, as well as private, military, and Coast Guard vessels.

To plot an icon

1. Open the Icon Properties window using *one* of these methods:
   - From the Edit menu, choose Quick Overlays > New > Icon.
   - From the context menu for Quick Overlays in the Window Area, choose New > Icon.
   - Click the New Icon button ( ) in the Objects toolbar.

   The Icon Properties window contains two tabs: Geometry and Display.

Icon Properties Window, Geometry page



2. In the Icon Family list box, select one of the types of icons available: SAR, USCG, Vessel, and Shapes.

3. In the Size box, select either Large or Small to specify the size of the icon.

   Because all icon families do not contain 25 icons, empty slots in the grid are unavailable for selection and appear thus: .

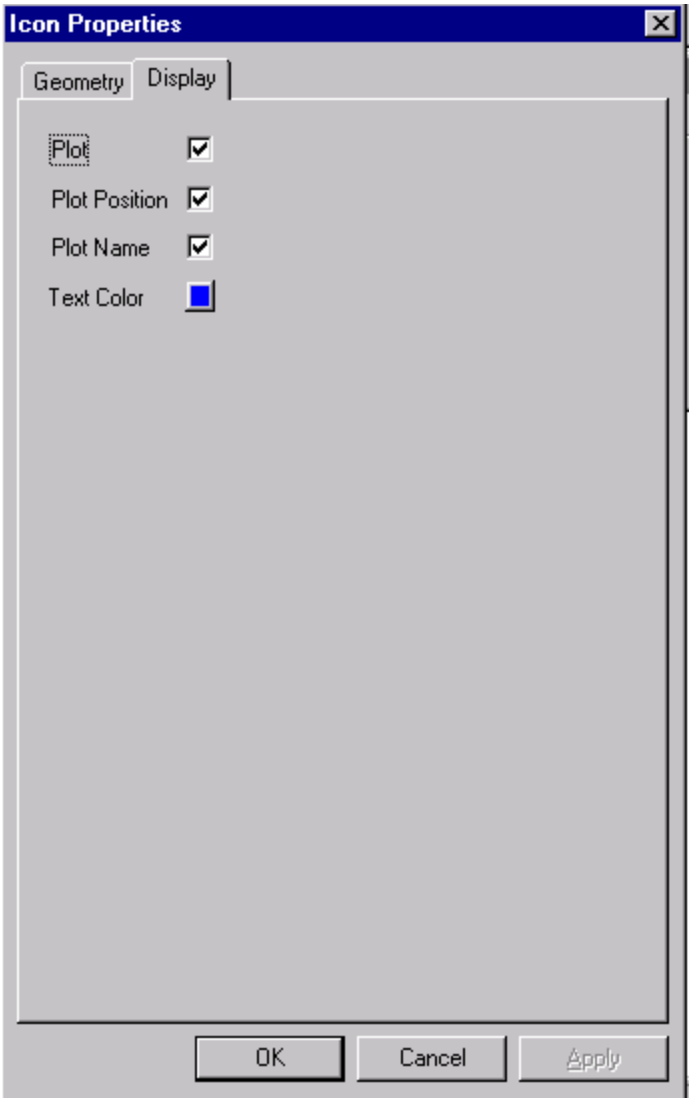
   The grid of icons contains the icons that are available according to your selections of the Icon Family and the Size.

4. In the grid of available icons, click the icon you wish to plot.

   The Image box displays the icon you select.

5. In the Name field, enter a name for the icon. The Name's default value describes the icon but may be changed.
6. In the Position field, specify the coordinates of the icon, either by entering the coordinates or by using the Crosshairs button (as described in Using the Crosshairs button).
7. Click the Display tab.

Icon Properties Window, Display page



8. To plot the icon on the map, ensure the Plot box is checked.
9. To plot the position on the C2PC map, ensure the Plot Position box is checked.
10. To plot the name on the C2PC map, ensure the Plot Name box is checked.
11. To select a color for the text portions of the quick icon (name and position), click the Color button and select a color. (See Selecting Colors for more details.)
12. Click OK. The Icon Properties window closes and the icon is plotted on the C2PC map.
13. An example of an icon plotted with all options is shown here:

Example of icon plot

The icon itself is the Life Ring icon (Plot checkbox). The position (Plot Position checkbox) is at the bottom and the name (Plot Name checkbox) is at the top. If the Plot checkbox is empty, neither the icon nor the name nor the position are plotted on the map.

To edit an existing icon

1. Select the icon in the tree directory and open the Icon Properties window using *one* of these methods:
   - From the Edit menu, select Quick Overlays > Properties.
   - From the context menu for an existing icon in the Window Area, select Properties.
2. Edit the fields you wish to change.

Try it yourself: Place a quick icon on the C2PC map.

Range Rectangle

- How do I plot a range rectangle using SAR Tools?

How do I plot a range rectangle using SAR Tools?

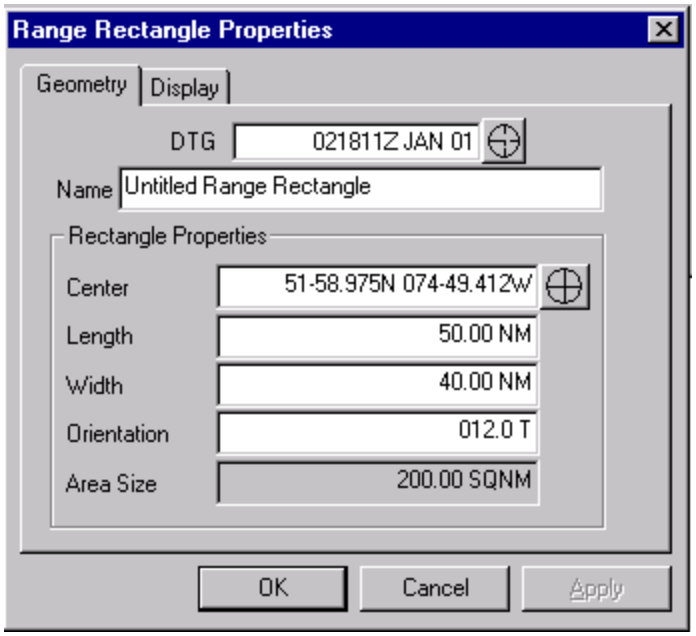
The Range Rectangle option enables you to place range rectangles on the C2PC map to enhance Search and Rescue planning. Range rectangles can be used to define areas for AMVER and SLDMB Web Applications.

To plot a range rectangle

1. Open the Range Rectangle Properties window using *one* of these methods:
   - From the Edit menu, choose Quick Overlays > New > Range Rectangle.
   - From the context menu for Quick Overlays in the Window Area, choose New > Range Rectangle.
   - Click the New Range Rectangle button () in the Objects toolbar.

The Range Rectangle Properties window contains two tabs: Geometry and Display.

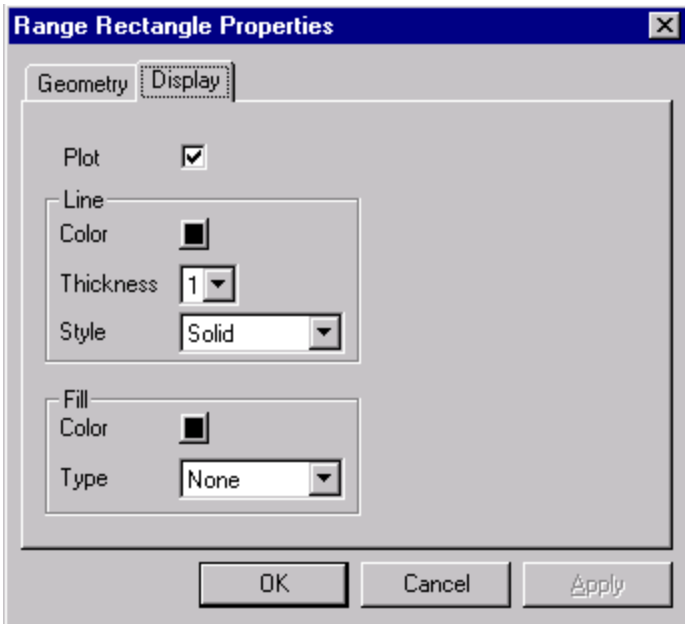
Range Rectangle Properties Window, Geometry page



2. In the DTG field, enter a date-time by entering its numerical values or by using the Crosshairs button (as described in Using the Crosshairs button).
3. In the Name field, enter a name for the range rectangle.
4. In the Center field, specify the coordinates of the range rectangle, either by entering the coordinates or by using the Crosshairs button (as described in Using the Crosshairs button).
5. In the Length field, enter the length.
6. In the Width field, enter the width.
7. In the Orientation field, enter the orientation.

   The Area Size field automatically updates according to your entries in the Center, Length, Width, and Orientation fields.
8. Click the Display tab.

Range Rectangle Properties Window, Display page



9. To plot the rectangle on the map, ensure the Plot box is checked.
10. To select a color for the lines of the range rectangle, click the Color button in the Line box and select a color. See Selecting Colors for more details.)
11. To select a thickness for the lines, select one of the types of thickness in the Thickness list box in the Line box.
12. To select a style for the lines, select one of the types of styles in the Style list box in the Line box.
13. To select a color for the inside of the range rectangle, click the Color button in the Fill box and select a color. See Selecting Colors for more details.)
14. To select a type for the rectangle, select one of the types of types in the Type list box in the Fill box.
15. Click OK. The Range Rectangle Properties window closes and the range rectangle is plotted on the C2PC map.

An example of a range rectangle plotted with all options is shown here:

Example of range rectangle plot

The name (Plot Name checkbox) is at the top. If the Plot checkbox is empty, neither the name nor the rectangle are plotted on the map.

Range Ring

- How do I plot a range ring using SAR Tools?

How do I plot a range ring using SAR Tools?

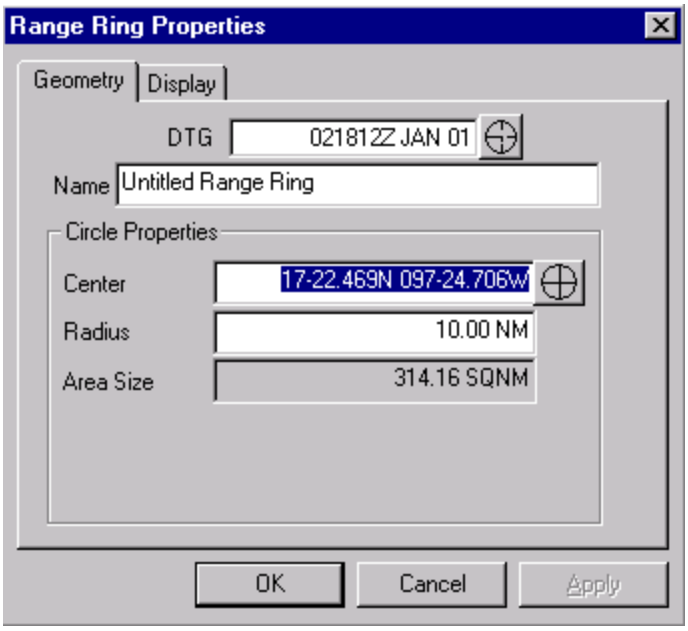
The Range Ring option enables you to place range rings on the C2PC map to enhance Search and Rescue planning. Range rings can be used to define areas for AMVER and SLDMB Web Applications.

To plot a range ring

1. Open the Range Ring Properties window using *one* of these methods:
   - From the Edit menu, choose Quick Overlays > New > Range Ring.
   - From the context menu for Quick Overlays in the Window Area, choose New > Range Ring.
   - Click the New Range Ring button ( ) in the Objects toolbar

   The Range Ring Properties window contains two tabs: Geometry and Display.

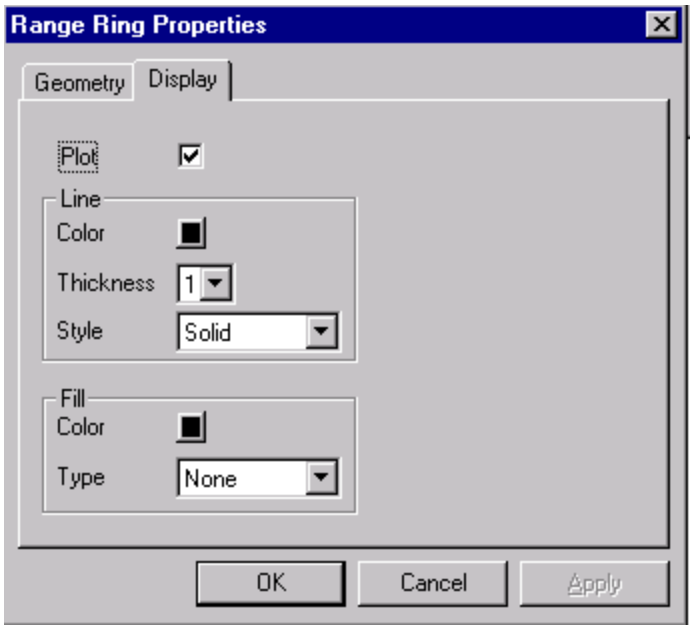
Range Ring Properties Window, Geometry page



2. In the DTG field, enter date-time either by entering its numerical values or by using the Crosshairs button (as described in Using the Crosshairs button).
3. In the Name field, enter a name for the range ring.
4. In the Center field, specify the coordinates of the range ring, either by entering the coordinates or by using the Crosshairs button (as described in Using the Crosshairs button).
5. In the Radius field, enter the radius for the range ring.

   The Area Size field automatically updates according to your entries in the Center, and Radius fields.
6. Click the Display tab.

Range Ring Properties Window, Display page

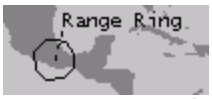


7. To plot the circle on the map, ensure the Plot box is checked.
8. To select a color for the lines of the range ring, click the Color button in the Line box and select a color. See Selecting Colors for more details.)
9. To select a thickness for the lines, select one of the types of thickness in the Thickness list box in the Line box.
10. To select a style for the lines, select one of the types of styles in the Style list box in the Line box.
11. To select a color for the inside of the range ring, click the Color button in the Fill box and select a color. See Selecting Colors for more details.)
12. To select a type for the ring, select one of the types of types in the Type list box in the Fill box.

13. Click OK. The Range Ring Properties window closes and the range ring is plotted on the C2PC map.

An example of a range ring plotted with all options is shown here:

Example of range ring plot



The name (Plot Name checkbox) is at the top. If the Plot checkbox is empty, neither the ring nor the name are plotted on the map.

Web Applications

- How do I access the AMVER web application?
- How do I access the SLDMB web application?
- How do I modify Web Application settings?

How do I access the AMVER web application?

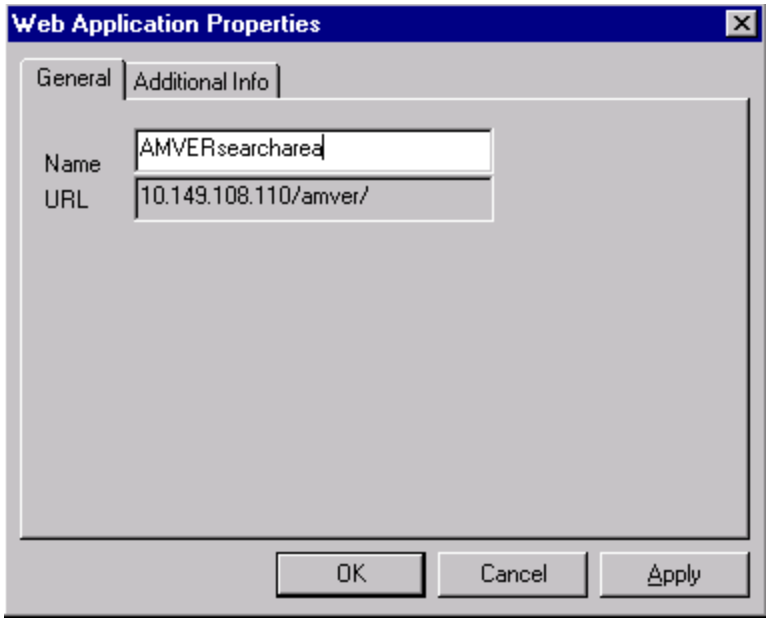
The AMVER option enables you to send a .mgc file with search area information to the AMVER internet website. They will process this information and send a results file back containing ship information within the specified search area. This information can then be plotted on the C2PC map.

To access the AMVER internet website:

1. Access the AMVER internet website using *one* of these methods:
   - From the Edit menu, choose Web Applications > New > AMVER.
   - From the context menu for Web Applications in the Window Area, choose New > AMVER.
   - Click the AMVER button ( ) in the Objects toolbar

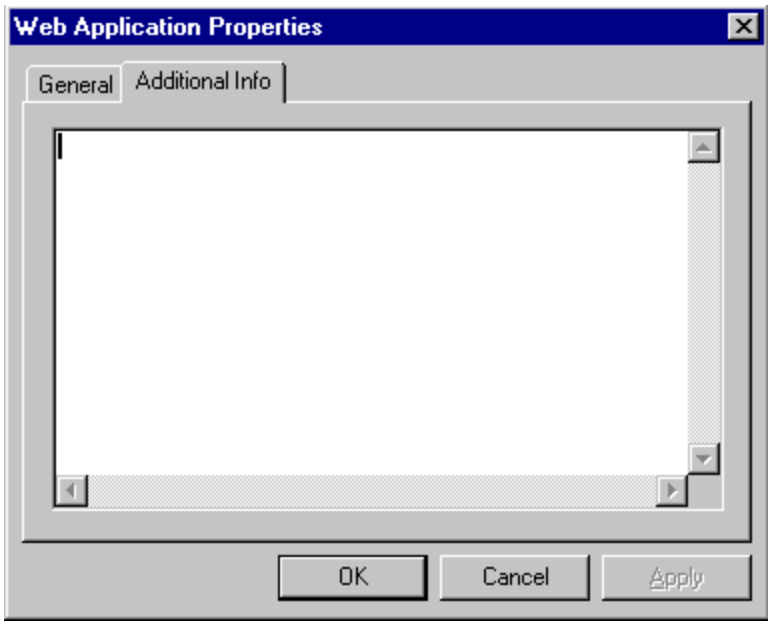
   The Web Application Properties window displays. It contains two tabs: General and Additional Info.

Web Application Properties, General page



1. In the Name field, enter a name for the AMVER search area.
2. Click the Additional Info tab.

Web Application Properties, Additional Info Page



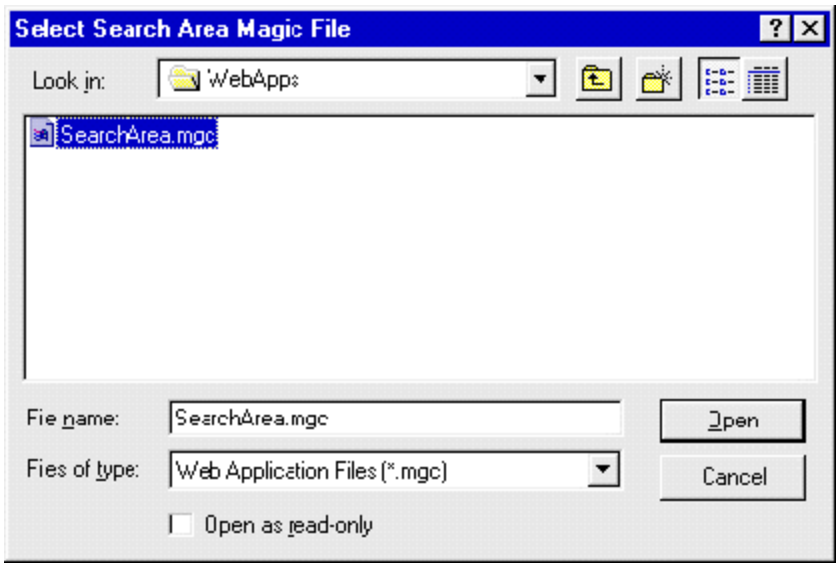
3. Enter any notes about the AMVER item. This information is optional.
4. Click OK to save this AMVER item or Cancel to not save it.

The new AMVER item will be added to the Web Applications folder.

5. To select the Magic file, perform one of the following:

- From the context menu for Web Applications in the Window Area, select the previously entered AMVER item. Click the right mouse button and choose Associate > Search Area. The Select Search Area Magic File window is displayed.

Select Search Area Magic File window



Browse for the desired magic (.mgc) file that contains the search area information.

Select the file and click the Open button.

- From the context menu, select a range rectangle or range ring and drag in to the web application directory.
- From the context menu, select a range rectangle or range ring and click the right mouse button. Select Copy. Select the Web application directory, click the right mouse button, and select Paste.

6. From the context menu for Web Applications in the Window Area, select the previously entered AMVER item. Click the right mouse button and choose Connect. The Browser is launched and the connection is made to the AMVER internet website.
7. From the Browser, select the magic file. AMVER will process the information and ask the user to specify a file to save the returned information in.
8. When the file has been saved, it will be added beneath the AMVER object in the tree view.

How do I access the SLDMB web application?

The SLDMB option enables you to send a .mgc file with search area information to the SLDMB internet website. They will process this information and send a results file back containing plotted locations of Self Locating Datum Marker Buoys within the specified search area. This information can then be plotted on the C2PC map.

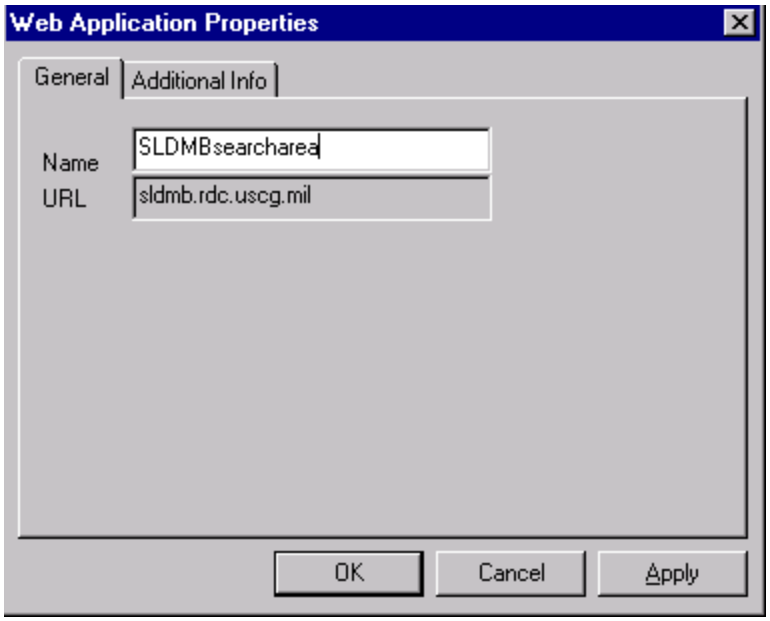
To access the SLDMB internet website:

1. Access the SLDMB internet website using *one* of these methods:
   - From the Edit menu, choose Web Applications > New > SLDMB.

- From the context menu for Web Applications in the Window Area, choose New > SLDMB.
- Click the SLDMB button ( ) in the Objects toolbar.

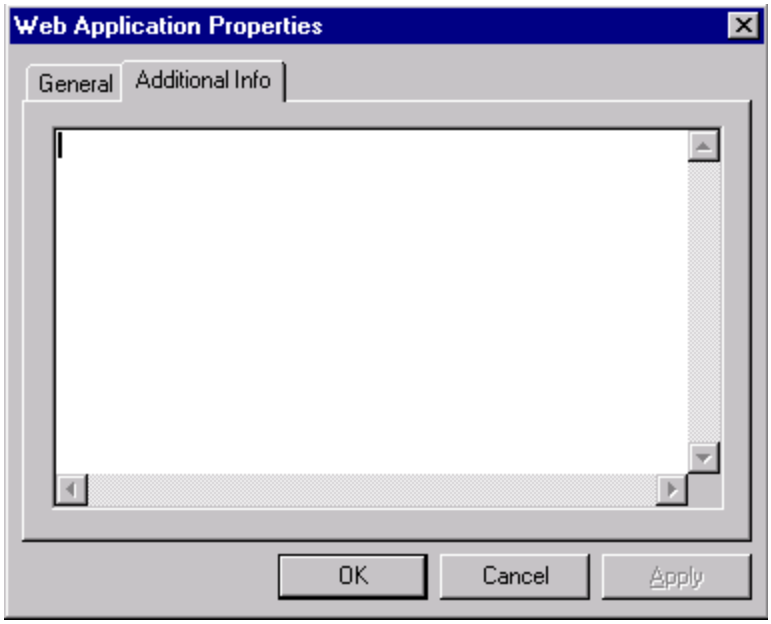
The Web Application Properties window displays. It contains two tabs: General and Additional Info.

Web Application Properties, General page



1. In the Name field, enter a name for the SLDMB search area.
2. Click the Additional Info tab.

Web Application Properties, Additional Info Page



3. Enter any notes about the SLDMB item. This information is optional.

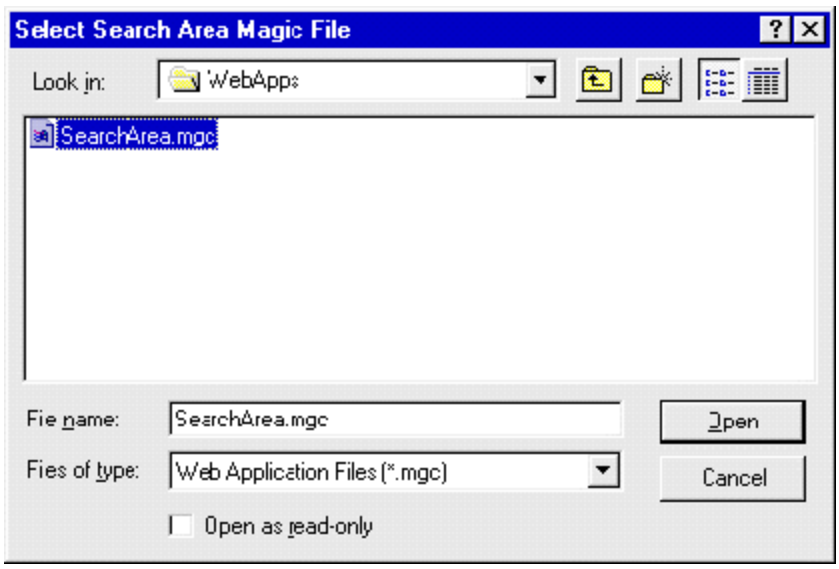
4. Click OK to save this SLDMB item or Cancel to not save it.

The new SLDMB item will be added to the Web Applications folder.

5. To select the Magic file, perform one of the following:

- From the context menu for Web Applications in the Window Area, select the previously entered AMVER item. Click the right mouse button and choose Associate > Search Area. The Select Search Area Magic File window is displayed.

Select Search Area Magic File window



Browse for the desired magic (.mgc) file that contains the search area information.

Select the file and click the Open button.

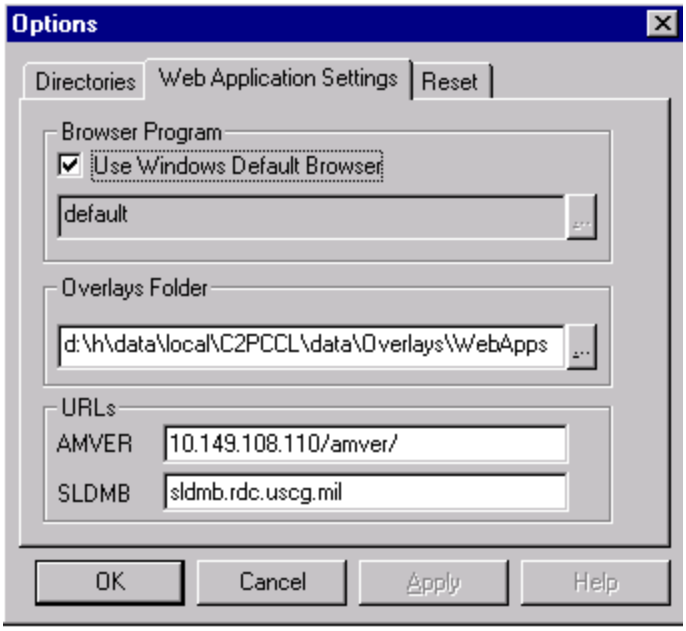
- From the context menu, select a range rectangle or range ring and drag in to the web application directory.
- From the context menu, select a range rectangle or range ring and click the right mouse button. Select Copy. Select the Web application directory, click the right mouse button, and select Paste.

6. From the context menu for Web Applications in the Window Area, select the previously entered SLDMB item. Click the right mouse button and choose Connect. The Browser is launched and the connection is made to the SLDMB internet website.
7. From the Browser, select the magic file. SLDMB will process the information and ask the user to specify a file in which to save the returned information.
8. When the file has been saved, it will be added beneath the SLDMB object in the tree view.

How do I modify Web Application settings?

1. Access the Options window by selecting Options from the Tools menu.
2. Click the Web Application Settings tab.

Options window, Web Application Settings page



3. Change the default browser, overlays folder, or URLs as needed.
4. Click Apply to save changes and remain in the Options window.
5. Click OK to save changes and exit the Options window.
6. Click Cancel to exit the Options window without saving changes.

Flares

- How do I plot a flare sighting?
- How do I edit a flare sighting?
- How do I save a flare sighting as a text file?

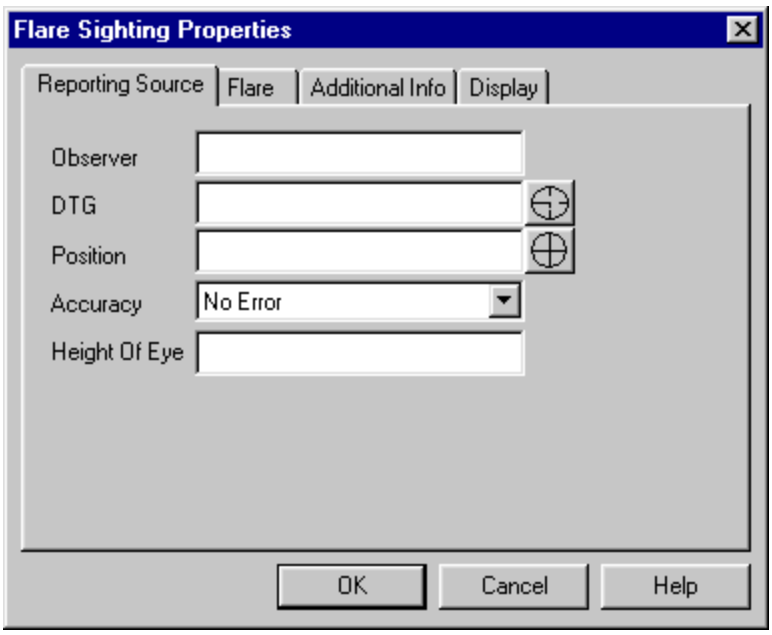
Practice these operations: Place a flare sighting.

How do I plot a flare sighting?

1. Open the Flare Sightings Properties window using *one* of these methods:
   - From the Edit menu, choose Flares > New.
   - From the context menu for Flares in the Window Area, choose New.
   - On the Objects toolbar, click the Flares button ( ).

   The Flare Sighting Properties window appears, displaying the Reporting Source tab.

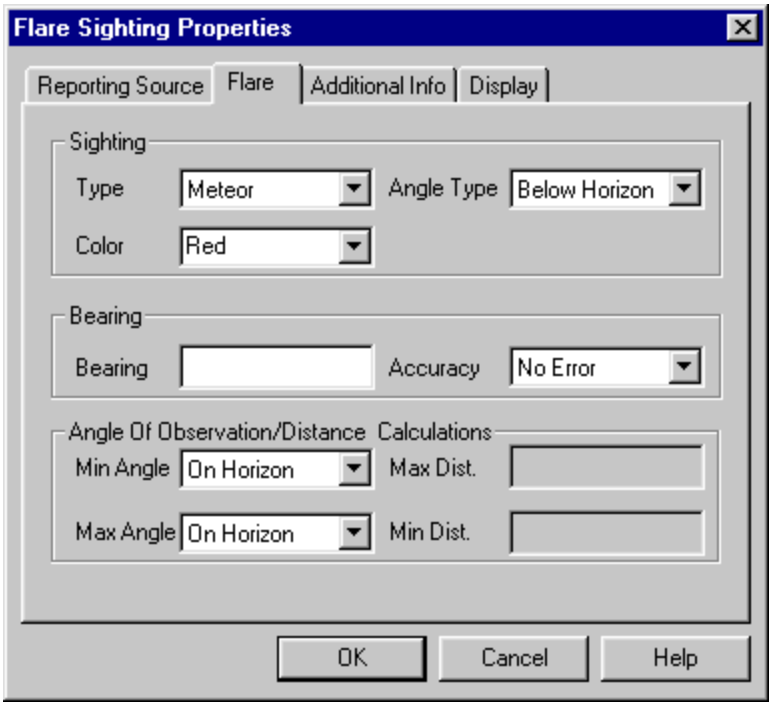
   Flare Sighting Properties Window, Reporting Source Tab



2. In the Observer field, enter the name of the person who saw the flare. The flare's name in the tree directory reflects this name.
3. In the DTG field, specify the date-time group of the observer either by entering its numerical values or by using the Crosshairs button (as described in Using the Crosshairs button).
4. In the Position field, specify the observer's position either by entering its numerical values or by using the Crosshairs button (as described in Using the Crosshairs button).
5. In the Accuracy field, select the accuracy of the observer's position from the list. The list includes No Error and several error ranges.

6. In the Height Of Eye field, enter the height of the observer's eye (typically in feet).
7. Click the Flare tab.

Flare Sighting Properties Window, Flare Tab



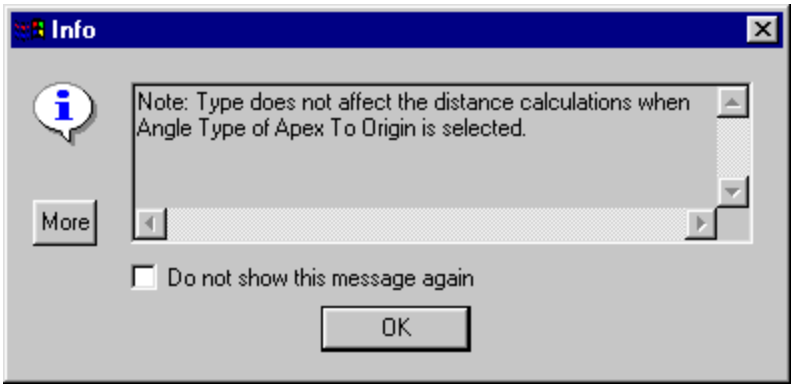
8. In the Type field, select the type of flare that was observed.

   If you select Handheld, the Angle Type field displays Below Horizon and is uneditable. The height of a handheld flare is assumed to be 10 feet.

9. In the Angle Type field, select the type of angle from the list.

   If you select Apex to Origin, a dialog box appears.

Info Dialog Box, Apex to Origin



This dialog box appears each time you select Apex to Origin, unless you disable it.

- *To disable the info dialog box*

- *To reset the message box so that it appears again*

10. In the Color field, select the color for the flare. You may also enter a color not in the list manually.

Note: This field is not necessarily the same as the Color field on the Display tab. If you select one of the colors from the list in the Flare color field, the Display color field changes to match. However, selecting the Display color does not force the Flare color to match.

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11. In the Bearing field, enter the direction in which the observer saw the flare, in degrees true. For example, if the flare was northwest of the observer, then the entry should be `315`.

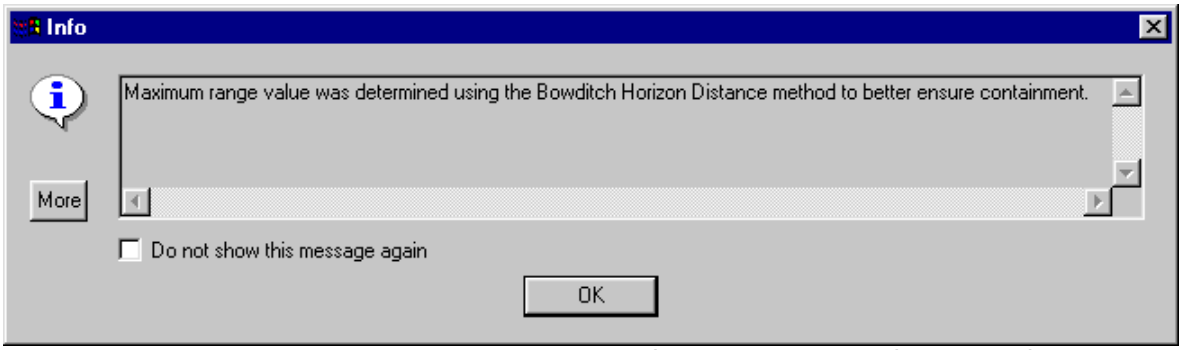
12. In the Accuracy field, select the accuracy of the flare's position from the list. The list includes No Error and several error ranges.

13. In the Min Angle field, select the minimum angle above or below the horizon from the list.

    If you selected Apex to Origin in the Angle Type field, you cannot select On Horizon. A warning dialog box appears, and `.5` degree is entered for you.

    If you select On Horizon after selecting Above or Below Horizon in the Angle Type field, a dialog box appears.

Info Dialog Box, On Horizon



This dialog box appears each time you select On Horizon after selecting Above or Below Horizon in the Angle Type field, unless you disable it.

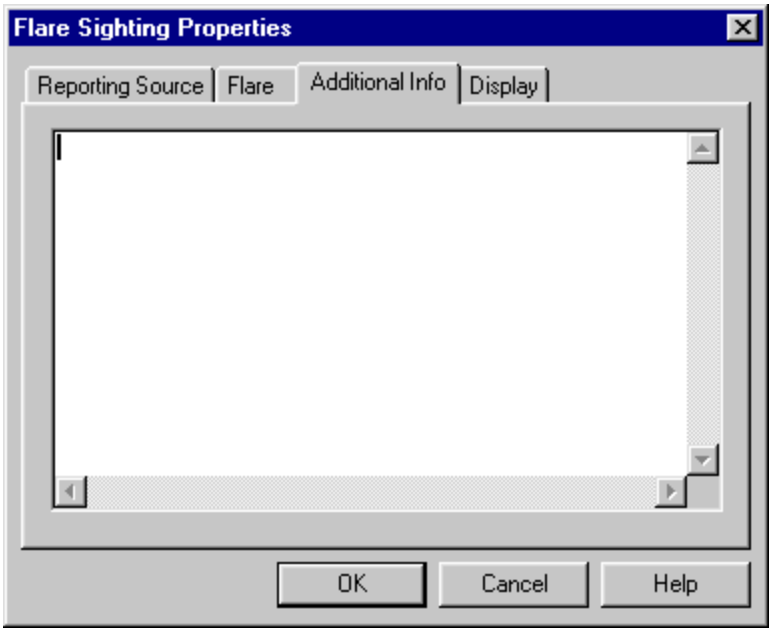
- *To disable the info dialog box*
- *To reset the message box so that it appears again*

14. In the Max Angle field, select the maximum angle above (or below) the horizon from the list.

The Max Dist. and Min Dist. fields reflect the maximum and minimum distance between the flare and the observer according to the selections in this window and the Height of Eye field from the Reporting Source tab.

15. Click the Additional Info tab.

Flare Sighting Properties Window, Additional Info Tab



16. Enter any notes about the flare sighting. This information is optional.
17. Click the Display tab.

Flare Sighting Properties Window, Display Tab

The Display tab controls how the flare appears on the C2PC map.

18. To plot the flare in the C2PC map, select the Plot checkbox. If the checkbox is clear, the icon does not appear on the map.

19. To select a color for the flare plot, click the Color button and select a color. (See Selecting Colors for more details.)

Note: This field is not necessarily the same as the Color field on the Flare tab. If you select one of the colors from the list in the Flare color field, the Display color field changes to match. However, selecting the Display color does not force the Flare color to match.

Try it yourself: Place a flare sighting.

How do I edit a flare sighting?

1. Open the Flare Sightings Properties window using *one* of these methods:
   - Select a flare in the tree directory, and select Properties from the Edit menu.
   - Select a flare in the tree directory, and select Flares > Properties from the Edit menu.
   - Right-click the flare in the tree directory. From its context menu, select Properties.
2. Select the tab with the information you wish to change and edit the fields you wish to change. See How do I plot a flare sighting? for more information on the fields in this window.
3. Click OK to apply the changes to the flare.

How do I save a flare sighting as a text file?

1. Open the Save As Text File window using *one* of these methods:
   - Select a flare in the tree directory, and select Flares > Save Summary from the Edit menu.
   - Right-click the flare in the tree directory. From its context menu, select Save Summary.
2. Select the directory in which to save the file and click Save.

Loran Calculator

- How can I access the Loran Calculator?
- How do I use the Loran Calculator?

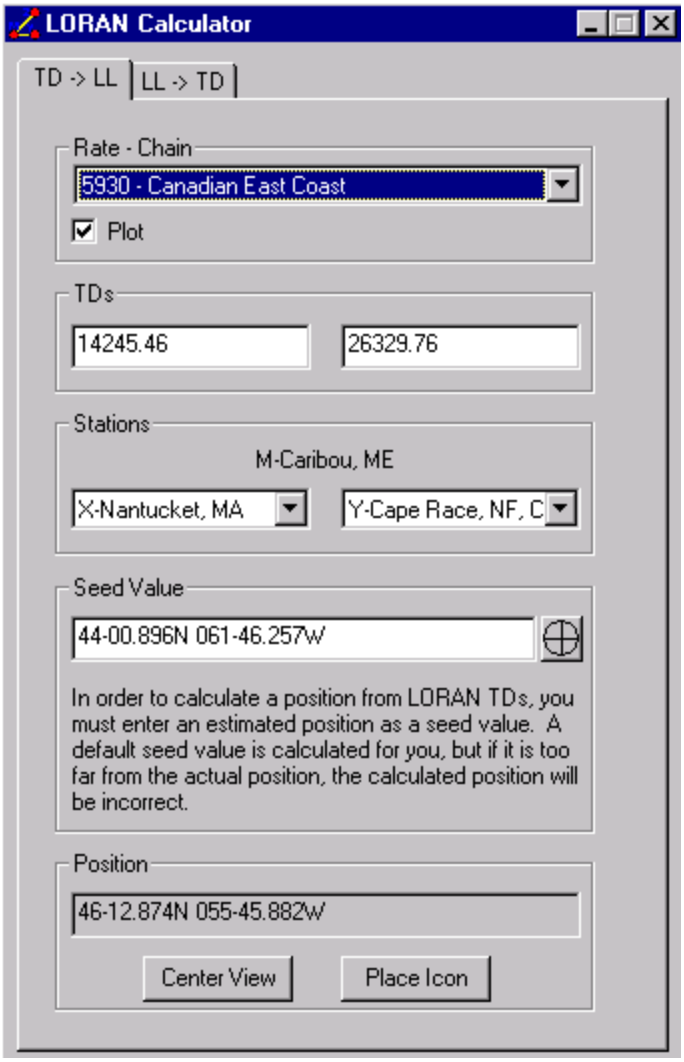
How can I access the Loran Calculator?

You can open the Loran Calculator using *one* of these methods:

- Click the Loran Calculator button ( ) in the Standard toolbar.
- From the Tools menu, select Loran Calculator.

The Loran Calculator window displays.

Loran Calculator Window



Note: The Center View button will be inactive and the Place Icon button will be displayed as Show Errors ( ) until all information is entered correctly.

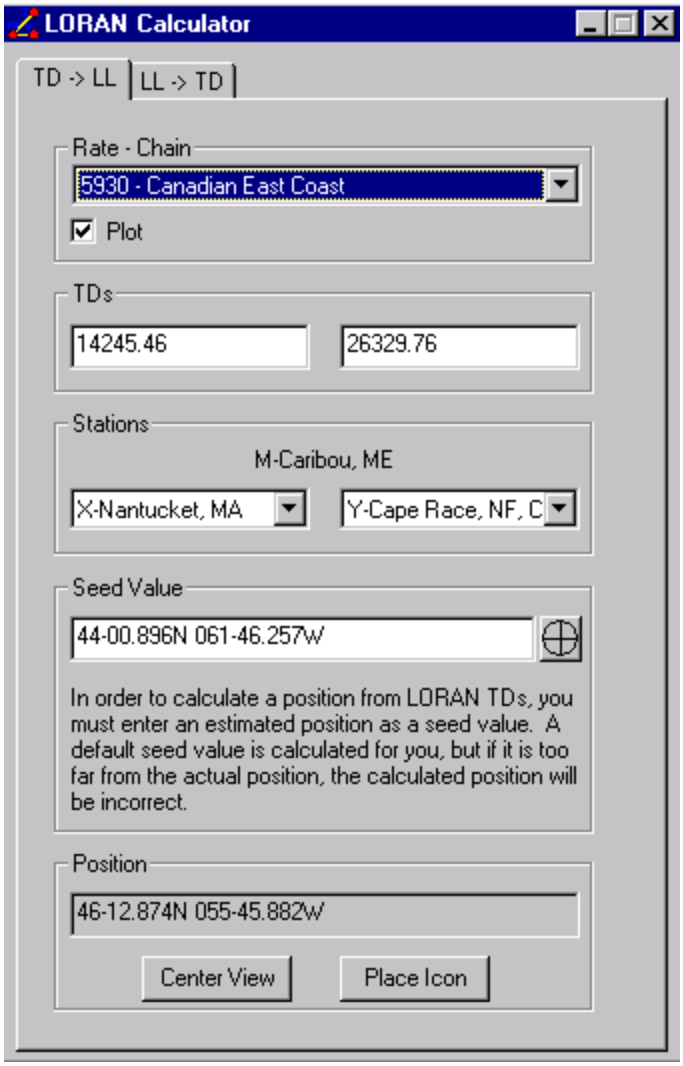
How do I use the Loran Calculator?

Use the Loran Calculator to convert time differentials to Latitude/Longitude and vice versa.

1. To convert a Rate - Chain from Time Differential to Latitude/Longitude, perform the following:

    a. Open the Loran Calculator using one of the methods described above. The Loran Calculator window appears, displaying the TD -> LL tab.

Loran Calculator TD -> LL Tab



b. Select the Rate - Chain.

c. To plot the chain on the C2PC map, select the Plot checkbox. If the checkbox is clear, the chain does not appear on the map.

d. In the TDs fields, enter the time differentials.

e. Normally, the Stations fields will auto-fill based on the TDs fields. If necessary, select the desired station from the drop-down list that is displayed.

f. In the Seed Value field, a seed value will be generated; you may enter another seed value if needed.

g. When all information has been entered correctly, the latitude/longitude position will be displayed in the Position field. If applicable, the Show Errors button will present a warning box detailing the missing information or error condition.

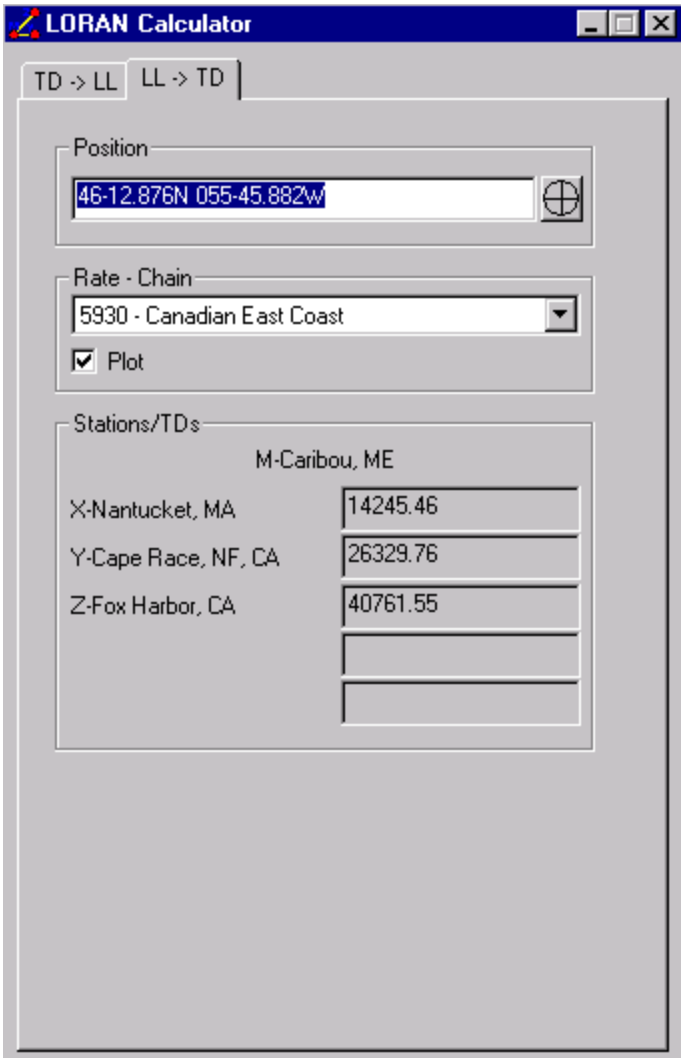
h. Click Center View to center the C2PC map around the given position.

i. Click Place Icon to place an icon at this position on the map.

2. To convert Time Differentials, perform the following:

   a. Click the LL -> TD tab. The LL -> TD window appears.

Loran Calculator LL -> TD Tab



   b. In the Position field, enter a valid latitude/longitude.

   c. Select a Rate - Chain.

   d. To plot the chain the in C2PC map, select the Plot checkbox. If the checkbox is clear, the chain does not appear on the map.

   e. The stations and time differentials for that position and rate - chain will be displayed in the Stations/TDs fields.

Sweep Width Tables

- How can I access sweep width tables?

- How can I use Sweep Width tables with the AMS Effort Worksheet?

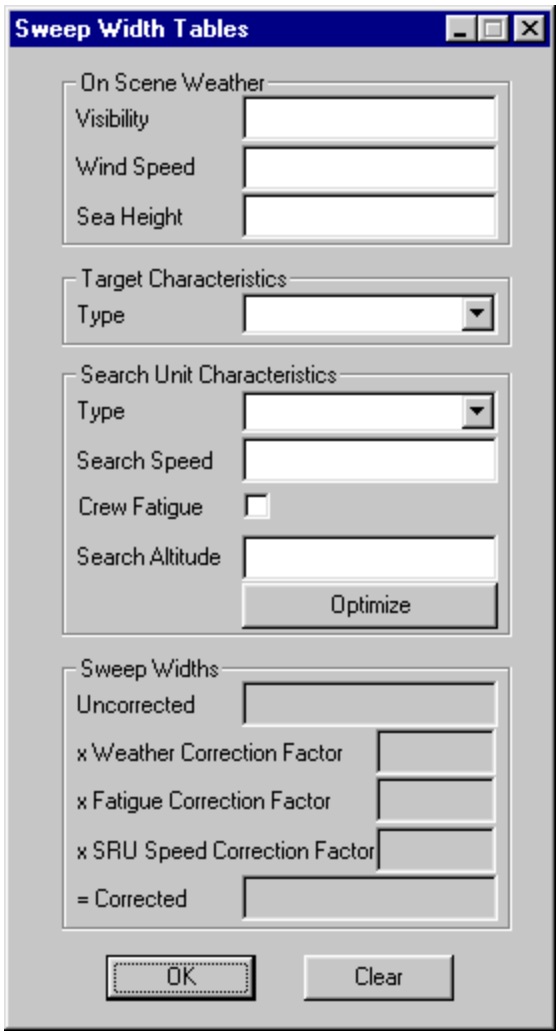
How can I access sweep width tables?

You can open sweep width tables using *one* of these methods:

- Click the Sweep Width Tables button ( ) in the Standard toolbar.
- From the Tools menu, select Sweep Width Tables.

The Sweep Width Tables window appears.

Sweep Width Tables Window



1. In the Visibility field, enter the on-scene visibility distance.
2. In the Wind Speed field, enter the on-scene wind speed.
3. In the Sea Height field, enter the on-scene sea height.
4. In the Target Characteristics box, select the type of search target.
5. In the Search Unit Characteristics box, select the type of search unit.
6. In the Search Speed field, enter the search speed of the search unit.

7. To apply a .9 fatigue correction factor, select Crew Fatigue.
8. In the Search Altitude field, enter the altitude of the search unit.

   You can also click the Optimize button to allow the sweep width calculator to select the best search altitude, based on the visibility, the target characteristics, and the search unit type.

The bottom portion of the window (the Sweep Widths box) displays the calculations used to determine the corrected sweep width.
To exit this window, click OK.
To empty the entries you have made in this window, click Clear.

How can I use Sweep Width tables with the AMS Effort Worksheet?

The first page of the AMS Effort Worksheet includes a Sweep Width button for each search unit. Click this button to open the Sweep Width Tables window. See Effort Worksheet, Page One for explicit instructions on using the window to apply automatic sweep width calculations to an AMS case.

AMS cases, worksheets

- How do I open a new AMS worksheet?
- How do I edit an existing AMS worksheet?
- How do I import previous search information into a successive AMS worksheet?
- How do I view and print an AMS summary sheet?
- How do I associate a search pattern with an AMS case?
- How do I save an AMS summary sheet as a text file?

Practice these operations: Open a new SAR Plan and complete an Automated Manual Solution (AMS) worksheet.

How do I open a new AMS worksheet?

You can open a new AMS case using *one* of these methods:

- Click the New AMS Case button ( ) in the Objects toolbar.
- Right-click the AMS folder in the tree directory.

  From the context menu, select New.
- From the Edit menu, select AMS Cases > New.

Any of the above actions creates a new, unnamed AMS case under the AMS folder in the tree directory. At the same time, the first page of the Datum Worksheet appears (see Datum Worksheets for instructions).
Try it yourself: Open a new SAR Plan and complete an Automated Manual Solution (AMS) worksheet.

How do I edit an existing AMS worksheet?

You can edit an existing AMS case using *one* of these methods:

- Double-click the AMS case in the tree directory. The first page of the Datum Worksheet appears.
- Click once on the AMS case in the tree directory. From the AMS toolbar, click the worksheet button that corresponds to the worksheet you wish to edit. That worksheet appears.

	Datum Worksheets 1-4
	Area Worksheets 1-4
	Effort Worksheets 1-2

- Double-click the AMS case in the tree directory. The first page of the Datum Worksheet appears.
- Click once on the AMS case in the tree directory. From the Edit menu, select Properties. The first page of the Datum Worksheet appears.
- Click once on the AMS case in the tree directory. From the Edit menu, select AMS Cases > Properties. The first page of the Datum Worksheet appears.
- Click once on the AMS case in the tree directory. From the AMS menu, select Worksheets.

  a. From the Worksheets sub-menu, select one of the worksheets:

     - Datum
     - Area
     - Effort

     Another submenu appears, containing an option for each page of the selected worksheet.

  b. Select the page you wish to edit. That worksheet appears.

Example: You have an AMS case titled “tctest”. You wish to edit page 2 of the Area Worksheet.

1. Select tctest in the tree directory.
2. From the AMS menu, select Worksheets > Area > Page 2. Page 2 of the Area Worksheet for tctest appears.

See Automated Manual Solution for details on all the AMS worksheets.

How do I import previous search information into a successive AMS worksheet?

1. Select the AMS case for which you wish to plan a subsequent search.
2. From the AMS menu, select Plan Subsequent Search.

   The AMS case is duplicated at the bottom of the list of AMS cases in the tree directory. The next letter of the phonetic alphabet is added to the end of the case name.

The Phonetic Alphabet

A	Alpha	**J**	Juliett	**S**	Sierra
B	Bravo	**K**	Kilo	**T**	Tango
C	Charlie	**L**	Lima	**U**	Uniform
D	Delta	**M**	Mike	**V**	Victor
E	Echo	**N**	November	**W**	Whiskey
F	Foxtrot	**O**	Oscar	**X**	Xray
G	Golf	**P**	Papa	**Y**	Yankee
H	Hotel	**Q**	Quebec	**Z**	Zulu
I	India	**R**	Romeo		

For each subsequent search, all effort worksheets are cleared so you cannot accidentally carry SRUs from one search to another.

For Example: Your first search is name `Raft Search`. The subsequent search is named `Raft Search (Bravo)`. The third search becomes `Raft Search (Charlie)`.

See Automated Manual Solution for details on all the AMS worksheets.

How do I view and print an AMS summary sheet?

To view the summary window for an AMS case:

1. In the tree view, click an AMS case.
2. From the Edit menu, select AMS Cases > Summary. The summary window for the selected AMS case appears.

To print a search pattern summary

1. Open the search pattern summary.
2. Click on the title bar icon ( ). The summary window menu appears.
3. Select Print.

For more information, see AMS Case Summary Window and Using Textual Windows.

How do I save an AMS summary sheet as a text file?

1. Open the Save As Text File window using *one* of these methods:
   - Select an AMS case in the tree directory, and select Summary > Save As Text from the AMS menu.
   - Select an AMS case in the tree directory, and select AMS Cases > Save Summary from the Edit menu.
   - Right-click the AMS case in the tree directory. From its context menu, select Save Summary.
2. Select the directory in which to save the file and click Save.

Tides and Currents

- How do I use Tides and Currents?
- How do I display tides and currents?
- How do I view the data for tides and currents for the next 24 hours?
- How do I find the correct time zone?
- How do I use the World Map of Time Zones to convert times?
- How do I remove tides and currents from the C2PC map?

Practice these operations: Display tidal currents.

How do I use Tides and Currents?

The Nautical Software's Tides&Currents™ for Windows software (referred to as Tides&Currents throughout this User's Guide) can be used both to display tides and currents on the C2PC map and to estimate the tidal current vector within the AMS option (see Datum Worksheet (Tidal Current)).
For complete instructions, see the following sections:

- How do I display tides and currents?
- How do I view the data for tides and currents for the next 24 hours?
- How do I find the correct time zone?
- How do I use the World Map of Time Zones to convert times?
- How do I remove tides and currents from the C2PC map?

How do I display tides and currents?

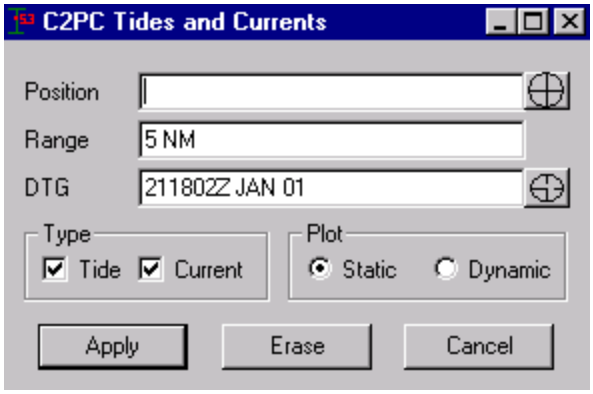
1. In C2PC, zoom in very close to the position you are going to display the tides and currents. Otherwise, the indicators for the tides and the currents will appear very large on the map.

If this happens, remove the tides and currents from the map, zoom in closer, and try to display them again.

2. In SAR Tools, open the C2PC Tides and Currents window using *one* of the following methods:

   - On the Standard toolbar, click the Tides & Currents button ( ).
   - From the Tools menu, select Tides & Currents.

C2PC Tides and Currents Window



3. In the Position field, enter the coordinates of the point around which to display the tides and currents either by entering its numerical value or by using the Crosshairs button (as described in Using the Crosshairs button).

4. In the Range field, enter the radius of the area in which to display the tides and currents. For example, if you wish to display tides and currents six nautical miles out from the point entered in the Position field, enter `6`.

5. The DTG field defaults to the date and time that the SAR-PC Tides and Currents window is launched. You may enter any other date-time group for the tides and currents. To re-set the field to the current date-time group, either click the Crosshairs button or press `@(shift-2)`.

6. The Type box contains a Tide checkbox and a Current checkbox. To plot either the tides or the currents, ensure that the corresponding checkbox is selected. You may also plot both tides and currents at the same time.

7. In the Plot box, specify the type of plot as follows:

   - To display the tides and currents as entered in this window, select Static. The tides and currents plotted on the C2PC map will not change until edited.
   - To constantly update the display of the tides and currents on the C2PC map, select Dynamic. USCG SAR Tools will update the information from the Tides&Currents software every minute and display the new information on the C2PC map.

8. Click Apply to plot tides and currents as described in this window.

Try it yourself: Display tidal currents.

How do I view the data for tides and currents for the next 24 hours?

1. Display the tides and currents for an area (as described in How do I display tides and currents?).
2. To view information on a current, click the small green dot in the center of a current arrow.
3. To view information on tide height, click the small red dot at the bottom of a tidal measurement.

Try it yourself: Display tidal currents.

How do I find the correct time zone?

The *World Map Of Time Zones* contains information that enables you to determine any given time zone. The map is an unofficial map provided courtesy of HM Nautical Almanac Office @ Copyright Council for the Central Laboratory of the Research Councils.

How do I use the World Map of Time Zones to convert times?

It is sometimes necessary to convert Zulu time to Local time, such as when using the Tides&Currents for Windows software (which operates in Local time).
The *World Map Of Time Zones* considers that Standard time equals Universal time plus or minus a value from the table on the map. Standard time is the Local time unless Daylight Savings time (DST) is in effect.
Universal time is synonymous with Greenwich Mean time (GMT), but currently radio time signals are usually based on Coordinated Universal time (UTC) which requires a small correction DUT of less than 0.9s. For most purposes this is ignored, except for when computing accurate astro-navigation.

How do I find the correct time zone?

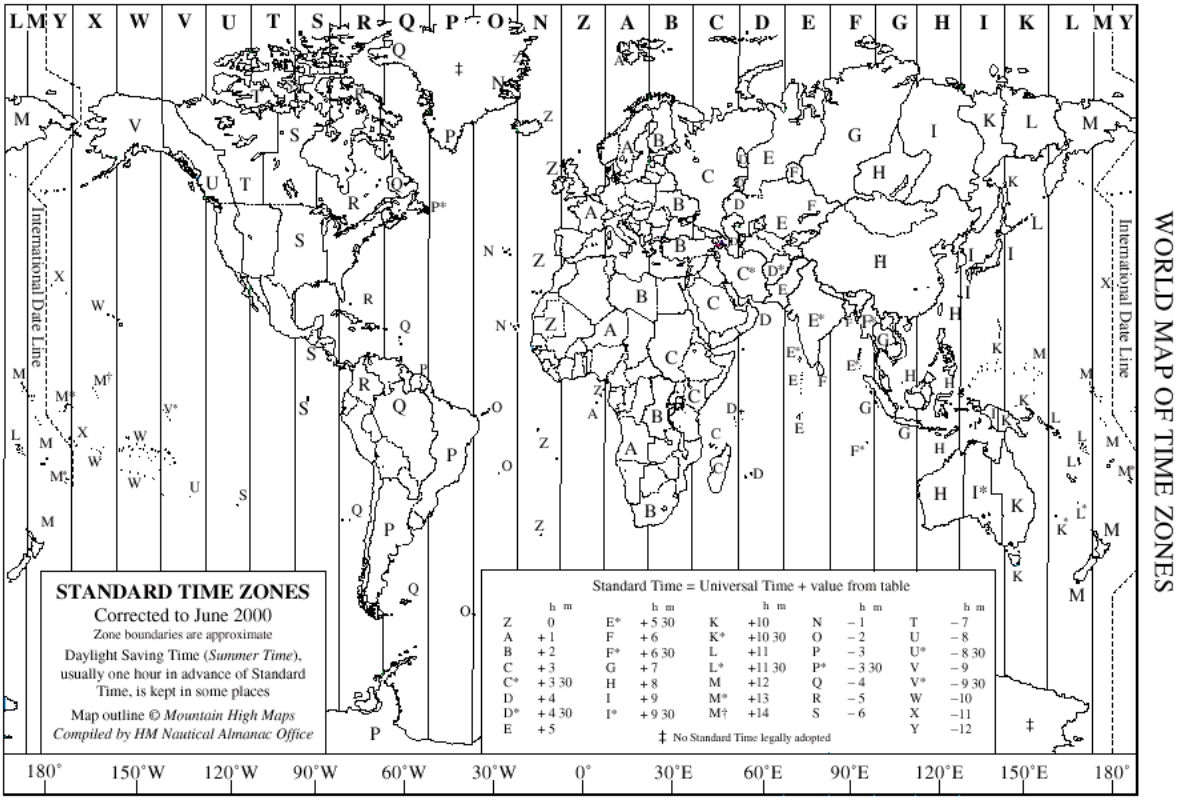
- The World Map of Time Zones contains information that enables you to determine any given time zone. The map is an unofficial map provided courtesy of HM Nautical Almanac Office @ Copyright Council for the Central Laboratory of the Research Councils.

How do I use the World Map of Time Zones to convert times?

It is sometimes necessary to convert Zulu time to Local time, such as when using the Tides&Currents for Windows software (which operates in Local time).

The World Map of Time Zones considers that Standard time equals Universal time plus or minus a value from the table on the map. Standard time is the Local time unless Daylight Savings time (DST) is in effect.

Note: Universal time is synonymous with Greenwich Mean time (GMT), but currently radio time signals are usually based on Coordinated Universal time (UTC) which requires a small correction DUT of less than 0.9s. For most purposes this is ignored, except for when computing accurate astro-navigation.



To convert GMT (UT) to Local time:

ST= GMT (or UT) + a value from the table
To add the effect of Daylight Savings Time (DST)
DST= ST + 1hr
Example 1:

If it is 1200 GMT, find the time in Washington, DC in Standard time (ST) as follows:
Standard Time in Washington = GMT + (value from the table)

ST = 1200 -5hrs. (using the R Time Zone) = 0700

Example 2:

If it is 1200h GMT, find the time in Washington, DC in Daylight Savings Time (DST) as follows:
Standard Time in Washington = GMT + (value from the table) + the effect of Daylight Savings Time

ST = 1200 -5hrs. (using the R Time Zone) = 0700

Add the effect of Daylight Savings Time (DST): DST= ST + 1hr
DST= 0700 + 1hr= 0800

To convert Local time to GMT:

Remove the effect of Daylight Savings time to get Standard time (ST) and then use the following:
(GMT = UT = ST – a value from the table).
Example 3:

If it is 1200h Standard Time (ST) in Washington, find the time in GMT (in London) as follows:

Standard time in Washington = 1200 - 0h = 1200 (since Daylight Savings Time is not in effect).

GMT = 1200 - (-5hrs.) = 1700

Example 4:

If it is 1200 Daylight Savings Time (DST) in Washington, find the time in GMT (in London) as follows:

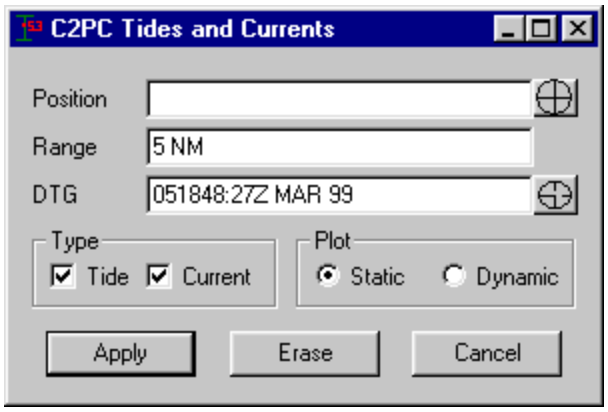
Standard time in Washington = 1200 - 1hr. = 1100

GMT = 1100 - (-5hrs.) = 1600

How do I remove tides and currents from the C2PC map?

1. Open the C2PC Tides and Currents window using *one* of these methods:
   - On the Standard toolbar, click the Tides & Currents button ( ).
   - From the Tools menu, select Tides & Currents.

C2PC Tides and Currents Window



2. Clear all the fields in this window.
3. Click Erase.
4. Click Apply.

C2PC Quick Start

- C2PC Maps, Views

  Tutorials:

  – Display map features.

  – Change map colors.

  – Switch from a vector map to a BSB chart.

  – Set precision standards and units of measure.

- Icons

  – Tutorial: Place an icon using quick point.

- Overlays

  Tutorials:

  – Turn on an overlay.

  – Plot a PIM Track.

See also the SAR Tools Quick Start.
For specific C2PC help, see the help files that come with C2PC. Access them from the Help menu in C2PC.
For answers to general questions about C2PC, SAR Tools, and GDOC, see Frequently Asked Questions.

C2PC Maps, Views

- How do I use map features?
- How do I change map colors?
- How do I switch from a vector chart to a BSB chart?
- How do I set precision standards and units of measure?

  Practice these operations:

  – Display map features.

  – Change map colors.

  – Switch from a vector map to a BSB chart.

  – Set precision standards and units of measure.

How do I use map features?

You use the Map Features option to display certain things on the C2PC map (for example, latitude/longitude grid lines, political boundaries).

To display a map feature

In C2PC, select Features > [feature name] from the Map menu.
Example: To display political boundaries, select Map > Features > Pol Boundaries.
For details, see the C2PC help file:
In C2PC:

1. From the Help menu, select Contents and Index.
2. On the Contents tab, double-click Map Menu.
3. From the options that appear under Map Menu, double-click Features.

<hr color="3030ff">Try it yourself: Display map features.

How do I change map colors?

1. In C2PC, select Map Colors from the Map menu. The Map Colors window appears.
2. Select colors for the land, the water, gridlines, and political boundaries.

For details, see the C2PC help file:
In C2PC:

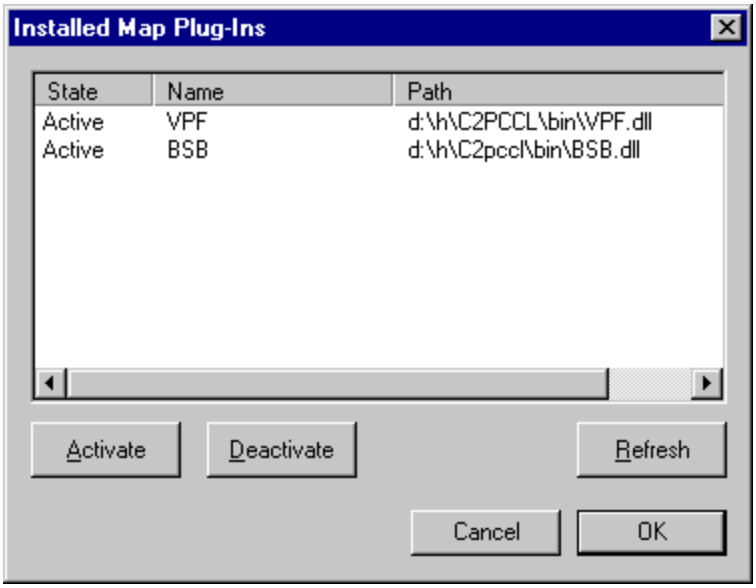
1. From the Help menu, select Contents and Index.
2. On the Contents tab, double-click Map Menu.
3. From the options that appear under Map Menu, double-click Map Colors.

Try it yourself: Change map colors.

How do I switch from a vector chart to a BSB chart?

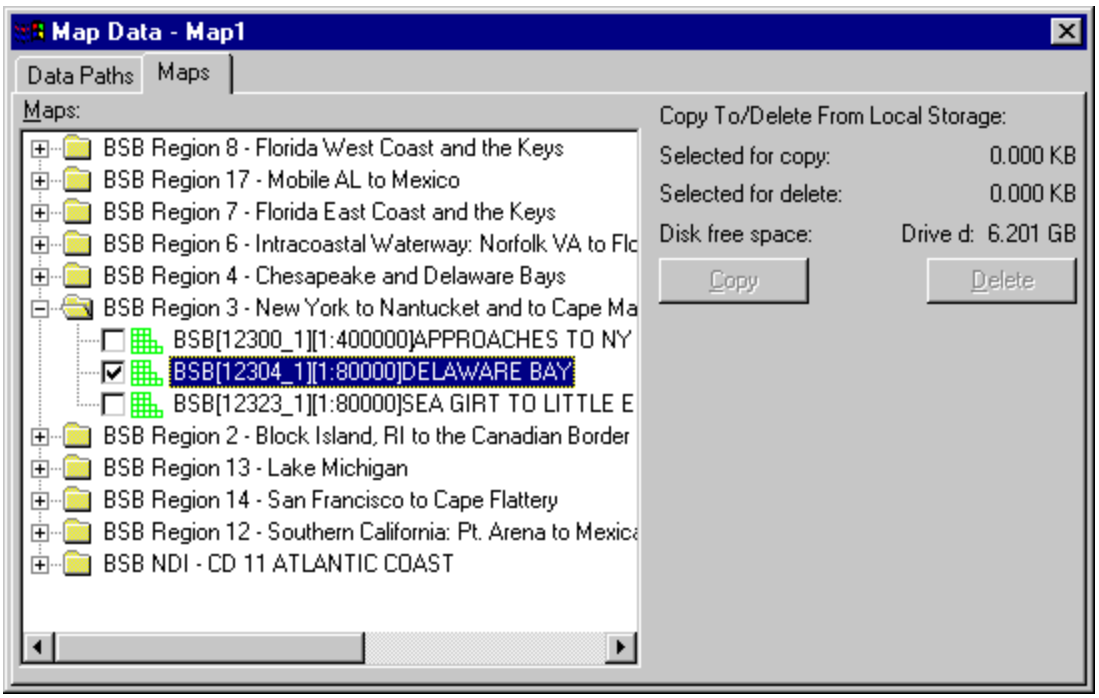
1. In C2PC, select Map Plug-Ins from the Map menu. The Installed Map Plug-Ins window appears.

Installed Map Plug-Ins Window



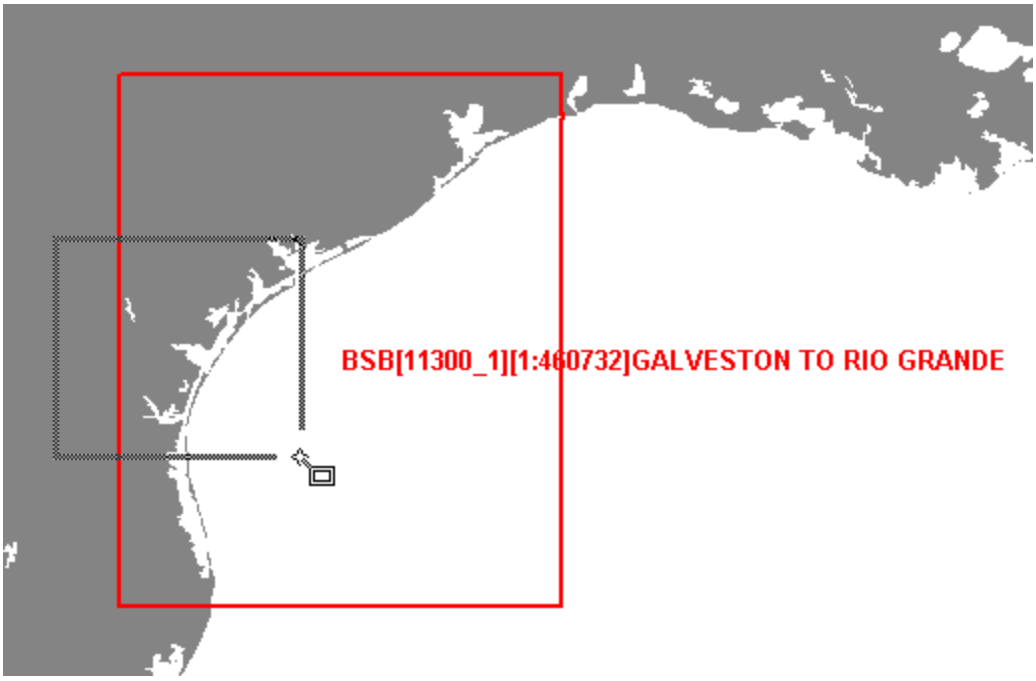
2. Ensure that both VPF (vector) and BSB are activated. Their state is indicated in the window as either Active or Inactive.
   a. If they are inactive, select one of them.
   b. Click Activate.
   c. Repeat steps a and b for the other.
3. Click OK to close the window.
4. Zoom in towards the area that contains the BSB chart you wish to view.
5. From the Map menu, select Map Data. The Map Data window appears.

Map Data Window



6. To view a region's available BSB charts, click the plus sign in front of the region's folder. A list of available BSB charts appears.
7. Check the BSB chart you wish to view. A red box appears on the C2PC map, indicating the area of the BSB chart.
8. Close the Map Data window (click the X in the top right corner of the window - ☒).
9. Zoom into the map, ensuring that the zoomed area is at least partly inside the red box (see the example below).

Example of Zooming into a BSB Chart Area



10. From the Map menu, select Quick Draw. The BSB chart appears.
11. To remove the red box around the chart (and the chart title), click the Toggle Coverages Grid button ( ).

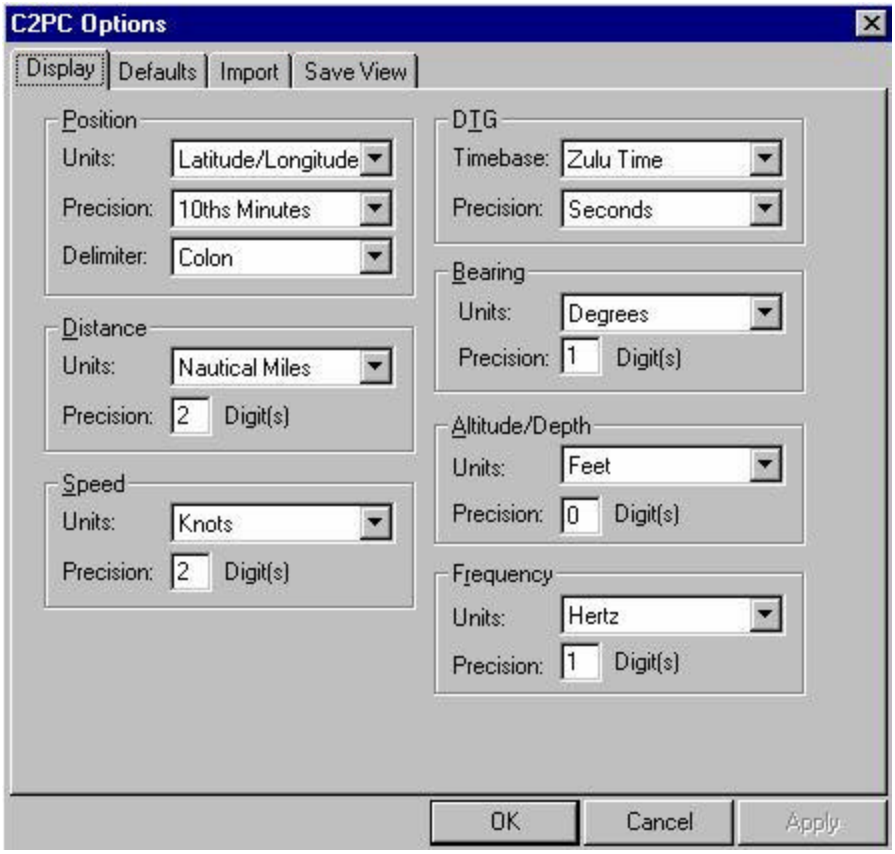
Note: Active BSB charts can slow you computer system's performance, even if you are not actually displaying them. When finished with a BSB chart, deactivate it by clearing its checkbox in the Map Data window.

Try it yourself: Switch from a vector map to a BSB chart.

How do I set precision standards and units of measure?

1. In C2PC, select Options from the Tools menu. The C2PC Options window appears.

C2PC Options Window



2. Set all precision standards and units of measure on the Display tab.

For details, see the C2PC help file:
In C2PC:

1. From the Help menu, select Contents and Index.
2. On the Contents tab, double-click Tools Menu.
3. From the options that appear under Tools Menu, double-click Options.

Tip: If you have C2PC set to use either kilometers or nautical miles (Tools > Options), the distance for a SAR Tools Range/Bearing line adjusts the display unit according to length. If the line is over 10 KM, the map displays the distance in KM; if the line is under 10 KM, the map displays the distance in meters. Likewise, if the line is over 10 NM, the map displays the distance in NM; if the line is under 10 NM, the map displays the distance in yards.

Try it yourself: Set precision standards and units of measure.

Icons

- How do I place an icon?
- How do I convert an icon to an overlay?
- How do I edit an icon?

- How do I remove an icon?
- How do I move an icon?

Practice these operations: Place an icon using quick point.

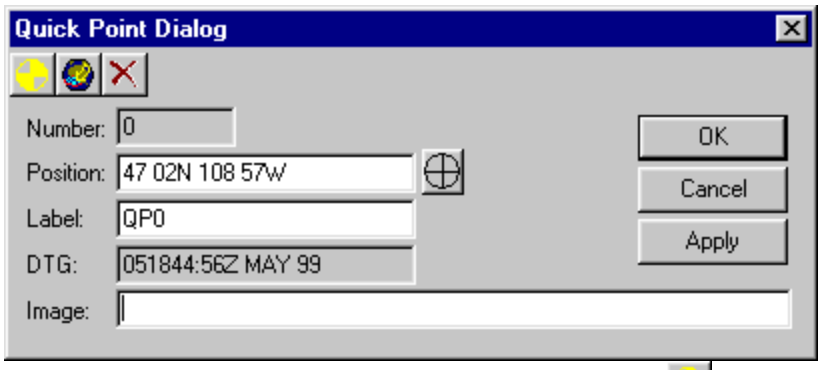
How do I place an icon?

Use Quick Point to place up to 10 icons (figures, shapes, symbols) on the C2PC map.

> **Tip:** You can also use Icons in SAR Tools to plot icons on the C2PC map as part of a SAR plan.

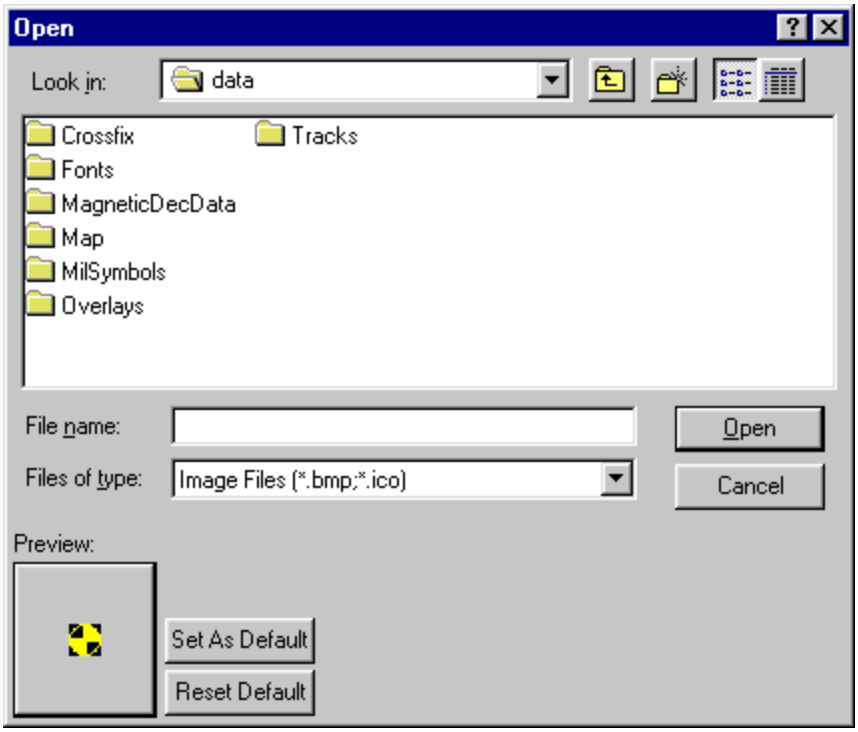
1. In C2PC, select Quick Point from the Tools menu. You can also click the Quick Point button ( ) on the toolbar.
2. Click on the map to place an icon. The default icon is placed (the partially filled yellow circle that appears on the Quick Point button).
3. To change the icon, double-click the icon on the map. The Quick Point Dialog appears.

Quick Point Dialog



4. To change the icon's appearance, click the Select Image button ( ). The Open window appears.

Open (Icon) Window



5. Open the Overlays folder and then the Icons folder. The Icons folder contains several categories of icons. Browse through these folders and select the icon you wish.
6. Click Open. The Image field in the Quick Point Dialog reflects the path of the icon you selected.
7. To change the label of the icon (it appears on the C2PC map next to the icon), enter the text in the Label field.
8. Click OK. The icon you selected is displayed on the C2PC map.

For details on quick point, see the C2PC help file:
In C2PC:

1. From the Help menu, select Contents and Index.
2. On the Contents tab, double-click Tools Menu.
3. From the options that appear under Tools Menu, double-click Quick Point.

Try it yourself: Place an icon using quick point.

How do I convert an icon to an overlay?

1. Double-click the icon to display the Quick Point Dialog.
2. Click the Convert to Overlay button ( ). You are prompted to enter the name and select a place to save the overlay.
3. Click OK.

For details on quick point, see the C2PC help file:
In C2PC:

1. From the Help menu, select Contents and Index.
2. On the Contents tab, double-click Tools Menu.
3. From the options that appear under Tools Menu, double-click Quick Point.

Try it yourself: Place an icon using quick point.

How do I edit an icon?

To edit an existing quick point on the C2PC map, double-click it. The Quick Point Dialog appears.
For details on quick point, see the C2PC help file:
In C2PC:

1. From the Help menu, select Contents and Index.
2. On the Contents tab, double-click Tools Menu.
3. From the options that appear under Tools Menu, double-click Quick Point.

How do I remove an icon?

1. To edit an existing quick point on the C2PC map, double-click it. The Quick Point Dialog appears.
2. Click the Delete button ( ). The Quick Point Dialog closes and the icon is removed from the C2PC map.

For details on quick point, see the C2PC help file:
In C2PC:

1. From the Help menu, select Contents and Index.
2. On the Contents tab, double-click Tools Menu.
3. From the options that appear under Tools Menu, double-click Quick Point.

How do I move an icon?

To move a quick point on the C2PC map, click and drag it to a new location.
For details on quick point, see the C2PC help file:
In C2PC:

1. From the Help menu, select Contents and Index.
2. On the Contents tab, double-click Tools Menu.
3. From the options that appear under Tools Menu, double-click Quick Point.

Overlays

- How do I convert an icon to an overlay?
- How do I turn on an AOR or Hi Site overlay?

- How do I add text and graphics to an overlay?
- How do I create and save an overlay file?
- How do I plot a PIM track?

Practice these operations: Plot a PIM Track.

How do I turn on an AOR or Hi Site overlay?

1. In C2PC, activate overlays.

   From the Tools menu, select Overlays. The Overlays pane appears on the left side of the C2PC window.

2. Open the USCG folder (click the plus-sign next to the USCG folder).
3. Open the folder for the district containing your Area of Responsibility (AOR) or Hi Site.
4. Select the folder for the overlay you wish to display (for example, Groups, Hi-Sites).
5. Select the overlay you wish to display.

Try it yourself: Turn on an overlay.

How do I add text and graphics to an overlay?

1. In C2PC, activate overlays.

   From the Tools menu, select Overlays. The Overlays pane appears on the left side of the C2PC window.

2. Use the tools at the right of the map to add text and shapes.

In C2PC:

1. From the Help menu, select OvlyEdit Help > Contents and Index.
2. On the Contents tab, double-click Tool Palette.
3. Under Tool Palette, double-click the tool for which you need information (for example, Rectangle Tool, Text Tool).

Try it yourself: Place an icon using quick point.

How do I create and save an overlay file?

You can create and save an overlay from a C2PC Quick Point icon.
For detailed instructions, see How do I convert an icon to an overlay?

How do I plot a PIM track?

PIM (Position and Intended Movement) tracks are called *Routes* in C2PC. A route describes a path of movement, or an itinerary, that a vessel has taken or plans to take.

To plot a PIM track, use the Routes option in C2PC:

1. From the Tools menu, select Routes. The routes injector is activated.
2. To plot a new route, select Route from the Insert menu.

For details on routes, see the C2PC Routes help file:

In C2PC:

1. From the Help menu, select Routes Help > Contents and Index.
2. On the Contents tab, double-click Insert Menu.
3. Under Insert Menu, double-click Route.

Try it yourself: Plot a PIM Track.

Tutorials

SAR Tools Tutorials

- Open a new SAR Plan and complete an Automated Manual Solution (AMS) worksheet.
- Create your own search pattern.
- Take a range and bearing.
- Place a quick icon on the C2PC map.
- Place a flare sighting.
- Display tidal currents.

C2PC Tutorials

- Display map features.
- Change map colors.
- Switch from a vector map to a BSB chart.
- Set precision standards and units of measure.
- Place an icon using quick point.
- Turn on an overlay.
- Plot a PIM Track.

Open a new SAR Plan and complete an Automated Manual Solution (AMS) worksheet.

For help see:

- How do I open a new SAR plan?
- How do I edit an existing SAR plan?
- How do I save a SAR plan?
- How do I open a new AMS worksheet?

The commercial fishing vessel F/V EMILY ANN has reported they are disabled and adrift in heavy seas 35 miles south east of Cape Cod, MA.

1. Open a new SAR plan (start USCG SAR Tools).

See it done.

2. Complete an AMS worksheet using the following information.

Search Object	`Medium displacement fishing vessel`	
Drift Start Time	`231000Z Mar of the current year`	
Position	`41 21.4 N 069 17.0 W`	
Datum Time (CST)	`232000Z Mar` of the current year	
Sea Current		
	Source	`NOOSP 1400 NA 6`
	Set	`119 T`
	Drift	`.7 knots`
Wind History	`231800Z`	`270 / 10`
	`231200Z`	`270 / 10`
	`230600Z`	`275 / 12`
	`230000Z`	`275 / 15`
	`221800Z`	`280 / 12`
	`221200Z`	`280 / 15`
	`220600Z`	`282 / 17`
	`220000Z`	`285 / 15`
	`211800Z`	`288 / 20`

Leeway	`Directional Uncertainty`
Initial Position Error (Nav Fix Error)	`Based on LORAN C`
SRU Error (Nav Fix Error)	`Based on GPS`

3. Once complete, practice saving your SAR Plan using your last name for a file name (example: `jones.srp`).

   See it done.

4. Now close your SAR plan and practice re-opening the file.

See it done.

Create your own search pattern.

For help see:

- How do I draw a pattern?
- How do I manually change a search pattern?
- How do I change a search pattern's color?

You have decided to divert the nearest WPB, the CGC WRANGELL, to assist. You want to have ready a search pattern in the event the WRANGELL is unable to locate the fishing vessel once they get on scene.
Draw a parallel search for the F/V EMILY ANN using the information below.

Center point	41 16.7N, 069 04.9W
Length	14.84 NM
Width	14.84 NM
Orientation	117 T
Track Spacing	4.5 NM
First Turn	Left

See it done.

Using the "handles", re-orient the pattern 90 degrees to the right (orientation becomes 027 T), so the commence search point is in the south east corner.
See it done.

Change the color of the SRU's track from the default color to a light blue.
See it done.

Once complete, practice saving your SAR Plan using your last name for a file name (example: jones.srp).
See it done.

Now close your SAR plan, and practice re-opening the file.
See it done.

Take a range and bearing.

For help see:

- How do I obtain a range and bearing?

A vessel has reported themselves disabled and adrift off the coast of Chesapeake Bay Entrance. A 41 foot utility boat is underway conducting a law enforcement patrol nearby. Determine the range and bearing of the UTB to the disabled vessel.

Name	`Disabled and Adrift; UCN 071-99`
UTB Position (Start Position)	`37 01.8 N, 075 55.4 W`
Disabled Position (End Position)	`37 11.2 N, 075 34.1 W`

See it done.

Place a quick icon on the C2PC map.

For help see:

- How do I plot an icon using SAR Tools?

1. Place a small quick icon for a outboard recreational vessel in the following position.

Name	`P/C OLYMPIC GOLD`
Position	`32 45.4 N 079 48.2 W`

Display the icon, its position, and its name

See it done.

2. Place a small quick icon for an HH-65A in the following position:

Name	`CG 6515`
Position	`32 48.1 N 079 33.6 W`

Display the icon, its position, and its name.

See it done.

Place a flare sighting.

For help see:

- How do I plot a flare sighting?

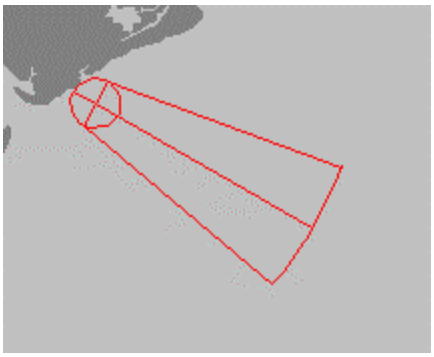
At 250030Z APR of the current year, a concerned boater called your Group Communications Center and reported a flare sighting. The following information was obtained:

Observer	P/C OLYMPIC GOLD
DTG	250030Z APR YY
Position	32 45.4 N, 079 48.2 W
Accuracy	+/- 1 NM
Height of Eye	10 FT
Sighting Type	Meteor Flare
Angle Type	Above Horizon
Bearing	120 T
Error	+/- 10 degrees
Min Angle	1/16 0.5 degrees
Max Angle	1/4 2 degrees
Additional Information	R/S P/C OLYMPIC GOLD O/O: Mr. Anthony Williams, 123 Surfside Ave, Sullivans Island SC. Home phone: (843)555-1234

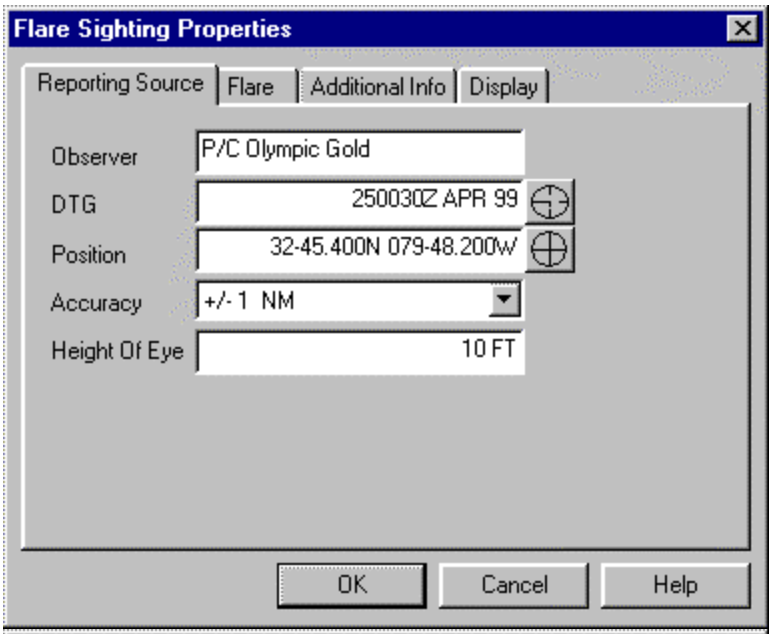
See the result: Tutorial Answer

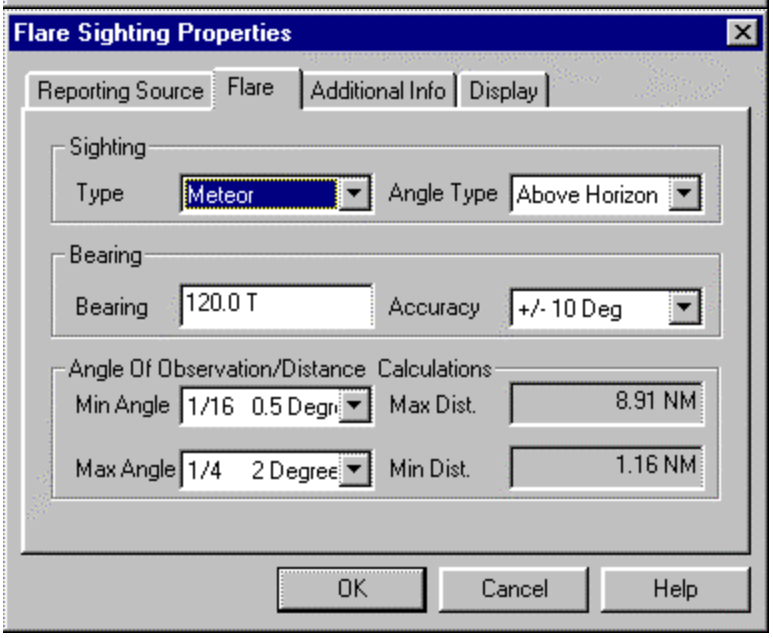
Tutorial Answer

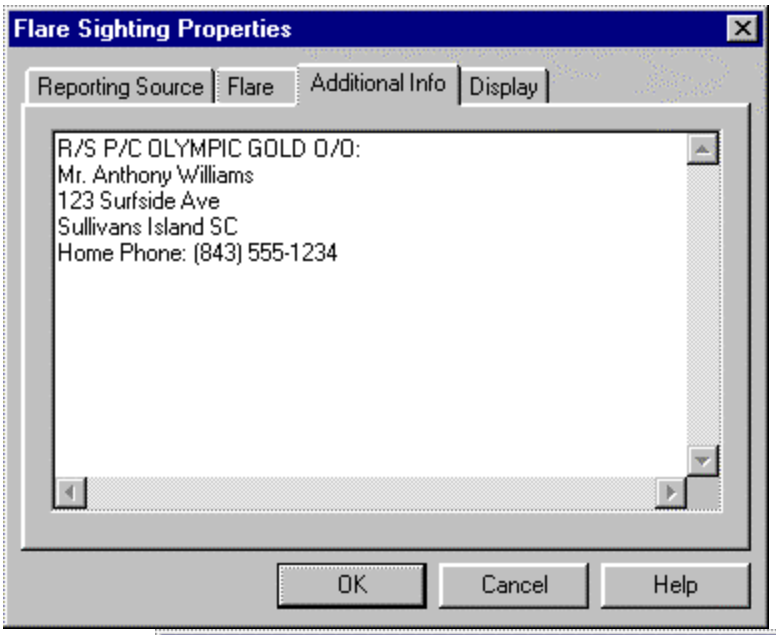
Your flare should look like this:



Your flare worksheet should look like this:


Flare Sighting Properties
Reporting Source
Flare
Additional Info
Display
Observer
P/C Olympic Gold
DTG
250030Z APR 99
Position
32-45.400N 079-48.200W
Accuracy
+/- 1 NM
Height Of Eye
10 FT
OK
Cancel
Help


Flare Sighting Properties
Reporting Source
Flare
Additional Info
Display
Sighting
Type
Meteor
Angle Type
Above Horizon
Bearing
Bearing
120.0 T
Accuracy
+/- 10 Deg
Angle Of Observation/Distance Calculations
Min Angle
1/16 0.5 Degr
Max Dist.
8.91 NM
Max Angle
1/4 2 Degree
Min Dist.
1.16 NM
OK
Cancel
Help



Back to the tutorial: Place a flare sighting.

Display tidal currents.

For help see:

- How do I use Tides and Currents?

<hr color="3030ff">

Display the present height of the tide and the state of the current for any Station within your area of responsibility.

See it done.

View the data for the height of the tide and the state of the current for the next 24 hours.

See it done.

Display map features.

For help see:

- How do I use map features?

<hr color="3030ff">
Display gridlines and political boundaries on the C2PC map.
See it done.

Change map colors.

For help see:

- How do I change map colors?

Set the map colors as follows:

Land:	Brown
Water:	Dark Blue
Grid Lines:	White
Political Boundaries:	Green

See it done.

Switch from a vector map to a BSB chart.

For help see:

- How do I switch from a vector chart to a BSB chart?

<hr color="3030ff">
Display the BSB chart for Galveston to the Rio Grande in Region 17 (Mobile, AL to Mexico).
See it done.

Zoom in to view Corpus Christi Bay.
it done.

Set precision standards and units of measure.

For help see:

- How do I set precision standards and units of measure?

Set your computer to the following recommended precision tolerances:

Position

Units	`Latitude/Longitude`
Precision	`10ths of minutes`
Delimiter	`Dash`

Distance

Units	`Nautical miles`
Precision	`2 digits`

Speed

Units	`Knots`
Precision	`2 digits`

DTG

Precision	`Minutes`

Bearing

Precision	`0`

Altitude

Units	`Feet`
Precision	`0 digits`

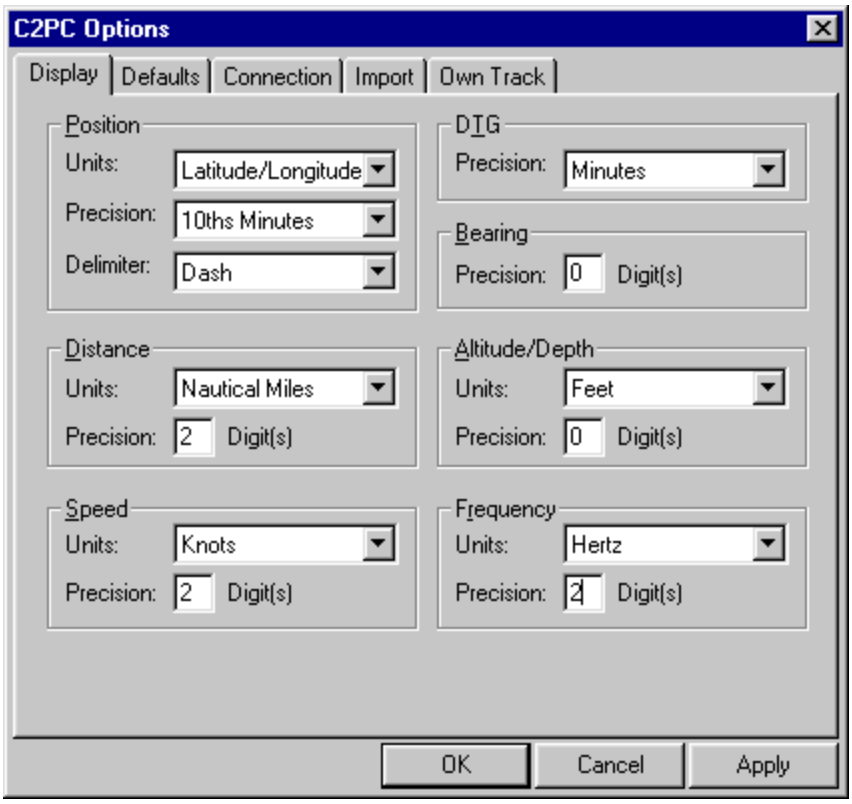
Frequency

Units	`Hertz`
Precision	`2`

See the result: Tutorial Answer

Tutorial Answer

Your C2PC Options window should appear like this:



Back to the tutorial: Set precision standards and units of measure.

Place an icon using quick point.

For help see:

- How do I place an icon?

Using Quick Point, place an icon of a tropical storm (look under the Weather icon folder) in the following position:

Position `27 39.3 N 066 38.8 W`

Label `Tropical Storm Rodney`

See it done.

Convert this to an overlay file of your choice.

See it done.

Add text:

Next to the icon for Tropical Storm Rodney, place the following text and draw a rectangle around both the icon and the text.:

Origin `26 00 N 065 41.35 W`

Text `TS RODNEY 091200Z AUG YY Course: 010 T, Speed: 15 KTS`

See it done.

Turn on an overlay.

For help see:

- How do I turn on an AOR or Hi Site overlay?

Display the Group Southwest Harbor and the Hi-Site Cadillac Mountain in District 1 on the C2PC map.

See it done.

Plot a PIM Track.

For help see:

- How do I plot a PIM track?

The CGC AQUIDNECK is conducting a fisheries law enforcement patrol. Create a PIM Track of the AQUIDNECK's intended movements:

Name `Last Name_AQUID (i.e., Smith_AQUID)`

Mission `OP Drag Net`

Speed `12 knots`

Waypoint number 1

Position `36 45 N 075 28.5 W`

DTG `221200Z Jul YY`

Waypoint number 2

Position `37 31 N 075 00 W`

Waypoint number 3

Position `37 31 N 074 30 W`

Waypoint number 4

Position `36 45 N 074 30 W`

Measure the distance from waypoint 1 to waypoint 4 using the Quick range and bearing.

Save your route file.

Frequently Asked Questions

Frequently Asked Questions

The questions and answers are divided into the following areas:

- GDOC and C2PC Comparisons
- C2PC
- SAR Tools

GDOC and C2PC Comparisons

These questions and answers discuss how to perform some GDOC operations in C2PC.

- Does C2PC display the same BSB charts as GDOC?
- Is saving the C2PC Map the same as saving the GDOC View?
- Can I run a slide show directly from C2PC, as I could in GDOC?
- Can C2PC display all of the icons that GDOC can display?
- Can I display my GDOC overlay files in C2PC?
- Can I make overlays with lines, shapes, and icons in C2PC, as in GDOC?
- Does C2PC support Hi-sites?
- Does C2PC support AMVER?
- In GDOC I could open more than 1 view at a time; can C2PC do this?
- We used to run GDOC on our laptop; will C2PC work on a laptop?
- GDOC was used on cutters; is C2PC used on cutters too?
- The flare calculator in C2PC gives different answers than the one in GDOC. Which is right?

See C2PC for more C2PC-related questions.

Does C2PC display the same BSB charts as GDOC?

Yes, C2PC can display the BSB charts that GDOC displays. Moreover, C2PC can also display BSB formatted charts from other companies (e.g., NDI, Softchart). C2PC will also render BSB charts that are in the polyconic projection or skewed. Many of the D9 charts are polyconic, and many of the chart insets are skewed (not North up).
For details on displaying different map sets, see the C2PC help file:
In C2PC:

1. From the Help menu, select Contents and Index.

2. On the Contents tab, double-click Map Menu.
3. From the options that appear under Map Menu, double-click Map Data.

Is saving the C2PC Map the same as saving the GDOC View?

The C2PC map file now saves the current session information, including the SAR Tools files accessed through the map, any routes and overlays, and which map file is displayed. The actual overlay, route, and SAR Tools files are part of the package, but note that any Other Maps (e.g., BSB) are not saved with the map file; however, the selection is noted and saved with the .map file.
Note that the elements that are saved with the map file are selectable through C2PC Tools > Options > Save View. Elements you wish to save must be selected (checked) there.

Can I run a slide show directly from C2PC, as I could in GDOC?

Although it would be possible to save a few canned maps and associated overlay files to assemble a brief, C2PC does not truly have a built-in slide show function. It is best to use Microsoft PowerPoint® as the briefing environment with C2PC generated-graphics. For instructions on doing so, see How do I get C2PC screens into PowerPoint?.

Can C2PC display all of the icons that GDOC can display?

Yes, C2PC contains all the GDOC icons. They are accessible through the Quick Point and Overlay features. To see the icons available, *either* select the Insert Image option from the main menu pull-down *or* click the image toolbar button. This feature will allow you to browse your system's file structure to use any icon (`*.ico`) or bitmap (`*.bmp`) files.
For details on C2PC Quick Point and Overlay, see the C2PC help file:
In C2PC:

1. From the Help menu, select Contents and Index.
2. On the Contents tab, double-click Tools Menu.
3. From the options that appear under Tools Menu, double-click either Quick Point or Overlay.

You can also use the Icons feature within SAR Tools. The intent of this feature is to allow an icon to be dropped on the map with minimal effort. This feature does not support the full library of icons, just those from the SAR, USCG, Vessels and Shapes icon families. For details on SAR Tools Icons, see Icons.

Can I display my GDOC overlay files in C2PC?

There is no direct way to take a GDOC overlay file (`*.ele`) and display it within C2PC. If you have GDOC scatter plot files (`*.imp`) or boundary files (`*.bni`) you can have those converted into C2PC overlay (`*.mgc`) files. C2CEN has a conversion utility and they will convert your files for you. Please contact the C2CEN Support desk (757-686-2156) for details.

Can I make overlays with lines, shapes, and icons in C2PC, as in GDOC?

Definitely, C2PC has a very rich set of overlay creating features. Please view the Overlays section under the C2PC Tools menu within the C2PC help system. **Note:** Inform the C2CEN

Support desk (757-686-2156) if you make overlays that may have value to other units; they may be added to the public library of overlays.

Does C2PC support Hi-sites?

Coverage overlays for the Hi-sites have been created and distributed with C2PC.

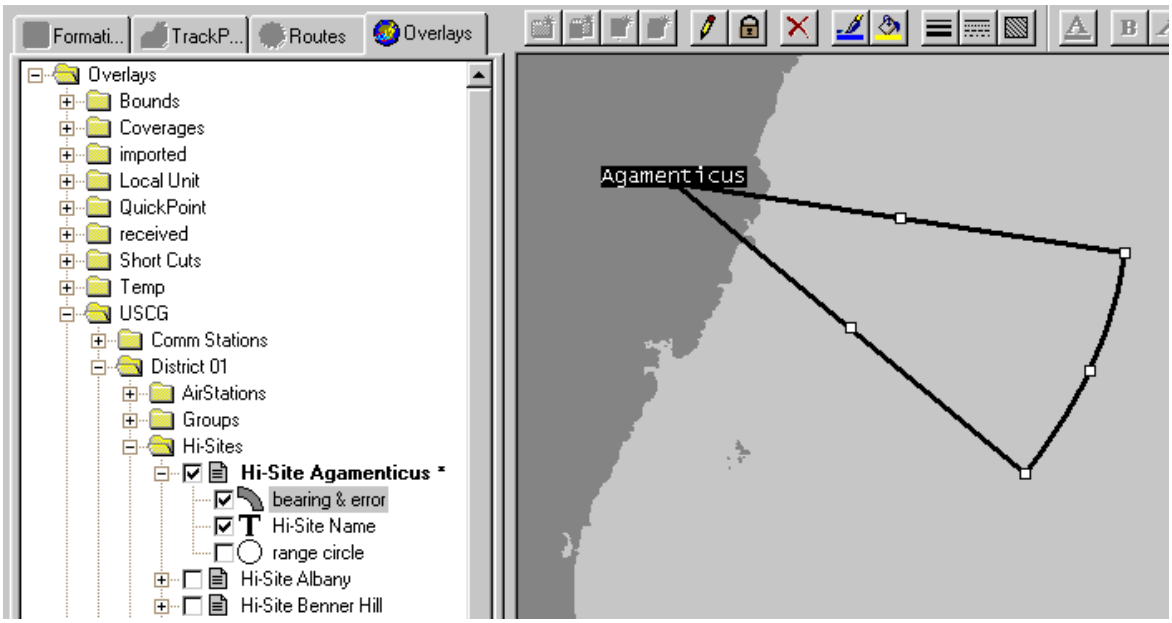
To use Hi-sites

In C2PC:

1. From the Tools menu, select Overlays.

   The left pane of the map window displays available overlays.

The Overlays Pane



2. In the Overlays folder, open USCG. The USCG folder contains a folder for each district.

3. Open the District folder you wish.

   Each District folder contains the names of the individual Hi-Sites located within that district. Each Hi-Site overlay has 3 components: name, coverage, and bearing.

4. To generate GDOC-like Hi-Site graphics, display the bearing & error component.

   Note: You should make working copies of these files if you want to play some *what-if* games with the graphics.

For details on C2PC Overlays, see the C2PC help file:
In C2PC:

1. From the Help menu, select Contents and Index.

2. On the Contents tab, double-click Tools Menu.

3. From the options that appear under Tools Menu, double-click Overlays.

Does C2PC support AMVER?

Yes! C2PC (CG) now supports AMVER. See this web-based feature. How do I access the AMVER web application?

In GDOC I could open more than 1 view at a time; can C2PC do this?

In C2PC you can open multiple Map windows. Each of these maps functions independently and the windows can be cascaded or tiled.

We used to run GDOC on our laptop; will C2PC work on a laptop?

C2PC will run on most PCs running Windows NT 4.0, Windows 95® or Windows 98®. Refer to the *System Requirements* section in the *About C2PC* area of C2PC help.

GDOC was used on cutters; is C2PC used on cutters too?

C2PC has not been distributed to any Cutters. The afloat GDOC users have been provided a commercial electronic charting system package called The Capn™. It is possible that C2PC will be provided to cutters in the future if navigational features are added.

The flare calculator in C2PC gives different answers than the one in GDOC. Which is right?

The flare calculator within GDOC was suspect for some time. The USCG Research and Development Center and National Search and Rescue School championed an effort to establish improved flare sighting and distance guidelines. The flare calculator in C2PC reflects these new guidelines and is considered correct.

C2PC

These questions and answers discuss how to perform common actions using C2PC.

- How do I save a C2PC View?
- How do I get C2PC screens into PowerPoint?
- Why doesn't the map colors feature work?
- What is Quick Draw for?
- What are all the map plug-ins for?
- How can I put an icon on the map fast?
- What kind of a computer does C2PC need to run?
- How do I make a PIM Track?
- I like the high-resolution vector map data, but why doesn't it show up in Alaska or Hawaii?
- How can I do SAR with C2PC?
- Was C2PC developed by the USCG, or is it a commercial product?
- Is C2PC the same thing as the Global Command and Control System (GCCS)?

- Can C2PC be used on a secure workstation to display track data?

See GDOC and C2PC Comparisons for more C2PC- and GDOC-related questions.

How do I save a C2PC View?

The C2PC map file now saves the current session information, including the SAR Tools files accessed through the map, any routes and overlays, and which map file is displayed. The actual overlay, route, and SAR Tools files are part of the package, but note that no Other Maps (e.g., BSB) are saved with the map file; however, the selection is noted and saved with the .map file. Note that the elements that are saved with the map file are selectable through C2PC Tools > Options > Save View. Elements your wish to save must be selected (checked) there.

To save a SAR case

Select Save in the SAR case window (or select File > Save) and the SAR case will be saved with the map file. The SAR case saved in the map file will contain all the elements of the SAR plan. You must be sure to save (or resave) the map file **after** all SAR windows are closed to ensure that all of your SAR case data is saved.

To save an overlay

Select Save in the SAR case window (or select File > Save) and the overlay will be saved with the map file. The overlay saved in the map file will contain all the elements of the SAR plan. You must be sure to save (or resave) the overlay file **after** all SAR windows are closed to ensure that all of your SAR case data is saved. All overlays that are turned on will be saved in the map file.

To save a route

Routes are automatically written to disk as they are created. To save them with the map file, they must be selected when the map is saved.

To save the map

Select Save (or select File > Save) and enter the name of the file you want to save. A `*.map` file is created and saved. You must be sure to save (or resave) the map file **after** all SAR windows are closed to ensure that all of your SAR case data is saved.

How do I get C2PC screens into PowerPoint?

GDOC screens are good for morning PowerPoint briefs, and you may put your C2PC screens into PowerPoint.

In C2PC:

1. Select Copy As Bitmap from the Map menu.

   A bitmap of the C2PC map is placed on the clipboard.

2. Paste (Edit > Paste) the bitmap into the PowerPoint brief. You may also paste the bitmap into other software that recognizes the `.bmp` format.

Why doesn't the map colors feature work?

The map colors feature is designed to work only with the base map. Features found in specific map product's properties page control color changes for those map types.

What is Quick Draw for?

Quick Draw is designed to quickly display and manipulate one map at a time. This is convenient if you simply want to look at a given BSB chart and you don't want the system to build a complex map based on numerous chart products.
For details on Quick Draw, see the C2PC help file:
In C2PC:

1. From the Help menu, select Contents and Index.
2. On the Contents tab, double-click Map Menu.
3. From the options that appear under Map Menu, double-click Quick Draw.

What are all the map plug-ins for?

In order to keep the C2PC software manageable, a lot of capabilities are provided as separable components. SAR Tools is an example of this, as are all the map plug-ins. The map plug-in provides the software required to make use of a particular map type. For instance, if you want to use BSB charts, you must have the BSB Map plug-in installed on your system and turned on.
For details on map plug-ins, see the C2PC help file:
In C2PC:

1. From the Help menu, select Contents and Index.
2. On the Contents tab, double-click Map Menu.
3. From the options that appear under Map Menu, double-click Map Plug-Ins.

How can I put an icon on the map fast?

If you are doing SAR, then use the Icons feature in SAR Tools (see How do I plot an icon using SAR Tools?). If you don't need this icon to be associated with an active SAR Case, then use the C2PC Quick Point feature.
For details on C2PC Quick Point, see the C2PC help file:
In C2PC:

1. From the Help menu, select Contents and Index.
2. On the Contents tab, double-click Tools Menu.
3. From the options that appear under Tools Menu, double-click Quick Point.

What kind of a computer does C2PC need to run?

C2PC works on most PCs running Windows NT4.0, Windows 95, or Windows 98. Refer to the *System Requirements* section in the *About C2PC* area of C2PC help.

How do I make a PIM Track?

In C2PC: From the Tools menu, select Routes. The Routes injector is activated. The Routes injector provides options to display an existing route or to insert a new route.
For details on PIM tracks, see the C2PC help file:
In C2PC:

1. From the Help menu, select Contents and Index.
2. On the Contents tab, double-click Tools Menu.
3. From the options that appear under Tools Menu, double-click Routes.

I like the high-resolution vector map data, but why doesn't it show up in Alaska or Hawaii?

Actually, the *high resolution* vector map data is a NOAA product called Medium Resolution Digital Vector Shoreline (MRDVS) and it is only available for the CONUS. The high-resolution shoreline data used within GDOC was also from NOAA, but is no longer supported. Additional shoreline data obtained from the National Imagery and Mapping Agency Vector Product Format data sets for AK and HI will be included in a future C2PC release.

How can I do SAR with C2PC?

Use the SAR Tools application.
In C2PC, click the New Search Plan button. Normally, you will want C2PC to be running before starting SAR Tools so that there is a map to display the graphics. See SAR plan, search plans for more information.

Was C2PC developed by the USCG, or is it a commercial product?

Logicon INRI, a division of Northrop Grumman under contract to the U.S. Government, developed C2PC. The USMC initiated the C2PC development and the USN and USCG have contributed to its development. There is no license fee for U.S. Government use; however, C2PC is being sold through the Foreign Military Sales program.

Is C2PC the same thing as the Global Command and Control System (GCCS)?

No, C2PC is not GCCS; however, C2PC can be used as part of GCCS.

Can C2PC be used on a secure workstation to display track data?

Yes, C2PC was designed to connect and display information from a secure track database. Refer to the About C2PC and Tools/Tracks C2PC help sections.
<hr color="3030ff">For details on displaying track data, see the C2PC help file:
In C2PC:

1. From the Help menu, select Contents and Index.
2. On the Contents tab, double-click Tools Menu.
3. From the options that appear under Tools Menu, double-click Tracks.

SAR Tools

These questions and answers discuss how to perform common actions using USCG SAR Tools.

- Can more than one person work on the same case file at one time?
- My system gives me an error (something about tides.ini) when I try to display tides and current data on the map. What's wrong?

- Where does the tides and currents data come from?
- How do I connect to CASP?

Can more than one person work on the same case file at one time?

The SAR Tools case files (`*.srp`) are managed just like Microsoft Office® (Word, Excel®, or PowerPoint) files. That is, multiple users can open and edit the files, but care must be taken not to overwrite each other's work. If a file is being worked on, and another user attempts to open the same file, the second user will be asked if he wants to make a copy. Normally, this is the best course of action. To combine the original file and the copy later, select Merge from the Files menu in SAR Tools. (See File Sharing for further information.)

My system gives me an error (something about tides.ini) when I try to display tides and current data on the map. What's wrong?

SAR Tools uses the same commercial Tides&Currents for Windows software that GDOC used. The error you are seeing may mean that your system does not know where the Tides and Currents software is installed. Contact the OSC hotline (304-264-2500) for support.

Where does the tides and currents data come from?

Tides&Currents for Windows, produced by Nautical Software, generates all the predicted tides and currents information. The software uses U.S. National Oceanic and Atmospheric Administration (NOAA) harmonics and correction tables for specific locations.

How do I connect to CASP?

There are now 3 options: direct, dialup, and network. Which one you use to connect to CASP depends on how your system is configured:

- If you are on the Coast Guard Data Network (CGDNPlus), also incorrectly called the SW3 network, use the *network* option.
- If your system is not on the network, use the *dialup* option.
- If your modem is already connected to the X.25 PAD use the *direct* option.

SAR Tools Working Environment

General information on working in the SAR Tools environment is divided into the following sections:

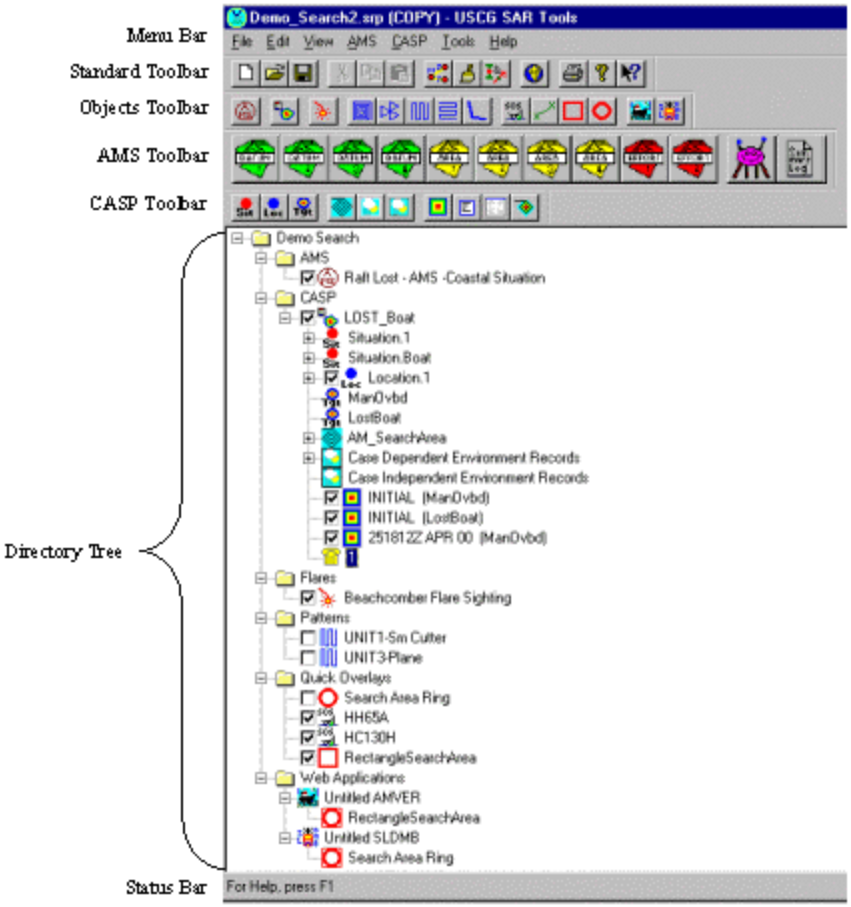
- The SAR Tools Window
- The Menu Bar
- Toolbars
- Common Operations
- Tides & Currents

The SAR Tools Window

The application window provides a tree directory (similar to Windows Explorer) of the SAR plan. A folder represents the SAR plan itself. AMS cases, CASP cases, flares, patterns, quick overlays (range and bearing lines, icons, range rectangles, and range rings), and web applications are contained in additional folders. Each individual element (represented by an icon rather than a folder) may be double-clicked to view and edit the data associated with that particular icon. Each icon and folder also has a context menu (i.e., a right mouse button popup menu) for invoking tasks common to it (for example, Edit, New).

The tree directory automatically includes all possible folders, even if they are empty. To stop displaying the empty folders, select Display Empty Folders from the View menu. To restore the empty folders, select Display Empty Folders from the View menu.

USCG SAR Tools Application Window



Note: The SAR plan folder (the top level) does not automatically reflect the name of the SAR plan; it always defaults to "Untitled Plan." You may rename it by double-clicking on the SAR folder. A dialog box appears, prompting you to enter a new name. Enter the name and click OK to rename the SAR plan. The `.srp` filename will not change to match the new name unless the file has not been saved yet (see To save a Search Plan).

To the left of each item in the tree directory is a checkbox. The checkbox indicates the plot status of the item. To plot the item, ensure its box is checked. To remove the item from the C2PC map, ensure that its box is unchecked.

Multiple SAR plans may be open at a time, but each has its own window and must be opened individually. SAR Tools follows the Single Document Interface (SDI) model common to many other Windows applications (for example, Notepad).

The application window includes:

- The Menu Bar
- The Standard Toolbar
- The Objects Toolbar
- The AMS Toolbar
- The CASP Toolbar
- The Status Bar

The Menu Bar

The menu bar contains the following menus:

- File
- Edit
- View
- AMS
- CASP
- Tools
- Help

Each menu contains several options and sometimes submenus.

The File Menu

New

Starts a new SAR plan. Only one may be open at a time; starting a new one closes the current SAR plan. You are prompted to save the file if you haven't already. This option is also available on the Standard toolbar.

Open

Opens an existing SAR plan. Only one may be open at a time; opening a new one closes the current SAR plan. You are prompted to save the file if you haven't already. This option is also available on the Standard toolbar.

Merge

When Merge is chosen, the Merge window appears. This window functions identically to the Open window. Browse and select a SAR plan from which to copy data.

Merge adds all the data from another SAR plan to the SAR plan currently open, but does not duplicate identical items. If the only difference between an item in both SAR plans is

in the plot options, then the item will not be duplicated: instead, the item in the new merged SAR plan is given the plot options of the SAR plan with the latest date.

Example: File1 and File2 both contain a flare named “Pallner,” but the flares are different in other ways. When File2 is merged into File1, the merged file contains a flare named “Pallner” and a flare named “Pallner (from File2.srp).”
Also, if the merged flare is changed and the two files are merged again, the merged file contains three flares: “Pallner,” “Pallner (from File2.srp),” and “Pallner (from File2.srp) at <time>.”
If the flares are identical, the flare from File2 is not added into File1; in this case, the merged file contains one flare named “Pallner.” Note that Display properties are not considered in the comparison. Instead, the flare named “Pallner” in the merged file takes the Display properties from the file with the latest date. If File2 is more recent that File1, the merged flare has the Display properties of the flare in File2.

Duplicated or merged CASP cases are given a number rather than a description of its origin in parentheses. (For example, if two SAR plans have CASP cases named Sagen, then the merged file has one CASP case named Sagen and one named Sagen.1.) If the new name would be longer than 16 characters with the addition, the name is truncated to allow the number to be added. (For example, if the original name is OSC_Sagen_040200, the duplicated name is OSC_Sagen_0402.1.)

Save

Saves the current SAR plan. This option is also available on the Standard toolbar.

Save Copy As

Saves the current SAR plan to a new file with a new name.

Print

Would normally print the contents of the tree directory, but is not implemented at this time. This option is also available on the Standard toolbar.

Print Preview

Would normally show the contents of the SAR plan view as they would appear on paper, but is not implemented at this time.

Print Setup

Display the Print Setup window to configure the printer. Note that printing is not implemented at this time.

A list of recently opened SAR plans

Select one of these to reopen it. You are prompted to save the currently open file if you haven’t already.

Exit & Return to C2PC

Exits the SAR Tools application.

The Edit Menu

Cut

Copies the selected object in the directory tree to the clipboard and deletes it.

Copy

Copies the selected object in the tree to the clipboard.

Paste

Pastes the copied information from the clipboard into the correct place in the directory tree. Pasting an identical copy of an object that already exists has no effect.

Note: Cut, Copy, and Paste are primarily useful for copying objects (flares, patterns, etc.) from one search plan into another. See Merge for information on combining all elements of two search plans. If you need to duplicate an object within the same search plan, use the Duplicate option for that object. You can also drag an object from one search plan into another to copy and paste it.

Properties

Opens the Properties window for the selected object.

Toggle Plot

Toggles plotting on and off for the selected object.

When plotting is on, the object is plotted on the C2PC map. When plotting is off, the object is removed from the C2PC map.

Plan

Opens the Properties menu for the plan.

Properties

Opens the Plan Properties window for the search pattern.

AMS Cases

New

Starts a new AMS case and invokes the first page of the Datum Worksheet. See Automated Manual Solution for instructions on all the worksheets for an AMS case. This option is also available on the AMS toolbar.

Delete All

Deletes all AMS cases.

Properties

Opens the first page of the Datum Worksheet for the selected AMS case. See Automated Manual Solution for instructions on all the worksheets for an AMS case.

Plot On/Off

Toggles plotting on and off for the selected AMS case. A checkmark indicates the plot status for the case. When plotting is on, the AMS case is plotted on the C2PC map. When plotting is off, the AMS case is removed from the C2PC map.

Print

Prints a textual summary of the selected AMS case.

Summary

Opens a window with a textual summary of the selected AMS case.

Save Summary

Enables you to save a text file of the AMS case summary.

Duplicate

Duplicates the selected AMS case.

Delete

Deletes the selected AMS case.

Subsequent Search

Prepares the selected AMS case for a subsequent search (for example, Alpha search to Bravo search, Bravo search to Charlie search). For example, datum positions become start positions, datum times become start times, safety factor advances, etc. For each subsequent search, all effort worksheets are cleared so you cannot accidentally carry SRUs from one search to another.

The subsequent search is appended to the end of the AMS case list. The name of the subsequent search is based on the selected AMS case. For example, “F/V Mary” would become “F/V Mary (Bravo)”; “F/V Mary (Bravo)” would become “F/V Mary (Charlie)”, etc.

CASP Cases

New

Starts a new CASP case and opens the Edit Case Data window. See Computer Aided Search Planning for instructions on all the worksheets for a CASP case. This option is also available on the Objects toolbar.

Delete All

Deletes all CASP cases.

Properties

Opens the Edit Case Data window for the selected CASP case. See Computer Aided Search Planning for instructions on CASP cases.

Plot On/Off

Toggles plotting on and off for the selected CASP case. A checkmark indicates the plot status for the case. When plotting is on, the CASP case is plotted on the C2PC map. When plotting is off, the CASP case is removed from the C2PC map.

Duplicate

Duplicates the selected CASP case.

Delete

Deletes the selected CASP case.

Flares

New

Invokes the Flare Sighting Properties window. See Flares for instructions on using the Flare Sighting Properties window. This option is also available on the Objects toolbar.

Delete All

Deletes all flares.

Properties

Opens the Flare Sighting Properties window for the selected flare. See Flares for instructions on using the Flare Sighting Properties window.

Plot On/Off

Toggles plotting on and off for the selected flare. A checkmark indicates the plot status for the flare. When plotting is on, the flare is plotted on the C2PC map. When plotting is off, the flare is removed from the C2PC map.

Print

Prints a textual summary of the selected flare.

Summary

Opens a window with a textual summary of the selected flare.

Save Summary

Enables you to save a text file of the flare summary.

Duplicate

Duplicates the selected flare.

Delete

Deletes the selected flare.

Patterns

New

Begins a new search pattern and invokes the Pattern Properties window. Select one of the patterns:

- Expanding Square
- Sector
- Parallel
- Creeping Line
- Track Line

See Adding and Editing Search Patterns for instructions on using the Pattern Properties window. The Objects toolbar contains a button for each pattern.

Sort

Sorts the patterns listed under Patterns in the tree directory. Select one of the sort orders:

- By Name
- By Type
- By Entry Order

Delete All

Deletes all search patterns.

Properties

Opens the Pattern Properties window for the selected search pattern. See Adding and Editing Search Patterns for instructions on using this window.

Fill Type

Displays a list of the fill types available. Select one of the following:

a None

b Horizontal

c Vertical

d NW/SE Diagonal

e NE/SW Diagonal

f Diagonal Cross

g Transparent

h Dotted

I Cross

j Solid

k Stipple

l AP Mines

m AT AH Mines

n AT Mines

o UNSP Mines

Plot On/Off

Toggles plotting on and off for the selected search pattern. A checkmark indicates the plot status for the pattern. When plotting is on, the search pattern is plotted on the C2PC map. When plotting is off, the search pattern is removed from the C2PC map.

Print

Prints a textual summary of the selected search pattern.

Summary

Opens a window with a textual summary of the selected search pattern.

Save Summary

Enables you to save a text file of the search pattern summary.

Duplicate

Duplicates the selected search pattern. Opens the Duplicate Pattern Apply: Offset window. See Duplicating Search Patterns for instructions on using this window.

Delete

Deletes the selected search pattern.

Quick Overlays

New

Displays a list of the quick overlays that are available. Select one of the following:

Icon

Invokes the Icon Properties window. This option is also available on the Objects toolbar.

Range/Bearing Line

Invokes the Range/Bearing Properties window. This option is also available on the Objects toolbar.

Range Rectangle

Invokes the Range Rectangle Properties window. This option is also available on the Objects toolbar.

Range Ring

Invokes the Range Ring Properties window. This option is also available on the Objects toolbar.

Sort

Sorts the quick overlays listed under Quick Overlays in the tree directory. Select one of the sort orders:

- By Name
- By Type
- By Entry Order

Delete All

Deletes all quick overlays.

Properties

Opens the Properties window for the selected quick overlay.

Plot On/Off

Toggles plotting on and off for the selected quick overlay. A checkmark indicates the plot status for the quick overlay. When plotting is on, the quick overlay is plotted on the C2PC map. When plotting is off, the quick overlay is removed from the C2PC map.

Duplicate

Duplicates the selected quick overlay.

Delete

Deletes the selected quick overlay.

Web Applications

New

Displays a list of the web applications that are available.

AMVER

Starts a new Automated Mutual-Assistance Vessel Rescue (AMVER) query session. This option is also available on the Objects toolbar.

SLDMB

Starts a new Self-Locating Datum Marker Buoy (SLDMB) query session. This option is also available on the Objects toolbar.

Sort

Sorts the items listed under Web Applications in the tree directory. Select one of the following sort orders:

- By Name
- By Type
- By Entry Order

Delete All

Deletes all Web Applications from the search plan.

AMVER or SLDMB Items

Properties

Opens the Web Applications Properties window for the selected web application. Allows the users to change the name of the item or its URL setting.

Plot On/Off

Toggles plotting on and off for the selected web application. A checkmark indicates the plot status for the application. When plotting is on, the web application is plotted on the C2PC map. When plotting is off, the web application is removed from the C2PC map. [Note: This option is not implemented in Version 2.5.0.0.]

Associate

Displays a list of the Associate options that are available.

Search Area

Opens the Select Search Area Magic File window to associate a search area with the selected web application. Only one search area may be associated with a given web application.

Results

Opens the Select Results Magic File window to associate a query result with the selected web application. Multiple results may be associated with a single web application.

Connect

Opens a web browser to connect to the web site associated with the selected web application. See How do I modify Web Application settings? for instructions on specifying the browser to use and web site (URL) to open.

Duplicate

Duplicates the selected web application.

Delete

Deletes the selected web application.

The View Menu

Each user's settings on this menu are retained when USCG SAR Tools is shut down and restarted.

Toolbar

Toggles the Standard toolbar on and off. See The Standard Toolbar for information on the Standard toolbar.

Status Bar

Toggles the Status bar on and off. See The Status Bar for information on the Status bar.

Objects Toolbar

Toggles the Objects toolbar on and off. See The Objects Toolbar for information on the Objects toolbar.

AMS Toolbar

Toggles the AMS toolbar on and off. See The AMS Toolbar for information on the AMS toolbar.

CASP Toolbar

Toggles the CASP toolbar on and off. See The CASP Toolbar for information on the CASP toolbar.

Display Empty Folders

Toggles the empty folders on and off in the tree directory.

The AMS Menu

Worksheets

Datum

Choose one of the four pages to invoke that page of the Datum Worksheet.

Page 1

Displays page one of the Datum Worksheet.

Page 2

Displays page two of the Datum Worksheet.

Page 3

Displays page three of the Datum Worksheet.

Page 4

Displays page four of the Datum Worksheet.

Area

Choose one of the four pages to invoke that page of the Area Worksheet.

Page 1

Displays page one of the Area Worksheet.

Page 2

Displays page two of the Area Worksheet.

Page 3

Displays page three of the Area Worksheet.

Page 4

Displays page four of the Area Worksheet.

Effort

Choose one of the two pages to invoke that page of the Effort Worksheet.

Page 1

Displays page one of the Effort Worksheet.

Page 2

Displays page two of the Effort Worksheet.

Summary

Show Summary Dialog

Invokes the AMS Case Summary window. See the AMS Case Summary Window for instructions on the AMS Case Summary window

Save As Text

Saves a textual summary of the AMS case to a text file.

Print

Prints a textual summary of the selected AMS case.

Decision Matrix

Invokes the Search Planning Decision Matrix window. See Decision Matrix for instructions on the Search Planning Decision Matrix window.

Plan Subsequent Search

Prepares the selected AMS case for a subsequent search (for example, Alpha search to Bravo search, Bravo search to Charlie search). For example, datum positions become start positions, datum times become start times, safety factor advances, etc. For each subsequent search, all effort worksheets are cleared so you cannot accidentally carry SRUs from one search to another.

The AMS case is duplicated at the bottom of the list of AMS cases in the tree directory, and the subsequent search case's name is modified based on the phonetic alphabet (alpha, bravo, charlie, etc.).

Viewing Properties

Invokes the AMS Case Properties window for the selected AMS case. See AMS Viewing Properties for instructions on the AMS Case Properties window.

Options

Invokes the AMS Options window for the selected AMS case. See AMS Options for instructions on the AMS Options window.

The CASP Menu

Edit

Allows you to edit an aspect of the selected CASP case. The sub-menu contains the following choices:

Case Data

Opens a window for editing general case data. See Edit Case Data Window for details.

Login Data

Opens the Login Data window. This information is used in the Calculate Drift wizard. See Drift Calculation for instructions on this window and the wizard.

Situation Records

This menu item contains a submenu with four choices:

New

Creates a new situation, which appears in the tree directory. See Situation for information on adding and editing situations.

Properties

Opens the Select Situation window, containing a list of all situations in the CASP case. Select one and click OK. The Edit Situation Data window appears. See Situation for information on adding and editing situations.

Duplicate

Opens the Select Situation window, containing a list of all situations in the CASP case. Select one and click OK. The Select Situation window closes and a new situation appears in the tree for the selected CASP case. The new situation has the same attributes as the original except for the name. The new situation is given the name “Situation.X” where the X is the next number in the sequence of all numbered situations. (For example: if your CASP case contains two situations named “Skier” and “Situation.1” and you duplicate “Skier”, the new situation is named “Situation.2”.)

Delete

Opens the Select Situation window, containing a list of all situations in the CASP case. Select one and click OK. The Select Situation window closes and the selected situation is immediately deleted.

Location Records

This menu item contains a submenu with the following choices:

New

Creates a new location, which appears in the tree directory. See Location for information on adding and editing locations.

Properties

Opens the Select Location window, containing a list of all locations in the CASP case. Select one and click OK. The Edit Location Data window appears. See Location for information on adding and editing locations.

Plot On/Off

Toggles plotting on and off for the selected location. A checkmark indicates the plot status for the location. When plotting is on, the location is plotted on the C2PC map. When plotting is turned off, the location is removed from the C2PC map.

Duplicate

Opens the Select Location window, containing a list of all locations in the CASP case. Select one and click OK. The Select Location window closes and a new location appears in the tree for the selected CASP case. The new location has the

same attributes as the original except for the name. The new location is given the name “Location.X” where the X is the next number in the sequence of all numbered locations. (For example: if your CASP case contains two locations named “KeyWest” and “Location.1” and you duplicate “KeyWest,” the new location is named “Location.2.”)

Delete

Opens the Select Location window, containing a list of all locations in the CASP case. Select one and click OK. The Select Locations window closes and the selected location is immediately deleted.

Target Records

This menu item contains a submenu with two choices:

New

Creates a new target, which appears in the tree directory. See Target for information on adding and editing targets.

Properties

Opens the Select Target window, containing a list of all targets in the CASP case. Select one and click OK. The Edit Target Data window appears. See Target for information on adding and editing targets.

Duplicate

Opens the Select Target window, containing a list of all targets in the CASP case. Select one and click OK. The Select Target window closes and a new target appears in the tree for the selected CASP case. The new target has the same attributes as the original except for the name. The new target is given the name “Target.X” where the X is the next number in the sequence of all numbered targets. (For example: if your CASP case contains two targets named “PIW” and “Target.1” and you duplicate “PIW”, the new target is named “Target.2”.)

Delete

Opens the Select Target window, containing a list of all targets in the CASP case. Select one and click OK. The Select Target window closes and the selected target is immediately deleted.

Search Area Records

This menu item contains a submenu with two choices:

New

Opens the Edit Search Area Data window. See Search Area for information on adding and editing search areas.

Properties

Opens the Select Search Area window, containing a list of all search areas in the CASP case. Select one and click OK. The Edit Search Area Data window appears. See Search Area for information on adding and editing search areas.

Duplicate

Opens the Select Search Area window, containing a list of all search areas in the CASP case. Select one and click OK. The Select Search Area window closes and a new search area appears in the tree for the selected CASP case. The new

search area has the same attributes as the original except for the name. The new search area is given the name “SearchArea.X” where the X is the next number in the sequence of all numbered search areas. (For example: if your CASP case contains two search areas named “NewSearchArea” and “SearchArea.1” and you duplicate “NewSearchArea”, the new search area is named “SearchArea.2”.)

Delete

Opens the Select Search Area window, containing a list of all search areas in the CASP case. Select one and click OK. The Select Search Area window closes and the selected search area is immediately deleted.

Case Dependent Environment Records

This menu item contains a submenu with four choices:

New

Opens the Edit Environmental Record window. See Environment Data for information on adding and editing environment records.

Properties

Opens the Select Environment Record window, containing a list of all case dependent environmental records in the CASP case. Select one and click OK. The Edit Environmental Record window appears. See Environment Data for information on adding and editing environment records.

Duplicate

Opens the Select Environment Record window, containing a list of all case dependent environmental records in the CASP case. Select one and click OK. The selected record is duplicated and appears at the bottom of the list. See Environment Data for information on adding and editing environment records.

Delete

Opens the Select Environment Record window, containing a list of all case dependent environmental records in the CASP case. Select one and click OK. The Select Environment Record window closes and the selected case dependent environmental record is immediately deleted.

Case Independent Environment Records

This menu item contains a submenu with four choices:

New

Opens the Edit Environmental Record window. See Environment Data for information on adding and editing environment records.

Properties

Opens the Select Environment Record window, containing a list of all case independent environmental records in the CASP case. Select one and click OK. The Edit Environmental Record window appears. See Environment Data for information on adding and editing environment records.

Duplicate

Opens the Select Environment Record window, containing a list of all case independent environmental records in the CASP case. Select one and click OK. The selected record is duplicated and appears at the bottom of the list. See Environment Data for information on adding and editing environment records.

Delete

Opens the Select Environment Record window, containing a list of all case independent environmental records in the CASP case. Select one and click OK. The Select Environment Record window closes and the selected case independent environmental record is immediately deleted.

Replication Data

This menu item contains a submenu with three choices:

Properties

Opens the Select Replication to View/Modify window, containing a list of all replication information in the CASP case. Select one and click OK. The Replication Data window appears. See Replication Data for more information.

Plot On/Off

Toggles plotting on and off for the selected relication data. A checkmark indicates the plot status for the replication data. When plotting is on, the replication data is plotted on the C2PC map. When plotting is turned off, the replication data is removed from the C2PC map.

Delete

Opens the Select Replication to Delete window, containing a list of all replication information in the CASP case. Select one and click OK. The Select Replication to Delete window closes and the replication data is immediately deleted.

Session Logs

Allows you to record all transactions between SAR Tools and “CASP Central.”

Properties

Opens the Select Session Log window, containing a list of all session logs in the CASP case. Select one and click OK. The CASP Session Log window appears. See Session logs for more information.

Save As Text

Opens the Select Session Log window, containing a list of all session logs in the CASP case. Select one and click OK. The Save As Text File window appears. See Session logs for more information.

Delete

Opens the Select Session log to Delete window, containing a list of all session logs in the CASP case. Select one and click OK. The Select Session Log to Delete window closes and the session log is immediately deleted.

Options

Allows you to set viewing and directory preferences for the selected CASP case. The submenu contains the following choices:

Restore default Probability Map colors

Restores the default colors in the Replication Data window. See Replication Data for information on this window.

CASP Map Colors

Opens a window that allows you to choose the background and text colors for record display on the C2PC map.

View

Contains the following submenu choices:

Probability Maps

Opens the Choose Replication window. Selecting a replication and clicking OK opens the Replication window for that replication. See Replication Data for information on replications.

Optimal Searches

Opens the Choose Replication window. Selecting a replication and clicking OK opens the Replication window for that replication, displaying the Optimal Search page. See Replication Data for information on replications.

Status Board

Opens a textual file containing information on the CASP case. See Status Board for information on the Status Board.

Process Drift

Allows you to send a CASP case to CASP central for processing into probability maps. See Drift Calculation for information on process drift.

The Tools Menu

Loran Calculator

Opens the Loran Calculator window. Use this window to calculate the time differential (TD) between positions given in latitude/longitude (LL) and vice versa. This option is also available on the Standard toolbar.

Sweep Width Tables

Opens the Sweep Width Tables window. Use this window to determine optimum sweep widths, allowing for weather conditions and target and search unit characteristics. This option is also available on the Standard toolbar.

Tides & Currents

Starts the Tides & Currents™ application and opens the C2PC Tides and Currents window (as described in Tides & Currents). This option is also available on the Standard toolbar.

Reconnect to Map

Displays the search plan on the currently active C2PC map. This option is also available on the Standard toolbar.

Options

Opens the Options window. This window displays the directory for shared read/write files (uneditable), the directory for shared read-only files (uneditable), and the current user directory (editable). (See To change your default directory or How do I modify Web Application settings? for instructions.)

The Help Menu

Help Topics

Opens the Help file. This option is also available on the Standard toolbar.

About USCG SAR Tools

Opens the a window containing information about the program. This option is also available on the Standard toolbar.

Toolbars

The following toolbars are available in SAR Tools. They offer quick access to commonly accessed options. Each toolbar button accesses an option that is also available by menu.

- The Standard Toolbar
- The Objects Toolbar
- The AMS Toolbar
- The CASP Toolbar
- The Status Bar

The Standard Toolbar

The Standard toolbar contains the following icons, left to right.

New

Starts a new SAR plan. Corresponds to the New option on the File menu.

Open

Opens an existing SAR plan. Corresponds to the Open option on the File menu.

Save

Saves the current SAR plan. Corresponds to the Save option on the File menu.

Cut

Copies the selected object in the directory tree to the clipboard and deletes it. Corresponds to the Cut option on the Edit menu.

Copy

Copies the selected object in the tree to the clipboard. Corresponds to the Copy option on the Edit menu.

Paste

Pastes the copied information from the clipboard into the correct place in the directory tree. Corresponds to the Paste option on the Edit menu. Pasting an identical copy of an object that already exists has no effect.

Note: Cut, Copy, and Paste are primarily useful for copying objects (flares, patterns, etc.) from one search plan into another. See Merge for information on combining all elements of two search plans. If you need to duplicate an object within the same search plan, use the Duplicate option for that object. You can also drag an object from one search plan into another to copy and paste it.

Loran Calculator

Opens the Loran Calculator window. Corresponds to the Loran Calculator option on the Tools menu.

Sweep Width Tables

Opens the Sweep Width Tables window. Corresponds to the Sweep Width Tables option on the Tools menu.

Tides & Currents

Launches the Tides & Currents application. Corresponds to the Tides & Currents option on the Tools menu.

Reconnect to Map

Displays the search plan on the currently active C2PC map. Corresponds to the Reconnect to Map option on the Tools menu.

Print

Not yet implemented.

About

Opens the About USCG SAR Tools containing information about the program. Corresponds to the About USCG SAR Tools option on the Help menu.

Help

Opens the Help file. Corresponds to the Help Topics option on the Help menu.

The Objects Toolbar

The Objects toolbar contains the following icons, left to right.

New AMS Case

Starts a new AMS case and invokes the first page of the Datum Worksheet. Corresponds to the AMS Cases > New option on the Edit menu.

New CASP Case

Starts a new CASP case and invokes the Edit Case Data window. Corresponds to the CASP Cases > New option on the Edit menu.

New Flare Icon

Starts a new Flare Sighting case and opens the Flare Sighting Properties window. Corresponds to the Flares > New option on the Edit menu.

New Expanding Square Pattern

Starts a new Expanding Square Pattern. Corresponds to the Patterns > New > Expanding Square option on the Edit menu.

New Sector Pattern

Starts a new Sector Pattern. Corresponds to the Patterns > New > Sector option on the Edit menu.

New Parallel Line Pattern

Starts a new Parallel Pattern. Corresponds to the Patterns > New > Parallel option on the Edit menu.

New Creeping Line Pattern

Starts a new Creeping Line Pattern. Corresponds to the Patterns > New > Creeping Line option on the Edit menu.

New Track Line Pattern

Starts a new Track Line Pattern. Corresponds to the Patterns > New > Track Line option on the Edit menu.

New Icon

Starts a new icon. Corresponds to the Quick Overlays > New > Icon option on the Edit menu.

New Rng/Brg

Starts a new range/bearing line. Corresponds to the Quick Overlays > New > Range/Bearing Line option on the Edit menu.

New Range Rectangle

Starts a new range rectangle. Corresponds to the Quick Overlays > New > Range Rectangle option on the Edit menu.

New Range Ring

Starts a new range ring. Corresponds to the Quick Overlays > New > Range Ring option on the Edit menu.

New AMVER

Starts a new Automated Mutual-Assistance Vessel Rescue (AMVER) query session. Corresponds to the Web Applications > New > AMVER option on the Edit menu.

New SLDMB

Starts a new Self-Locating Datum Marker Buoy (SLDMB) query session. Corresponds to the Web Applications > New > SLDMB option on the Edit menu.

The AMS Toolbar

The AMS toolbar contains a button for each page of the three main worksheets plus the Decision Matrix and Summary buttons. This toolbar is only assessible when an AMS case is selected in the tree directory.

Worksheet buttons

Clicking on any of these buttons displays the corresponding worksheet page. More than one page may be open at once.

- Datum, pages 1-4

- Area, pages 1-4

- Effort, pages 1-2

Decision Matrix (4-Legged Monster)

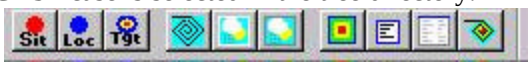
Displays the Search Planning Decision Matrix in a window. Corresponds to the Decision Matrix option on the AMS menu.

Summary

Displays the AMS case summary in a new window. Corresponds to the Summary > Show Summary Dialog option on the AMS menu.

The CASP Toolbar

The CASP toolbar contains a button for the options available in a CASP case. This toolbar is only assessible when a CASP case is selected in the tree directory.



New Situation

Starts a new situation. Corresponds to CASP > Edit > Situation Records > New.

New Location

Starts a new location. Corresponds to CASP > Edit > Location Records > New.

New Target

Starts a new target. Corresponds to CASP > Edit > Target Records > New.

New Search Area

Starts a new search area. Corresponds to CASP > Edit > Search Area Records > New.

New Case Dependent Environment Record

Starts a new case dependent environment record. Corresponds to CASP > Edit > Case Dependent Environment Records > New.

New Case Independent Environment Record

Starts a new case independent environment record. Corresponds to CASP > Edit > Case Independent Environment Records > New.

Process Drift

Invokes a “wizard” to collect information leading to a connection to CASP central for the purpose of computing a probability map. See Drift Calculation for instructions on calculating drift. Corresponds to CASP > Process Drift.

Status Board

Opens a textual file containing information on the CASP case. See Status Board for information on the Status Board. Corresponds to CASP > View > Status Board.

Process Maps

Opens the Choose Replication window. Selecting a replication and clicking OK opens the Replication window for that replication. See Replication Data for information on replications.

Optimal Search

Opens the Choose Replication window. Selecting a replication and clicking OK opens the Replication window for that replication, displaying the Optimal Search page. See Replication Data for information on replications.

The Status Bar

The Status bar is the bottom edge of the application window. Information about menu choices and toolbar icons is displayed within it.

The left portion of the Status bar displays descriptions of toolbar buttons and menu items as the pointer is positioned over them.
The right portion of the Status bar contains boxes indicating the status of certain keyboard keys (`[Caps Lock]`, `[Num Lock]`, `[Scroll Lock]`). If one is turned on, it is displayed in its box. If one is turned off, its box is empty.

Common Operations

This Help File assumes that you are familiar with both the Windows working environment and Command and Control PC (C2PC). You should also be familiar with search and rescue mission planning for the U.S. Coast Guard. The following material describes concepts and operations that are common throughout USCG SAR Tools.

- Opening, editing, and saving search plans
- File Sharing
- Connecting to the C2PC Map
- Editing search plans on the C2PC map
- Editing SAR Tools Items on the C2PC map
- Entering Data in Window Fields
- Using Context Menus (Right Pop-up Menus)
- Using Textual Windows
- Using Quick Entry Mode
- Using the Crosshairs button
- Selecting Colors

Opening, editing, and saving search plans

To open a new Search Plan

1. In C2PC, select New Search Plan from the Tools menu. (Note: You can also click the New Search Plan button ( ).

2. Click on the map to place the search plan.

   An icon is placed on the map where you clicked.

SAR Tools Icon on C2PC Map

The search plan placed in this manner is part of the map. If you save the map, the search plan is saved with it.

Warning: Do not close the C2PC map without first saving and closing the SAR Tools application editing the search plan. Doing so may lose any changes made in the search plan.

For instructions on working with a search plan within the C2P map, see Editing search plans on the C2PC map.

To edit an existing Search Plan

1. Create a new search plan. (To open a new Search Plan.)

2. Open a saved search plan using *one* of these two options:

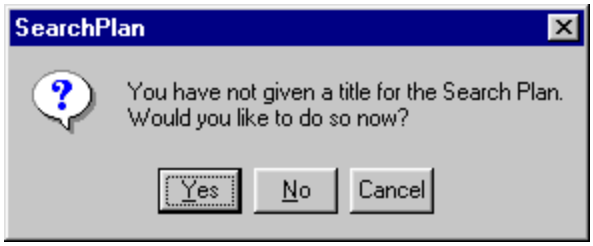
   - From the File menu, select Open.
   - On the Standard toolbar, click the Open button ( ).

Note: to edit a search plan that is part of the C2PC map, see Editing search plans on the C2PC map.

To save a Search Plan

The search plan name as shown in the file view (see USCG SAR Tools Application Window) defaults to “Untitled Plan” when you start a new plan. When you first save a new plan, you are prompted for a new name.

Saving a New Search Plan Window



- To save the search plan with matching file and folder names, click Yes.
- To save the search plan with a new name and keep the folder name as “Untitled Plan”, click No.
- To cancel saving the search plan, click Cancel.

The Saving a New Search Plan window contains the following buttons:

Yes

The Plan Properties window appears. Enter a plan title and click OK to apply the name. This folder in the file view changes to the title you entered and the file is saved with the title you entered.

Example: You enter `Corpus Christi Search Plan` as a title. The folder in the file view is named “Corpus Christi Search Plan”. The file is named `Corpus_Christi_Search_Plan.srp`. Note that the spaces are changed to underscore characters in the file name.

To cancel saving the search plan click Cancel.

No

The Save As window appears. Enter a file name and click OK. The file is saved with the name you entered. The folder in the file view remains “Untitled Plan”.

To cancel saving the search plan click Cancel.

Cancel

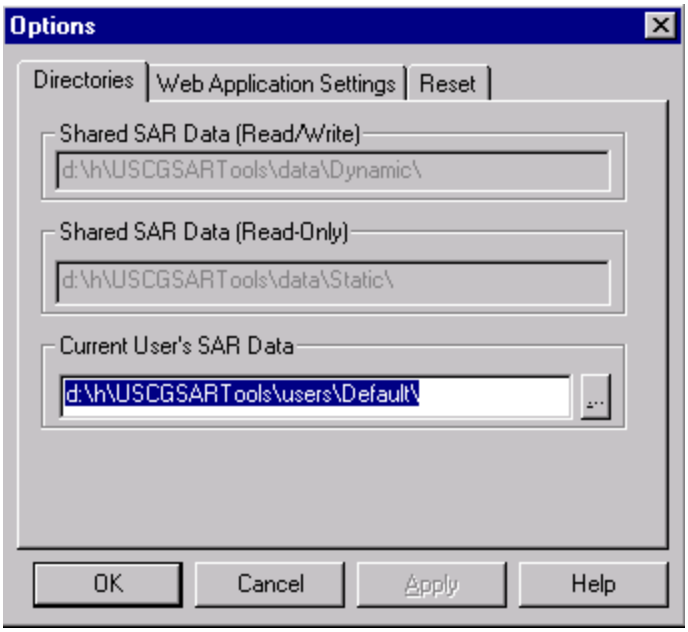
You are returned to the search plan window and the search plan is *not* saved.

To change your default directory

You cannot change the directory where shared files are saved, but you can change the directory where your own files are saved (the user directory).

1. From the Tools menu, select Options. The Options window appears.

Options Window

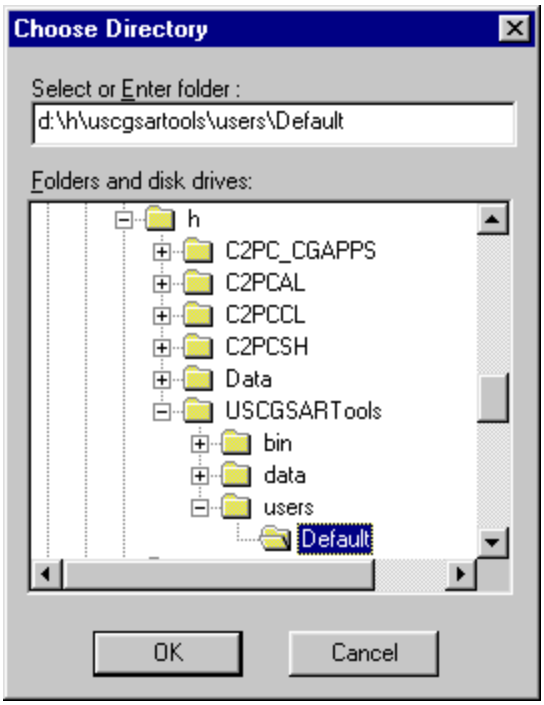


2. To select a new directory for user data, use one of the following methods:

   - In the Current User's SAR Data field, enter the path for the directory you wish to use.

   - Click the Browse button (...). The Choose Directory window appears.

Choose Directory Window



Navigate through the tree and select the directory you wish to use. Click OK.

3. In the Options window, click OK.

File Sharing

A single Search Plan may be viewed by more than one person at a time, but only the first person who opened the file may save changes to it. When you try to open a file that is already open, you see a warning dialog box. The warning states who has the original file and asks if you would like to open a copy of the file. Clicking OK opens a copy of the Search Plan and clicking Cancel cancels the open file operation.

A copy of a Search Plan file is clearly labeled in the title bar (see Copy of a Search Plan File for an example).

Copy of a Search Plan File

The original owner of the Search Plan may make changes and save the file as usual. If you are working in a copy of a Search Plan, you may make changes as usual; however, you may not save your changes into the original file.

When you save the copy, a warning dialog box appears, stating that the file is in use by another person. The only action possible is to click OK. Clicking OK opens the Save As window. You may save the file under a new name so that any changes you made are not lost and so that you do not overwrite anyone else's changes. The two files may be merged, if necessary (see Merge).

Connecting to the C2PC Map

If you start C2PC before opening a Search Plan, the Search Plan will automatically be plotted on the C2PC map. If you start C2PC after opening a Search Plan, if you must quit and restart C2PC, or if a new C2PC map is opened, the Search Plan will not be displayed on the C2PC map. You must reconnect to the map.

To reconnect to the C2PC map, select Reconnect to Map from the Tools menu (or click the Reconnect to Map button ( ) on the Standard toolbar). The Search Plan will then be plotted on the map.

If you are editing one or more AMS cases, you will not be able to reconnect to the C2PC map. A warning window appears, stating that you must close any open cases before reconnecting. After closing any open cases (for example, any AMS worksheet dialogs) you may reconnect to the map.

Editing search plans on the C2PC map

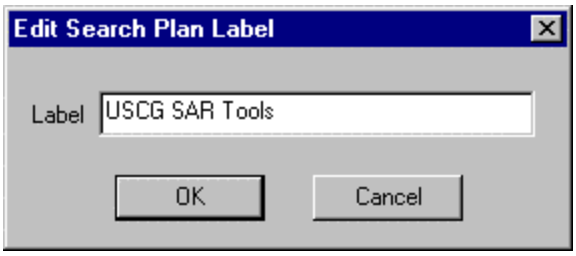
You can edit only a search plan that is part of the C2PC map (see *To create a new search plan*).

Warning: Do not close the C2PC map without first saving and closing the SAR Tools application editing the search plan. Doing so may lose any changes made in the search plan.

To change the search plan icon's label on the map

1. From the icon's context menu, select Edit Label. The Edit Search Plan Label window appears.

Edit Search Plan Label Window



2. In the Label field, enter the label as you wish it to appear on the map.
3. Click OK.

To show or hide the search plan icon's label

To hide the label, select Hide Label from the icon's context menu.
To hide the label, select Show Label from the icon's context menu.

To increase or decrease the size of the search plan icon

To decrease the size of the icon, select Small Icon from the icon's context menu.
To increase the size of the icon, select Large Icon from the icon's context menu.

To delete the search plan from the map

From the icon's context menu, select Delete.

Note: Once you delete the search plan, you cannot get it back. If you need to remove the search plan from the map but still need access to the search plan, first save a copy as an independent search plan file (see *To save a search plan on the map as a separate file*).

To move the search plan icon

Click and drag the icon to a new location.Note that moving the icon has no effect on any parts of the search plan that are plotted on the map. If you open the search plan, all items are still plotted in their original locations on the map.

To edit the search plan

Open the search plan in the SAR Tools application using on of the following methods:

- From the icon's context menu, select Properties.
- Double-click the icon.

Warning: Do not close the C2PC map without first saving and closing the SAR Tools application editing the search plan. Doing so may lose any changes made in the search plan.

To place an independent search plan file onto the map

1. Place a new search plan on the C2PC map (see *To create a new search plan*).
2. Open the search plan (see *To edit the search plan*).
3. From the File menu, select Open.
4. In the Open window that appears, select the search plan file.
5. Click Open.
6. Save the search plan (select Save from the SAR Tools File menu).

The search plan attached to the map now contains everything that is in the search plan file.

Note: If the independent search plan file is edited, the search plan attached to the C2PC map will not reflect those changes. To update the search plan within the map, use Merge.

You can also use the Merge command to merge an independent search plan file into a search plan attached to the map (see *Merge*).

To save a search plan on the map as a separate file

1. Select Save Copy As from the File menu
2. Enter a name in the Save Copy As window that appears.
3. Select the directory in which to save the search plan.
4. Click Save.

The search plan is now a separate *.srp file.

Note: If the search plan attached to the C2PC map is edited, the independent search plan file will not reflect those changes. To update the search plan file, use Merge.

To copy a search plan from one map to another map

1. Open the C2PC map that contains the search plan you wish to copy.
2. Select the search plan icon on the map.
3. From the context menu, select Copy.
4. Open the other map.
5. Place a new search plan on the map (see *To open a new Search Plan*).
6. From the context menu for the new search plan, select Paste.

   The contents of the first search plan are copied into the new search plan.

Editing SAR Tools Items on the C2PC map

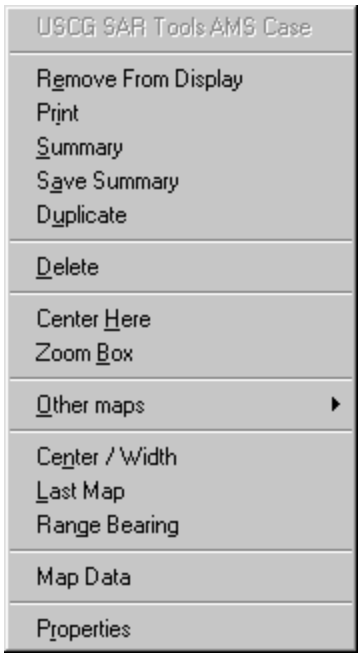
You can edit SAR Tools items (search patterns, flares, etc.) directly on the C2PC map using context menus or by opening their properties windows.

To use context menus

Note: You should not be in an edit window in SAR Tools when you use the context menu in C2PC. If you do, a warning windows appears saying that the action selected cannot take place unless you close the edit window.

1. Right-click on the plot of a SAR Tools item on the C2PC map (for example, a search pattern or flare). Its context menu appears.

Example of C2PC Context Menu for SAR Tools Item



At the top of the menu, an unavailable menu choice acts as a menu title, displaying what the item is (in this example, the context menu is for an AMS case).

2. Select the menu item for what you need to accomplish.

   The menu items listed first (in this example, Remove From Display, Print, Summary, Save Summary, Duplicate, and Delete) work in the same manner as they do in the context menu for this item in the SAR Tools tree display. Remove From Display is the same as clearing the checkbox next to the item in the SAR Tools tree display: the item is removed from the map. To plot the item on the map again, ensure its box is checked. This list of options changes, according to the item selected.

   The last menu item, Properties, displays the Properties window for the item.

Tip: You can edit multiple items on the C2PC menu at the same time. To do so, select the items (either by clicking and dragging around them or by shift-clicking the items) and then right-click on one of them. The context menu that appears contains only those commands that can be applied to all the selected items. Choose one of the commands and it is applied to all the

selected objects. (For example, you can delete several items at once, or you can turn off the plotting for them.)

To access the properties window

You can access the Properties window of any SAR Tools item plotted on the C2PC map directly from the C2PC map in two ways:

- Right-click on the item's graphic and select Properties from the context menu.
- Double-click the item's graphic.

Entering Data in Window Fields

DTG Field

This field is consistent with C2PC Date-Time Group units of time. This field defaults to Zulu time and a DTG entered in another zone is translated to Zulu time. Unless noted otherwise, the @ short cut applies (enter the @ symbol to automatically enter the current DTG).

When a DTG field has a Using the Crosshairs button, click it to enter the current DTG.

Speed

Unless noted otherwise, speed fields are consistent with C2PC conventions for units of speed.

Distance (Length, Width, etc.)

Unless noted otherwise, distance fields are consistent with C2PC conventions for units of distance.

Orientation fields

All orientation fields use degrees true.

Using Context Menus (Right Pop-up Menus)

Click on the item with the right mouse button and a menu appears containing shortcuts to common operations for the item. Negotiate this menu just like any other menu.

Using Textual Windows

Click on the icon in the top left corner of the window and the window menu appears. The menu includes the following items.

Restore

This menu item is not available.

Move, Size, Minimize, Maximize, Close

These menu items follow Windows conventions.

Save As Text

Saves the summary information as text. Recommended for printing, since the text file can be opened into any word processing application and then formatted and printed as desired.

Print

Prints the summary information using a default font and size. If this print is inadequate, the Save As Text option can be used. The resulting text file can be opened in any word processing application (for example, Notepad®) and then formatted and printed as desired.

Any additional menu items are unique to the particular text window and are discussed in the applicable section.

Disabling and enabling the informational dialog boxes

Some windows open informational dialog boxes under certain circumstances. These window can be disabled, or “turned off”, so they do not appear at any time. This setting is a user setting; one user on a machine can have the boxes on, while another can have them off. This setting can be reversed, so the boxes will appear again at the appropriate times.

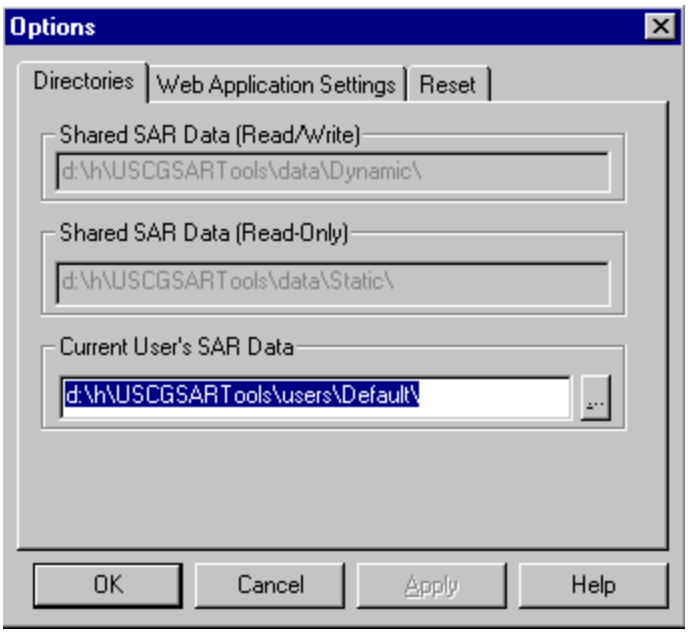
To disable the info dialog box

To stop this informational dialog box from appearing, select the checkbox in the dialog box, as shown: ☑ Do not show this message again

To reset the message box so that it appears again

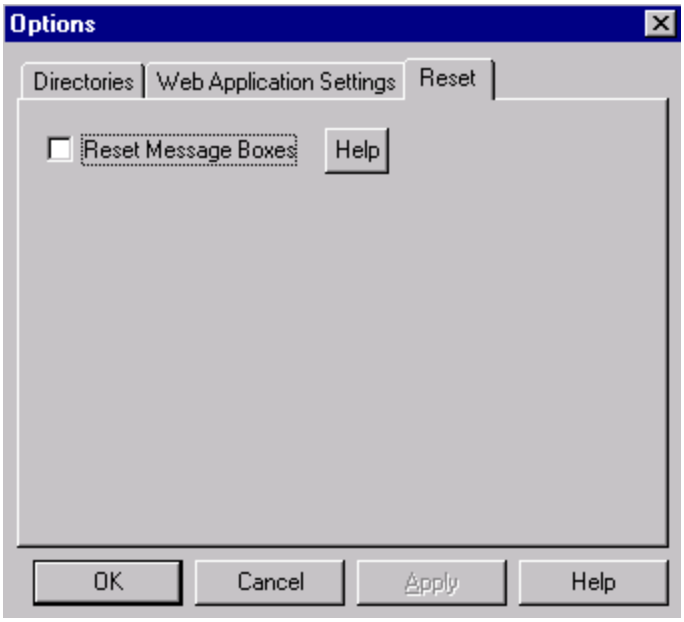
1. To have the informational message box appear after disabling it, select Options from the Tools menu. The Options window appears.

Options Window, Directories Tab



2. Select the Reset tab.

Options Window, Reset Tab



3. Select the checkbox.
4. Click OK.

All informational messages will now appear as they did before you disabled them.

Using Quick Entry Mode

In many area-type windows, opening the window with an incomplete area defined invokes the quick entry mode. While in this mode, the cursor *when positioned in the C2PC map* is displayed as an arrow with either a small circle or square to the right.

Clicking and dragging on the map draws the area; the window automatically fills in the appropriate boxes.
Additionally, any time an area-type window is open and the area is already defined, position handles appear on the area in the C2PC map. The area can be altered by clicking and dragging these handles; the appropriate window fields automatically reflect the changes.

Using the Crosshairs button

Some types of fields include a Crosshairs button ( ):

Position

Point plots on the C2PC map (such as flares, quick icons, the datum) include a Position field with the Crosshairs button on the right. Use it as follows:

a. Click the Crosshairs button.

b. Click on the C2PC map at the point you wish to plot the item. The Position field automatically reflects that point.

See it done.

Center

Area plots on the C2PC map (such as search patterns, the search area) include a Center field with the Crosshairs button on the right. Use it as follows:

a. Click the Crosshairs button.

b. Click on the C2PC map at the point you wish to center the area. The Center field automatically reflects that point.

See it done.

DTG

When a DTG field has a Crosshairs button, click it to enter the current DTG.

See it done.

Selecting Colors

Many items have a choice of display colors. This choice is accessed through a button labeled Color (usually located on a properties window page entitled Display). The button usually looks like this:

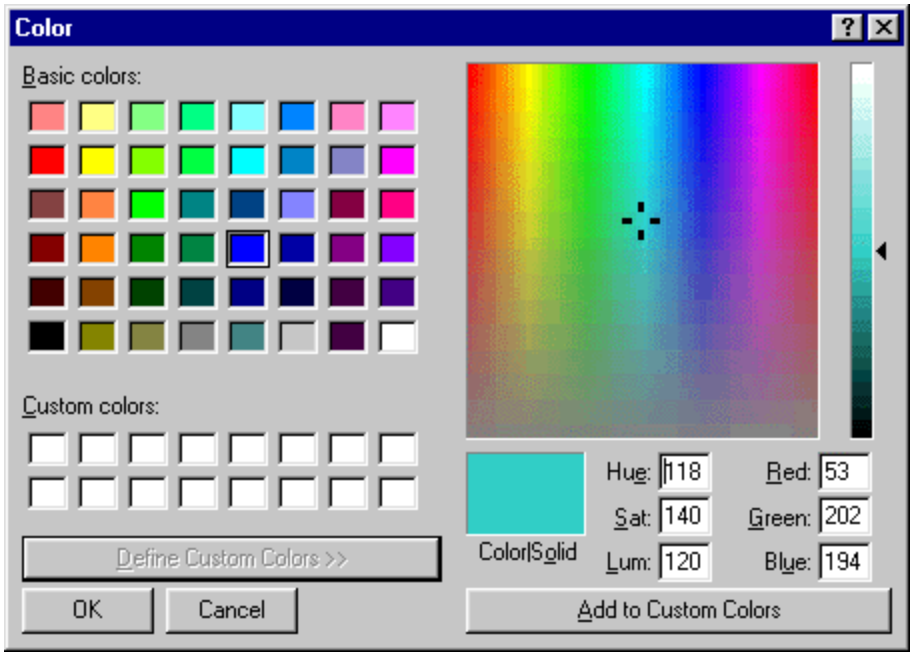
The button to the right of the word Color displays the selected color. Click this button to invoke the Color window.

Color Window

The window contains a palette of available colors. Click one and then click OK to display the map item in that color.

Additionally, custom colors may be user-defined. Click the Define Custom Colors >> button to expand the Color window.

Expanded Color Window



A custom color may be added in two ways: by clicking on the color map or by entering numeric values.

To use the color map

1. Click the color on the color map (the rainbow box). The cursor appears as a crosshairs. As you move the cursor over the color map, the Color|Solid box under the color map displays the color under the cursor.
2. On the slider at the right of the color map, select the black/white ratio. The top is white, and any color selected will display white. The bottom is black, and any color selected will display black. The center is pure color, towards white is pastel, towards black is darker.
3. Click the Add to Custom Colors button. The color is added to the list of Custom colors underneath Basic colors.
4. Click the color in the Custom colors area and click OK to display the map item in the new color.

To enter numeric values

Either the Hue/Saturation/Luminosity (HSL) boxes may be used or the Red/Green/Blue (RGB) boxes may be used to create a custom color. Enter the values that represent the color in either HSL or RGB.

Hue/Saturation/Luminosity

The Hue value controls the color (right and left on the color map). Values range from 0 to 239 (left to right).

The Saturation value controls the purity of the color (up and down on the color map). Values range from 0 to 240 (bottom to top).

The Luminosity value controls black/white ratio (up and down the slider). Values range from 0 to 240 (bottom to top).

Red/Green/Blue

Enter the value of each to compose the desired color. Values range 0-255 (full color off to full color on).

Examples of RGB Colors

Color	R-value	G-value	B-value
Black	0	0	0
White	255	255	255
Red	255	0	0
Green	0	255	0
Blue	0	0	255

Tides & Currents

USCG SAR Tools work with Tides&Currents. AMS can read tide and current information directly from Tides&Currents, automating an otherwise tedious manual data entry task (as described in Datum Worksheet (Tidal Current)). Also, USCG SAR Tools can take tides and currents data from the Tides&Currents software and display them directly on the C2PC map. See Tides and Currents for instructions on displaying tides and currents on the C2PC map.

Advanced SAR Tools

Advanced SAR Tools

This section contains descriptions of the following advanced options in SAR Tools:

- Automated Manual Solution
- Computer Aided Search Planning
- Flares
- Quick Overlays
- Search Patterns
- Web Applications

Automated Manual Solution

Automated Manual Solution (AMS) provides automated worksheets for planning Search and Rescue operations more accurately and efficiently than the completely manual process. These worksheets calculate probable locations of search objects and probable search area sizes according to inputs from the user. The worksheets also assist the user in allocating search and rescue units (SRUs) to efficiently search the search area.
AMS is divided into three main worksheets:

- Datum Worksheets
- Area Worksheets
- Effort Worksheets

Basic Worksheet Options

When an AMS file is opened, the first page of the Datum Worksheet is usually displayed (see AMS Viewing Properties for exceptions to this). At any other time, any of the worksheets can be accessed by using the worksheet buttons on the AMS toolbar:

In all of the main worksheet pages (Datum 1-4, Area 1-4, Effort 1-2), one or both of these buttons is located at the bottom:

Next Pg

Displays the next page of the worksheet. Also moves from one worksheet to the next. For example, on page four of the Datum Worksheet, clicking Next Pg displays page one of the Area Worksheet.

Previous Pg

Displays the previous page of the worksheet. Also moves from one worksheet to the next. For example, on page one of the Area Worksheet, clicking Previous Pg displays page four of the Datum Worksheet.

To move from one field to the next, press [Tab].
The letters and numbers used to label sections within the worksheets are reflected in this manual.
Some of the worksheets include access to additional sub-worksheets. Most of these are discussed as they appear. However, a few of them are complicated; some of them contain their own sub-worksheets and some of them follow their own numbering system. To preserve the flow of the main worksheets, these few sub-worksheets are described in Additional Worksheets. You are always directed to the proper section when necessary.

Datum Worksheets

The Datum Worksheet consists of four pages:

- Datum Worksheet, Page One
- Datum Worksheet, Page Two

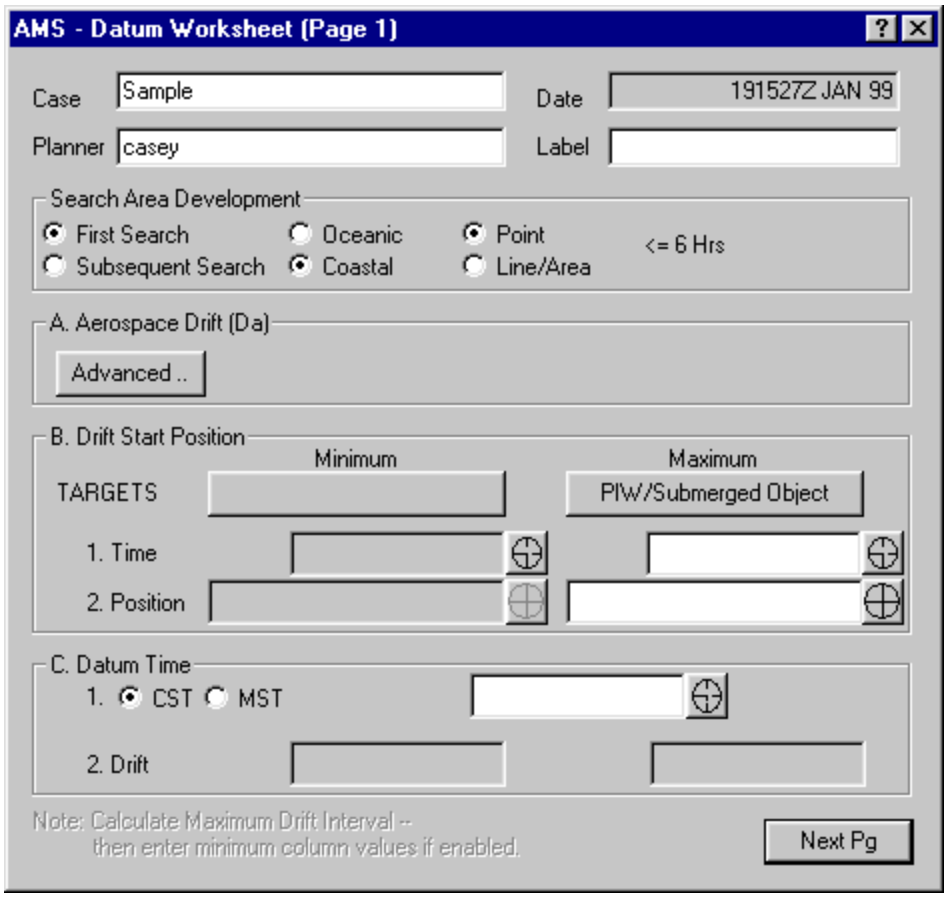
- Datum Worksheet, Page Three
- Datum Worksheet, Page Four

Use the Datum Worksheet to enter information about a SAR case. You may access additional sub-worksheets to complete certain entries, such as Reversing Tides, Wind Current, Other Water Current, and Leeway.
Sub-worksheet calculations may be overwritten by entering a new value in the associated vector calculation fields. To reinstate sub-worksheet calculations, clear all associated vector calculation fields on the Datum Worksheet.
For more help, see the following:

- Basic Worksheet Options
- How do I open a new AMS worksheet?
- How do I edit an existing AMS worksheet?
- How do I import previous search information into a successive AMS worksheet?

Datum Worksheet, Page One

Datum Worksheet (Page 1) Window



Page one of the Datum Worksheet contains four fields at the top.

Case

Enter the name of the case. This entry is immediately reflected in the tree directory.

Date

Defaults to the date of creation. This field is uneditable.

Planner

Enter the name of the person planning the case.

Label

Enter a label for the case.

This window also contains the Search Area Development area, which defines what type of search is being planned. This area contains three sets of radio button pairs:

First Search - Subsequent Search

Click the applicable button. Note that some options in the worksheets are not available for a first search. For each subsequent search, all effort worksheets are cleared so you cannot accidentally carry SRUs from one search to another.

Note: When accessing the Plan Subsequent Search option from the AMS menu, this field automatically moves from First Search to Subsequent Search.

Oceanic - Coastal

Select Oceanic to develop a SAR plan for cases originating offshore, or Coastal for cases originating near the coast.

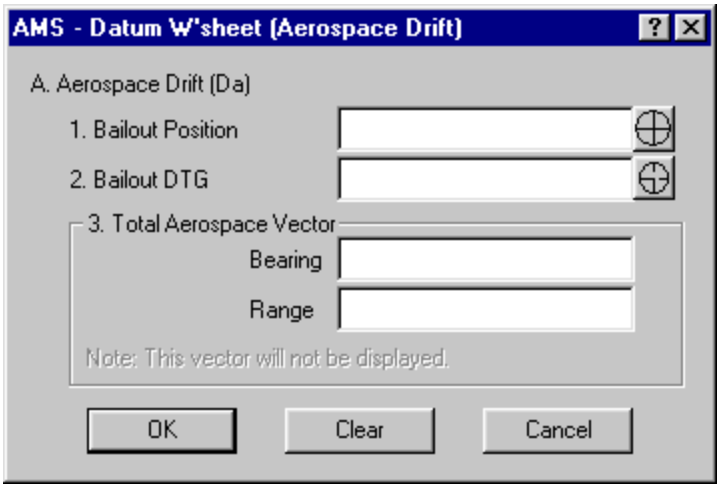
Point - Line/Area

Select either Point to develop a SAR plan for cases originating from a specific start position, or Line/Area for cases based on start positions which form a line or a specific area.

A. Aerospace Drift (DA)

Click the Advanced button. The Aerospace Drift window appears.

Datum W'sheet (Aerospace Drift) Window



1. Bailout Position

Enter the coordinates for the bailout position either by entering its numerical value or by using the Crosshairs button (as described in Using the Crosshairs button).

2. Bailout DTG

Enter the Date-Time Group (DTG) for the bailout position either by entering its numerical value or by using the Crosshairs button (as described in Using the Crosshairs button).

3. Total Aerospace Vector

The aerospace vector is the initial drift caused by a bailout or airplane trajectory. Enter the bearing in true degrees and the distance. If there was no initial aerospace vector, enter 0 for both bearing and distance (you cannot leave these fields blank). This entry will not be plotted on the display.

- To save entries and return to the current main worksheet page, click OK.
- To return to the current main worksheet without saving entries, click Cancel.
- To empty the fields and close the window, click Clear.

B. Drift Start Position

To enter characteristics of the search object, click the button under either Minimum or Maximum. (Minimum will not be available in certain circumstances.) The AMS - Datum Target Leeway - Maximum (or Minimum) window appears. Please see Datum Worksheet (Target Leeway) for instructions on this worksheet.

Note: If you do not manually enter minimum target characteristics, the minimum target is automatically set to match the maximum target after you enter the minimum time and position.

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1. Time

For minimum and/or maximum drift, enter the time that drift began either by entering its numerical value or by using the Crosshairs button (as described in Using the Crosshairs button).

2. Position

For minimum and/or maximum drift, enter the point at which drift began either by entering its numerical value or by using the Crosshairs button (as described in Using the Crosshairs button).

C. Datum Time

Enter the DTG for the target description.

1. CST/MST

Select CST (Commence Search Time) or MST (Mid Search Time) as applicable, and enter the DTG in the field to the right of the radio buttons either by entering its numerical value or by using the Crosshairs button (as described in Using the Crosshairs button).

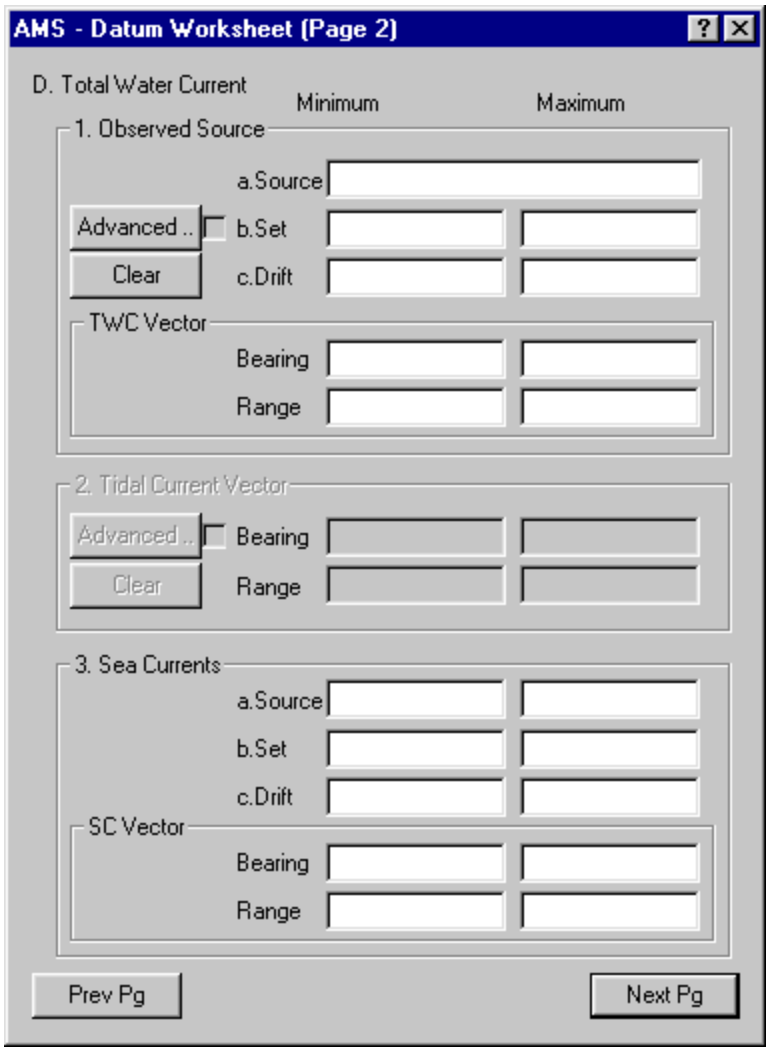
2. Drift

Defaults to the time internal from the start position to the datum time. The result displays rounded to the nearest hundredth hour (e.g., 12.50 HRS).

Note: The Datum time must be later than the drift start position time.

Datum Worksheet, Page Two

Datum Worksheet (Page 2) Window



D. Total Water Current

Entries reflect the total water current. Minimum entries are sometime unavailable and default to the maximum values. The maximum value entry is mandatory.

1. Observed Source

Entries describe an observed object which helps navigators calculate the TWC. Datum Marker Buoys (DMBs), weighted objects, and debris which have little freeboard make excellent objects to observe TWC. With minimal current, first day DMB observations may be questionable due to SRU (Search and Rescue Unit) navigational error. Average TWC observed over two to three days reduces the effect of this error.

a. Source

Enter the type of object observed.

b. Set

Enter the true direction of the observed object's drift.

c. Drift

Enter the drift speed of the observed object.

TWC Vector: Defaults to the direction from the above Set field multiplied by the above Drift field. You may also enter the TWC Vector directly; the Set and Drift will then be calculated based on the Drift Interval.

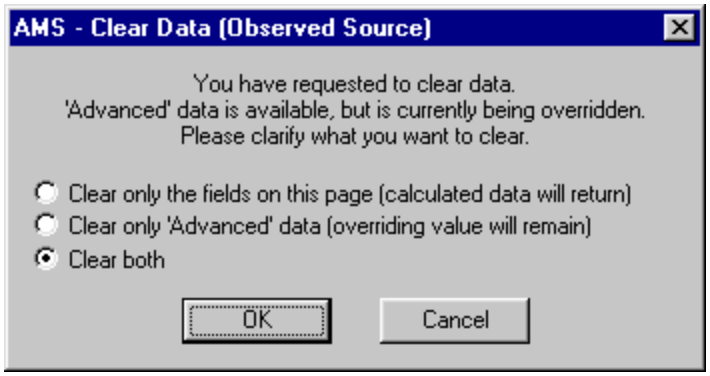
Note: If TWC Vector is entered, you cannot enter Sea Current (D.3) or Wind Current (D.4).

If entries are unknown, click Advanced. Please see Datum Worksheet (Observed Source) for instructions on this worksheet.

When you enter advanced data, the checkbox next to the Advanced button is filled in (Advanced ..): note that you cannot check or clear this box directly. This check remains if you override the advanced data by entering data in the Datum Worksheet Page 2.

The Clear button can clear entries in both places or in just one. If you click Clear after entering data in only one place, a confirmation dialog appears. Clicking OK clears the data and clicking Cancel does not. If you click Clear after entering data in both places, a dialog appears asking you to clarify what you wish to delete.

Clear Data Window



You can choose to delete only the advanced data (leaving the values entered in the main window); only the values in the main window (displaying the advanced data values); all advanced data and the values entered in the main window; or cancel and leave both sets in place.

2. Tidal Current Vector

In coastal waters, currents are usually caused by tides. Local knowledge is of great value in dealing with movements of tidal currents. Enter the true direction and distance of the tidal current vector(s).

Note: If Oceanic is selected in Search Area Development on page one of the Datum Worksheet, Tidal Current Vector is not available.

If entries are unknown, click Advanced. Please see Datum Worksheet (Tidal Current) for instructions on this worksheet.

When you enter advanced data, the checkbox next to the Advanced button is filled in (Advanced ..): note that you cannot check or clear this box directly. This check remains if you override the advanced data by entering data in the Datum Worksheet Page 2.

The Clear button can clear entries in both places or in just one. If you click Clear after entering data in only one place, a confirmation dialog appears. Clicking OK clears the data and clicking Cancel does not. If you click Clear after entering data in both places, a dialog appears asking you to clarify what you wish to delete. (See Clear Data Window for a picture of the window.)

You can choose to delete only the advanced data (leaving the values entered in the main window); only the values in the main window (displaying the advanced data values); all advanced data and the values entered in the main window; or cancel and leave both sets in place.

3. Sea Currents

The sea current may affect the drift of the search object when the surface position measures more than 25 NM from shore and the water depth is greater than 300 feet.

a. Source

Enter the publication from which your data is observed.

b. Set

Enter the true direction of the observed current.

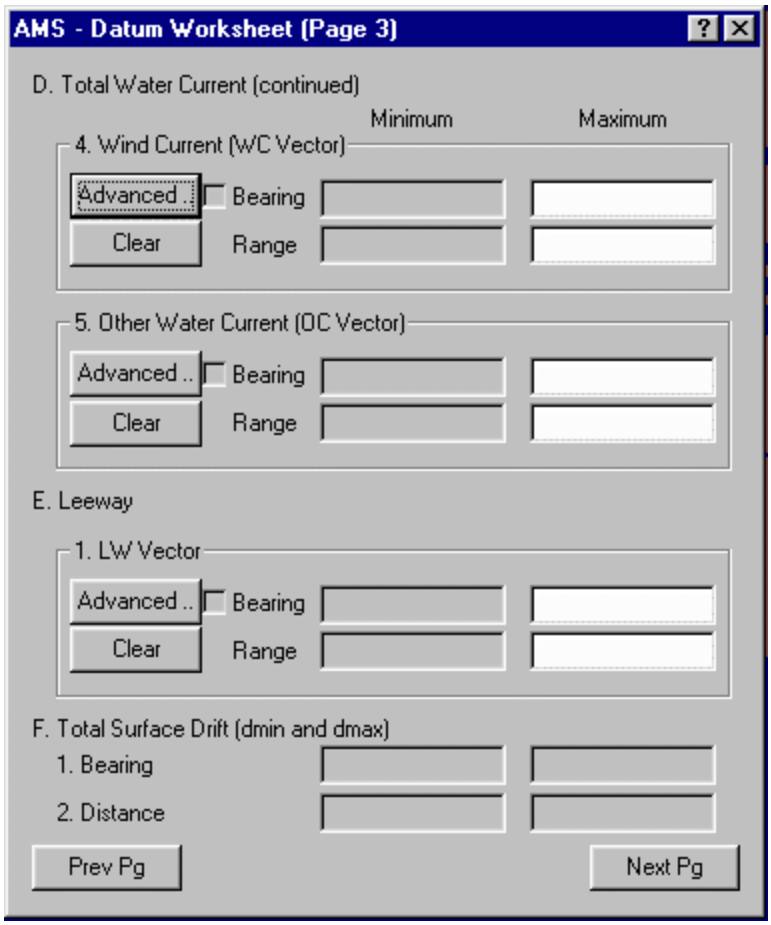
c. Drift

Enter the drift speed of the observed sea current.

SC Vector: Defaults to the direction from the above Set field multiplied by the above Drift field. You may also enter the SC Vector directly; the Set and Drift will then be calculated based on the Drift Interval.

Datum Worksheet, Page Three

Datum Worksheet (Page 3) Window



D. Total Water Current (continued from page two)

4. Wind Current (WC Vector)

If the location of the surface position allows for 20 NM of fetch and the water depth is greater than 100 feet, wind current may affect the drift of the search object.

Enter the Bearing and Range of the wind current vector (i.e., longshore, local known).

If entries are unknown, click Advanced. Please see Datum Worksheet (Wind Current) for instructions on this worksheet.

When you enter advanced data, the checkbox next to the Advanced button is filled in (Advanced ..): note that you cannot check or clear this box directly. This check remains if you override the advanced data by entering data in the Datum Worksheet Page 3.

The Clear button can clear entries in both places or in just one. If you click Clear after entering data in only one place, a confirmation dialog appears. Clicking OK clears the data and clicking Cancel does not. If you click Clear after entering data in

both places, a dialog appears asking you to clarify what you wish to delete. (See Clear Data Window for a picture of the window.)

You can choose to delete only the advanced data (leaving the values entered in the main window); only the values in the main window (displaying the advanced data values); all advanced data and the values entered in the main window; or cancel and leave both sets in place.

5. Other Water Current (OC Vector)

If there is an additional water current (e.g., longshore, local known) that may affect the drift of the search object, enter its direction and distance.

Enter the Bearing and Range of the other water current vector.

If entries are unknown, click Advanced. Please see Datum Worksheet (Other Current) for instructions on this worksheet.

When you enter advanced data, the checkbox next to the Advanced button is filled in (Advanced ..): note that you cannot check or clear this box directly. This check remains if you override the advanced data by entering data in the Datum Worksheet Page 3.

The Clear button can clear entries in both places or in just one. If you click Clear after entering data in only one place, a confirmation dialog appears. Clicking OK clears the data and clicking Cancel does not. If you click Clear after entering data in both places, a dialog appears asking you to clarify what you wish to delete. (See Clear Data Window for a picture of the window.)

You can choose to delete only the advanced data (leaving the values entered in the main window); only the values in the main window (displaying the advanced data values); all advanced data and the values entered in the main window; or cancel and leave both sets in place.

E. Leeway

Leeway entries reflect the movement of a search object through water caused by winds blowing against exposed surfaces.

1. LW Vector

Enter the Bearing and Range of the leeway vector.

If entries are unknown, click Advanced. Please see Datum Worksheet (Leeway) for instructions on this worksheet.

When you enter advanced data, the checkbox next to the Advanced button is filled in (Advanced ..): note that you cannot check or clear this box directly. This check remains if you override the advanced data by entering data in the Datum Worksheet Page 3.

The Clear button can clear entries in both places or in just one. If you click Clear after entering data in only one place, a confirmation dialog appears. Clicking OK clears the data and clicking Cancel does not. If you click Clear after entering data in both places, a dialog appears asking you to clarify what you wish to delete. (See Clear Data Window for a picture of the window.)

You can choose to delete only the advanced data (leaving the values entered in the main window); only the values in the main window (displaying the advanced data values); all advanced data and the values entered in the main window; or cancel and leave both sets in place.

F. Total Surface Drift (dmin and dmax)

Defaults to resultant vector of the Total Water Current, Tidal Current, Sea Current (SC), Wind Current (WC), Other Water Current, and Leeway vectors (LW), as applicable. The Total Surface Drift determines the resultant vector for surface position to the tail of the leeway vectors. Dmin is the resultant vector whose end is closer to the surface position. Dmax is the furthest position.

1. Bearing

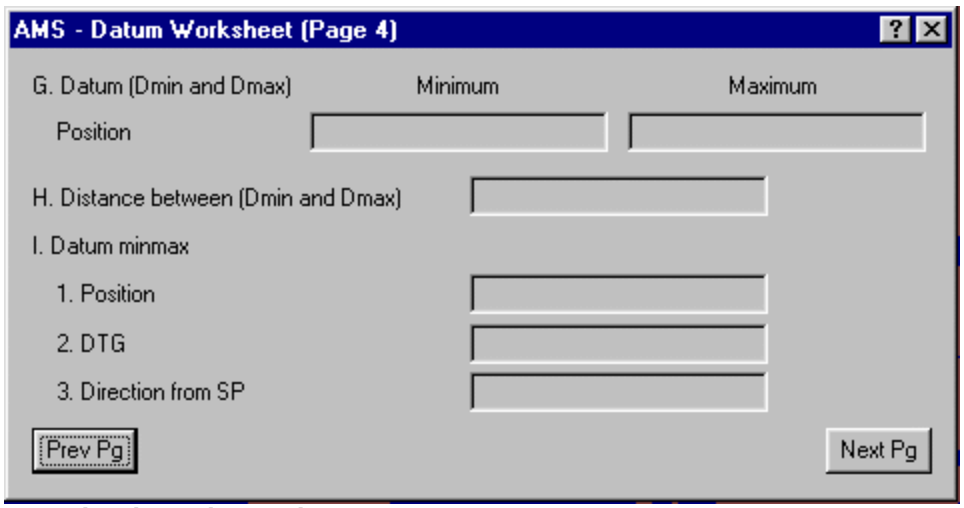
Defaults to the bearing of the Total Surface Drift.

2. Distance

Defaults to the distance of the Total Surface Drift.

Datum Worksheet, Page Four

Datum Worksheet (Page 4) Window



G. Datum (Dmin and Dmax)

Refers to the positions located at the ends of the vectors plotted for the Total Surface Drift. The positions of the resultant vectors default based on the previously entered information on the Datum Worksheet.

H. Distance between (Dmin and Dmax)

Defaults to the distance between Dmin and Dmax.

I. Datum minmax

Displays entries which default to the midpoint of the line between Dmin and Dmax.

1. Position

Displays the midpoint position.

2. DTG

Displays the midpoint DTG.

3. Direction from SP

Displays the direction from the Surface Point (SP) to the Datum minmax.

Area Worksheets

The Area Worksheet consists of four pages:

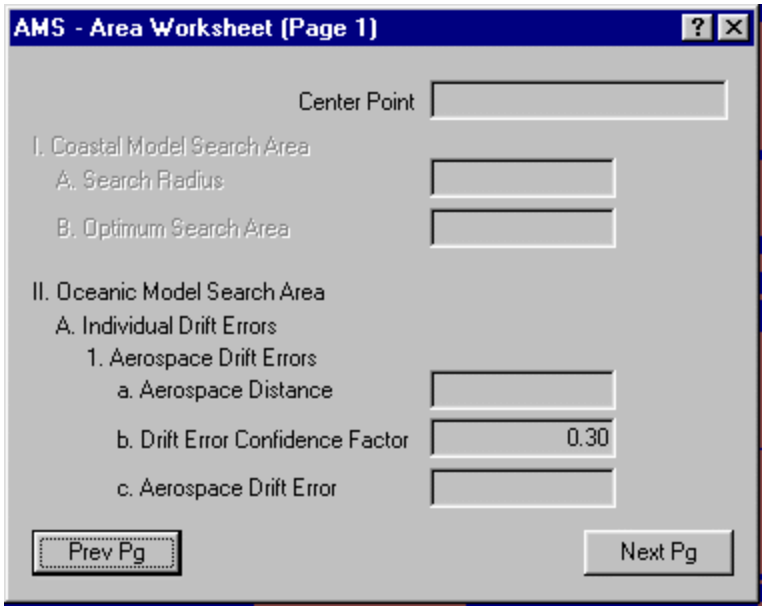
- Area Worksheet, Page One
- Area Worksheet, Page Two
- Area Worksheet, Page Three
- Area Worksheet, Page Four

Use the Area Worksheet to determine the search area most likely to contain the search object. You may access additional sub-worksheets to complete certain entries.
For more help, see the following:

- Basic Worksheet Options
- How do I open a new AMS worksheet?
- How do I edit an existing AMS worksheet?
- How do I import previous search information into a successive AMS worksheet?

Area Worksheet, Page One

Area Worksheet (Page 1) Window



The Center Point field defaults to the Datum minmax from page four of the Datum Worksheet.
If Oceanic is selected in Search Area Development on page one of the Datum Worksheet, Oceanic Model Search Area will be available. If Coastal is selected in Search Area

Development on page one of the Datum Worksheet, Coastal Model Search Area will be available.

I. Coastal Search Area

A. Search Radius

The default for the Coastal Search Area equals 6.0 NM.

B. Optimum Search Area

The default standard search area size equals 144 SQNM.

II. Oceanic Model Search Area

A. Individual Drift Errors

Computes the drift error for each datum. The Confidence Factor is assumed to be three tenths of the total drift.

1. Aerospace Drift Errors

Uses information from the Datum Worksheet to calculate the amount of a possible error in the aerospace drift.

a. Aerospace Distance

Defaults to the Total Aerospace Vector entry from the Datum Worksheet.

b. Drift Error Confidence Factor

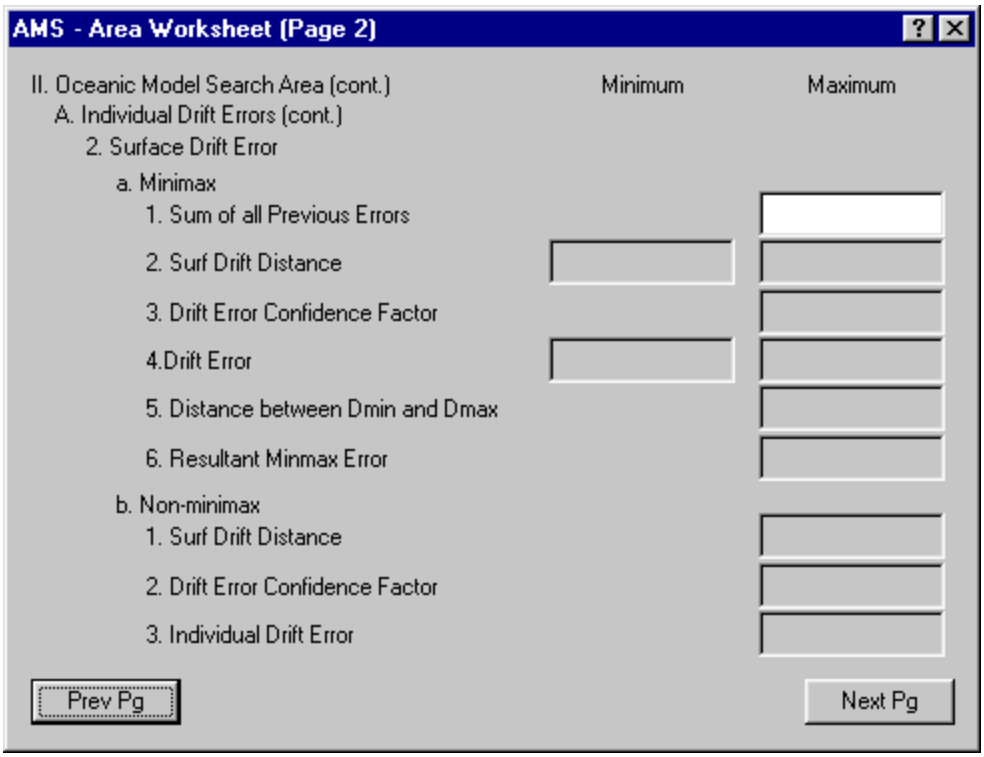
Defaults to 0.3.

c. Aerospace Drift Error

Defaults to the Aerospace Distance multiplied by the Drift Error Confidence Factor.

Area Worksheet, Page Two

Area Worksheet (Page 2) Window



Note that for illustrative purposes, both a. Minimax and b. Non-minimax are visible. Normally, either one or the other will be available, according to previous entries in the Datum Worksheet.

II. Oceanic Model Search Area (continued from page one)

A. Individual Drift Errors (continued from page one)

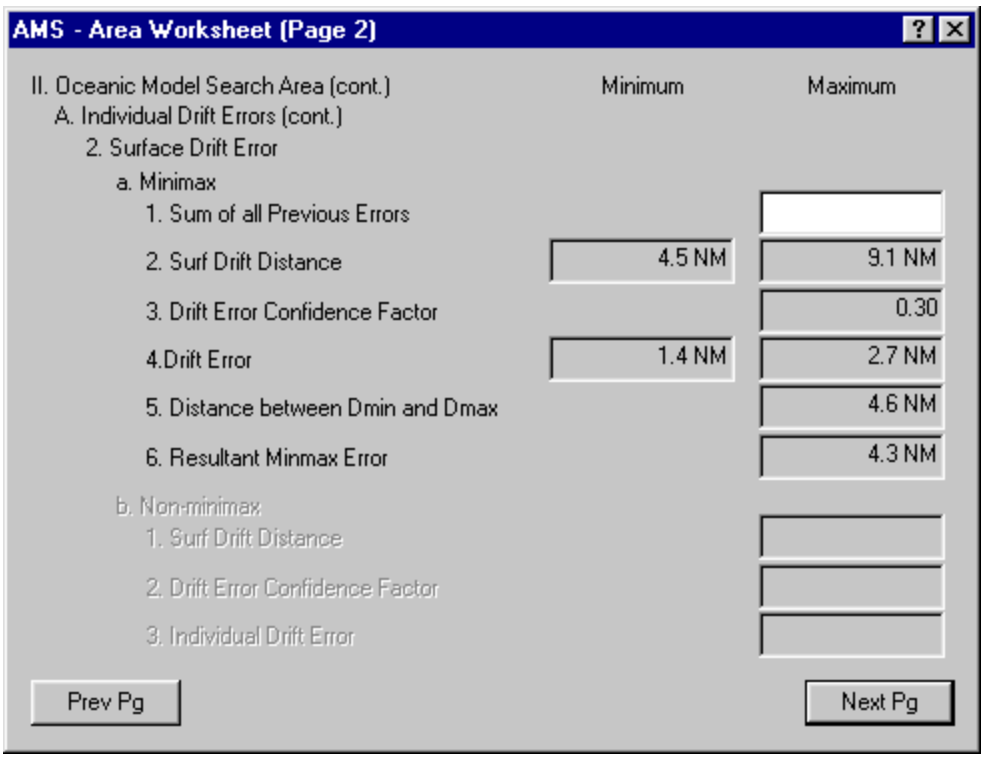
2. Surface Drift Error

To calculate the Surface Drift Error, perform *either* a minimax search *or* a non-minimax search.

a. Minimax

The minimax search contains only one field that accepts input from you. The other fields are non-editable.

Area Worksheet (Page 2), Minimax Window



1. Sum of all Previous Errors: The first search defaults to zero. For additional searches, enter the sum of the error from the previous Search Area Worksheet.

Note: If no previous search errors were calculated (i.e., First search was Coastal and less than six hours) use 30 percent of the total surface drift on the first search.
When accessing the Plan Subsequent Search option from the File menu, this field automatically accumulates the proper value.

---

2. Surf Drift Distance: Defaults from the Datum Worksheet.

3. Drift Error Confidence Factor: Defaults to 0.3.

4. Drift Error: Defaults to the Dmin and Dmax Surface Drift multiplied by 0.3.

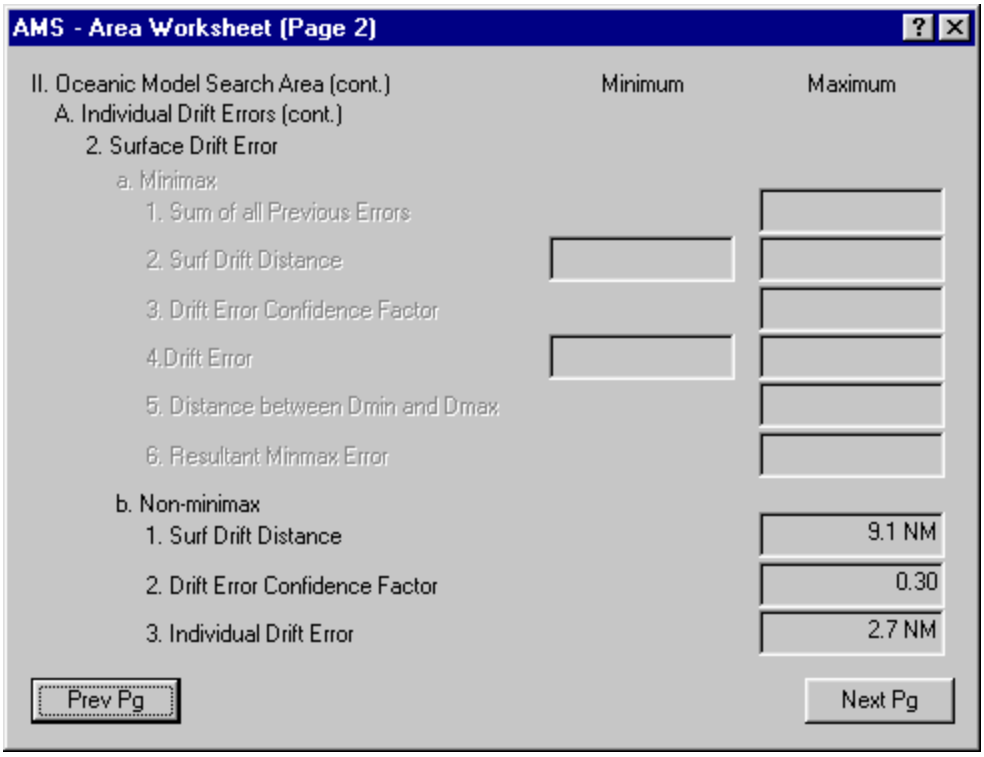
5. Distance between Dmin and Dmax: Defaults from the Datum Worksheet.

6. Resultant Minmax Error: Calculates the minmax surface drift error.

b. Non-Minimax

The non-minimax search contains only non-editable fields.

Area Worksheet (Page 2), Non-minimax Window



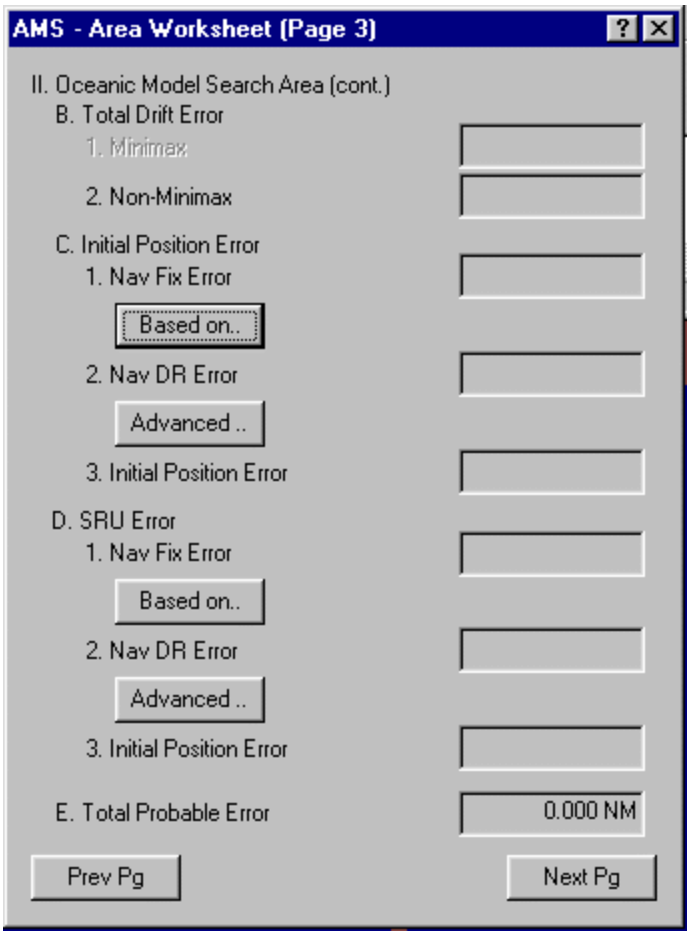
1. Surface Drift Distance: Calculates the distance from the surface position to the datum.

2. Drift Error Confidence Factor: Defaults to 0.3.

3. Individual Drift Error: Defaults to the Surface Drift Distance multiplied by the Drift Error Confidence Factor.

Area Worksheet, Page Three

Area Worksheet (Page 3) Window



II. Oceanic Model Search Area (continued from page two)

B. Total Drift Error

Defaults to the sum of the individual drift errors from the time of the incident until present datum.

1. Minimax

A minimax entry defaults to the sum of the Aerospace Drift Error and the resultant minimax error.

2. Non-Minimax

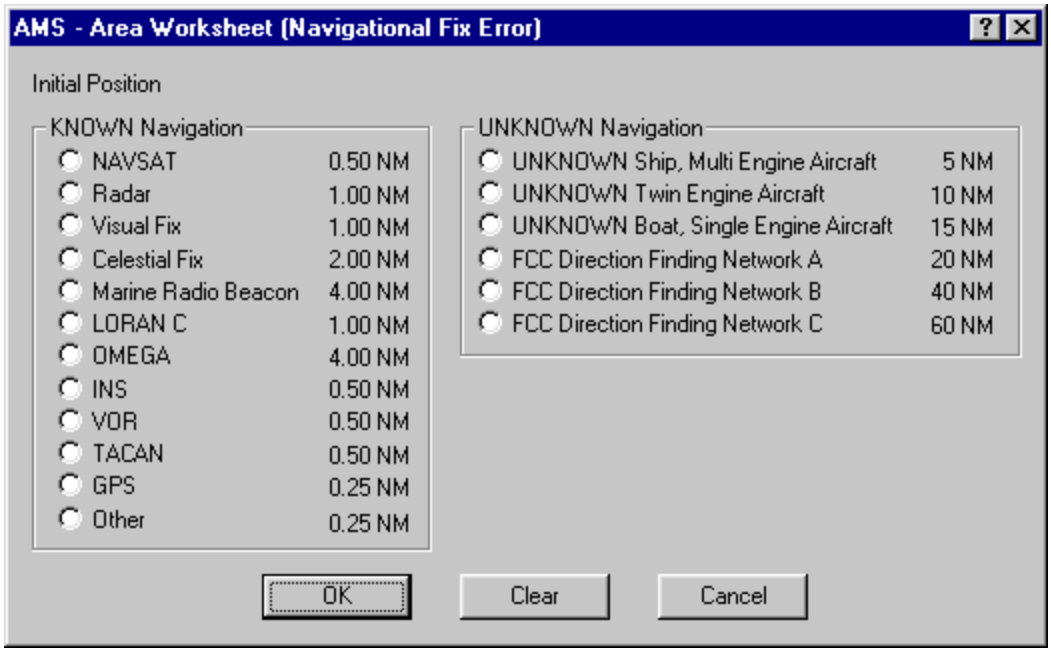
A non-minimax entry defaults to the sum of the Aerospace Drift Error and any previous Total Drift Error.

C. Initial Position Error

1. Nav Fix Error

To enter the method that the search object used to report its position, click Based on. The Navigational Fix Error window appears.

Area Worksheet (Navigational Fix Error) Window



Make the appropriate selection in *one* of the categories.

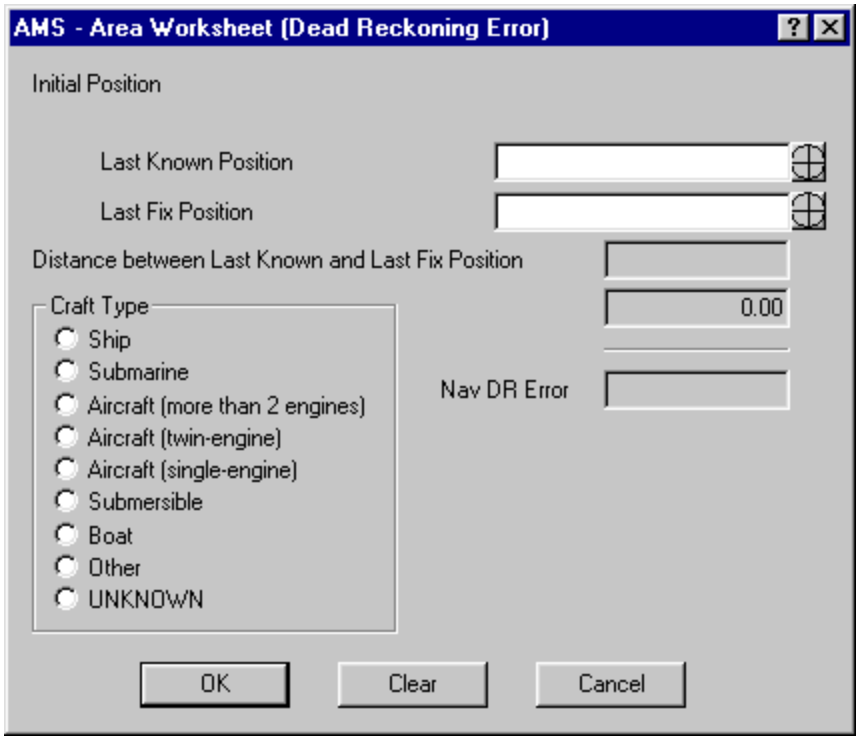
- To save entries and return to the current main worksheet page, click OK.
- To return to the current main worksheet without saving entries, click Cancel.
- To empty the fields and close the window, click Clear.

The Nav Fix Error field reflects the entry in the Navigational Fix Error window, and the navigation type selected is displayed to the right of the Based On button.

2. Nav DR Error

To enter the dead reckoning error, click Advanced. The Dead Reckoning Error window appears.

Area Worksheet (Dead Reckoning Error) Window



Last Known Position

Enter the last known position of the datum either by entering its numerical value or by using the Crosshairs button (as described in Using the Crosshairs button).

Last Fix Position

Enter the last fix position of the datum either by entering its numerical value or by using the Crosshairs button (as described in Using the Crosshairs button).

Distance between Last Known and Last Fix Positions

This field reflects the distance and is not editable.

Craft Type

Select one of the listed types.

Nav DR Error

This field reflects the Nav DR Error and is not editable.

- To save entries and return to the current main worksheet page, click OK.
- To return to the current main worksheet without saving entries, click Cancel.
- To empty the fields and close the window, click Clear.

3. Initial Position Error

Defaults to the sum of the Navigational Fix Error and the Dead Reckoning Error. Displays the result rounded to the nearest tenth (0.X).

D. SRU Error

1. Nav Fix Error

To enter the method that the SRU uses to report its position, click Based on. The Navigational Fix Error window appears. See Area Worksheet (Navigational Fix Error) Window for instructions on this window.

2. Nav DR Error

To enter the dead reckoning error for the SRU, click Advanced. The Dead Reckoning Error window appears. See Area Worksheet (Dead Reckoning Error) Window for instructions on this window.

Note: This option will rarely be used because SRUs do not normally navigate using dead reckoning.

---

3. Initial Position Error

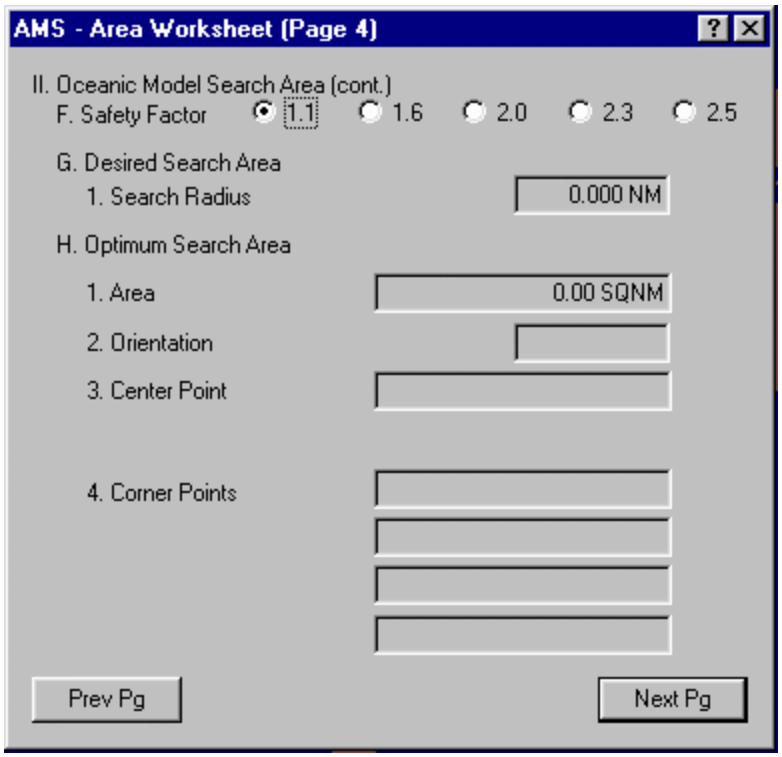
Defaults to sum of the Navigational Fix Error and the Dead Reckoning Error.

E. Total Probable Error

Defaults to the square root of the sum of the Total Drift Error, Initial Position Error, and the SRU Error squared individually.

Area Worksheet, Page Four

Area Worksheet (Page 4) Window



II. Oceanic Model Search Area (continued from page three)

F. Safety Factor

Defaults to 1.1 for the first search. For each additional search, the safety factor increases to account for the drift of the target.

Note: When accessing the Plan Subsequent Search option from the File menu, the Safety Factor automatically advances for each search.

G. Desired Search Area

1. Search Radius

Defaults to the radius of a circle centered on the datum, with a length equal to the Total Probable Error plus an additional safety length to help ensure that the target resides in the search area.

H. Optimum Search Area

In theory, the best search area resembles a circle centered on the datum. However, few search patterns adapt to circular search areas. For most patterns, a square or rectangular search area is easier to search. Therefore, circle search areas are often expanded to resemble a square.

1. Area

The optimum search area is the area of a square with half-width equal to the above Search Radius.

2. Orientation

Displays the true orientation of the optimum search area. This is equal to the last entry on the Datum Worksheet (Direction from SP).

3. Center Point

Displays the position of the optimum search area center point. This is the same as the Datum minmax.

4. Corner Points

Displays the four corner points of the optimum search area.

Effort Worksheets

The Effort Worksheet consists of two pages:

- Effort Worksheet, Page One
- Effort Worksheet, Page Two

  Note that when Total Effort is greater than Optimum Search Area, the Effort Worksheet (Excess Resource Planning) window appears as page two of the Effort Worksheet.

Use the Effort Worksheet to determine the total amount of search effort that several (possibly dissimilar) SRUs can provide and to graphically plot the calculated effort areas. The Effort Worksheet aids in computing a midpoint search area and a uniform coverage factor when the optimum search area is larger than the total effort available.

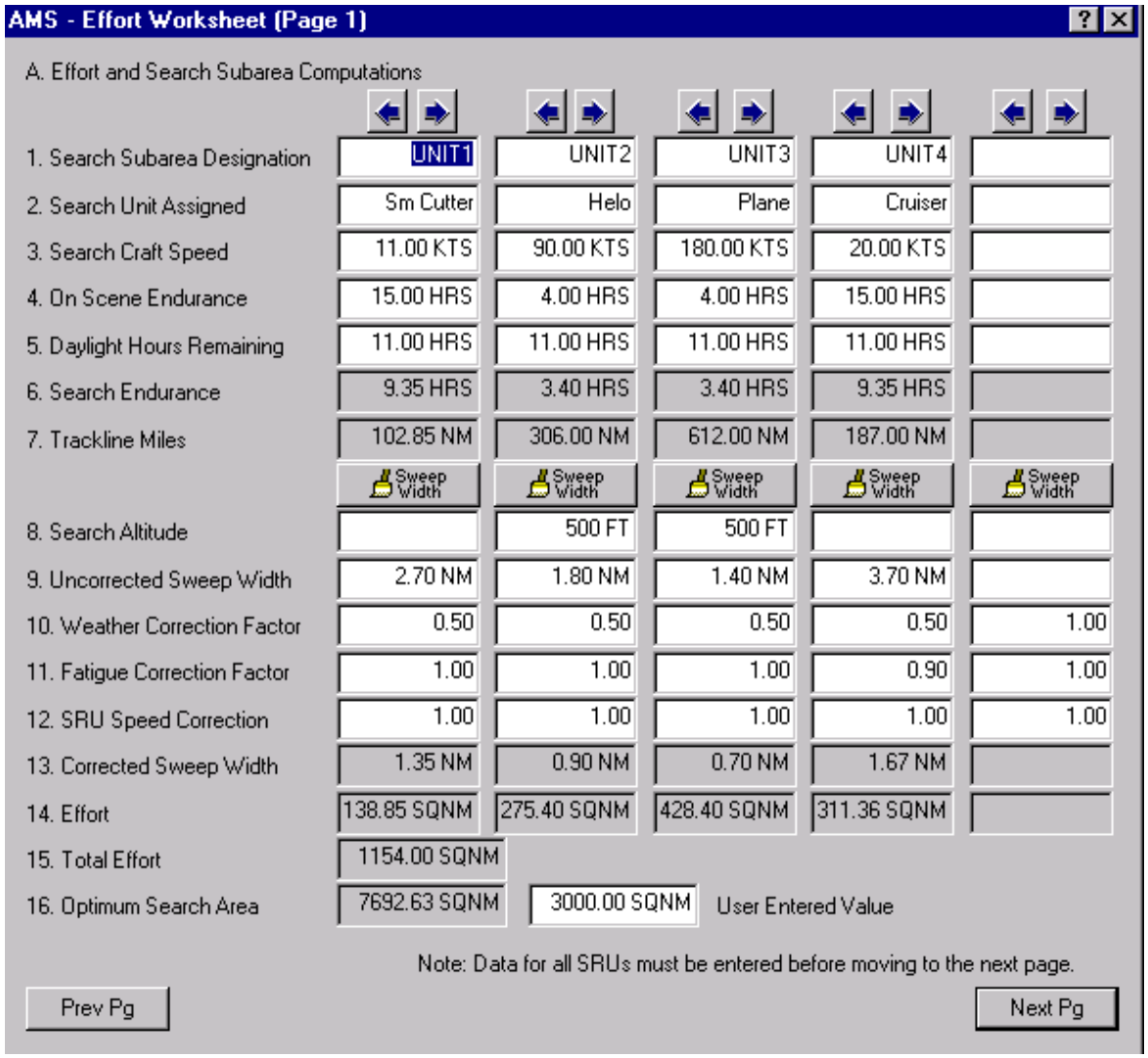
Note: When you plan a subsequent search, all effort worksheets are cleared so you cannot accidentally carry SRUs from one search to another.

For more help, see the following:

- Basic Worksheet Options
- How do I open a new AMS worksheet?
- How do I edit an existing AMS worksheet?
- How do I import previous search information into a successive AMS worksheet?

Effort Worksheet, Page One

Effort Worksheet (Page 1) Window



A. Effort and Search Subarea Computations

The Swap Columns buttons at the top of this screen provide the capability to move columns of data. This allows the units to be reordered to compensate for airborne asset altitude considerations and/or to maximize the efforts of the asset.

1. Search Subarea Designation

Enter the standard subarea designators such as Unit1 or Unit3.

2. Search Unit Assigned

List the type of SRU service and call sign, if known.

3. Search Craft Speed

For aircraft, use the True Airspeed (TAS) that the SRU will fly during the search. For PS and CS searches, TAS approximates the average ground speed due to the factor

that the aircraft flies reciprocal search legs. If you use the Sweep Width button, the value from the Sweep Width Table is entered here.

4. On Scene Endurance

Enter to the nearest hundredth (0.XX) of an hour the total search time the SRU can provide on the scene. Do not include transit time to and from the area.

5. Daylight Hours Remaining

Enter to the nearest hundredth (0.XX) of an hour the number of hours between the SRU's arrival on the scene (start of the search) and sunset. For a night search, leave the box empty. Entering a 0 results in an error.

6. Search Endurance

Defaults to 85 percent of the value of either the On Scene Endurance or the Daylight Hours Remaining, depending on which is smaller. This figure, rounded to the nearest hundredth of an hour (0.XX), represents "productive" search time, which assumes a 15 percent loss to allow for turns and breaking out of the pattern to investigate sightings.

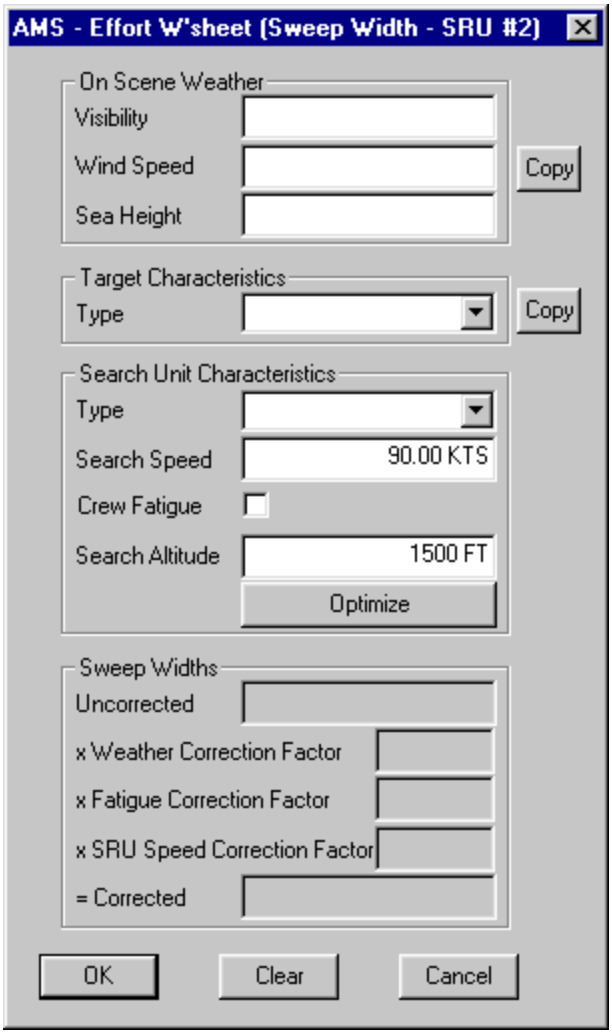
7. Trackline Miles

Defaults to the Search Craft Speed multiplied by the Search Endurance.

Sweep Width Tables

Click the Sweep Width button to open a sweep width table for a particular search unit.

Effort W'sheet (Sweep Width - SRU #X)



Visibility

Enter the on-scene visibility distance.

Wind Speed

Enter the on-scene wind speed.

Sea Height

Enter the on-scene sea height.

To copy the on-scene weather information from a previous search unit, click the Copy button. Note that this button is unavailable for the first search unit in an AMS case.

Type (Target)

Select the type of search target.

To copy the target type from a previous search unit, click the Copy button. Note that this button is unavailable for the first search unit in an AMS case.

Type (Search Unit)
Select the type of search unit.

Search Speed
Enter the search speed of the search unit.

Crew Fatigue
Select Crew Fatigue to apply a .9 fatigue correction factor.

Search Altitude
Enter the altitude of the search unit.

Optimize
Click the Optimize button to allow the sweep width calculator to select the best search speed and altitude, based on the visibility, the target characteristics, and the search unit type.

The bottom portion of the window (the Sweep Widths box) displays the calculations used to determine the corrected sweep width.

Click OK to exit this window and apply the sweep widths to the Effort Worksheet.

Click Clear to empty the entries you have made in this window.

8. Search Altitude
Enter the search altitude and compute the corrected sweep width for each option. To maximize the total effort, assign altitudes which provide the widest corrected sweep width to the SRUs that can provide the highest trackline miles value. If you use the Sweep Width button, the value from the Sweep Width Table is entered here.

Note: Recommendations for determining search altitude options include:

- staying 500 feet below cloud bases
- staying 500 feet above the water
- including a 500 foot separation between aircrafts that share a common search area boundary.

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9. Uncorrected Search Width
Obtain entry from the *Maritime Sweep Width Tables*. If you use the Sweep Width button, the value from the Sweep Width Table is entered here.

10. Weather Correction Factor
Obtain entry from the *Maritime Sweep Width Tables*. If you use the Sweep Width button, the value from the Sweep Width Table is entered here.

11. Fatigue Correction Factor
If crew fatigue is a factor, enter 0.9. If you use the Sweep Width button, the value from the Sweep Width Table is entered here.

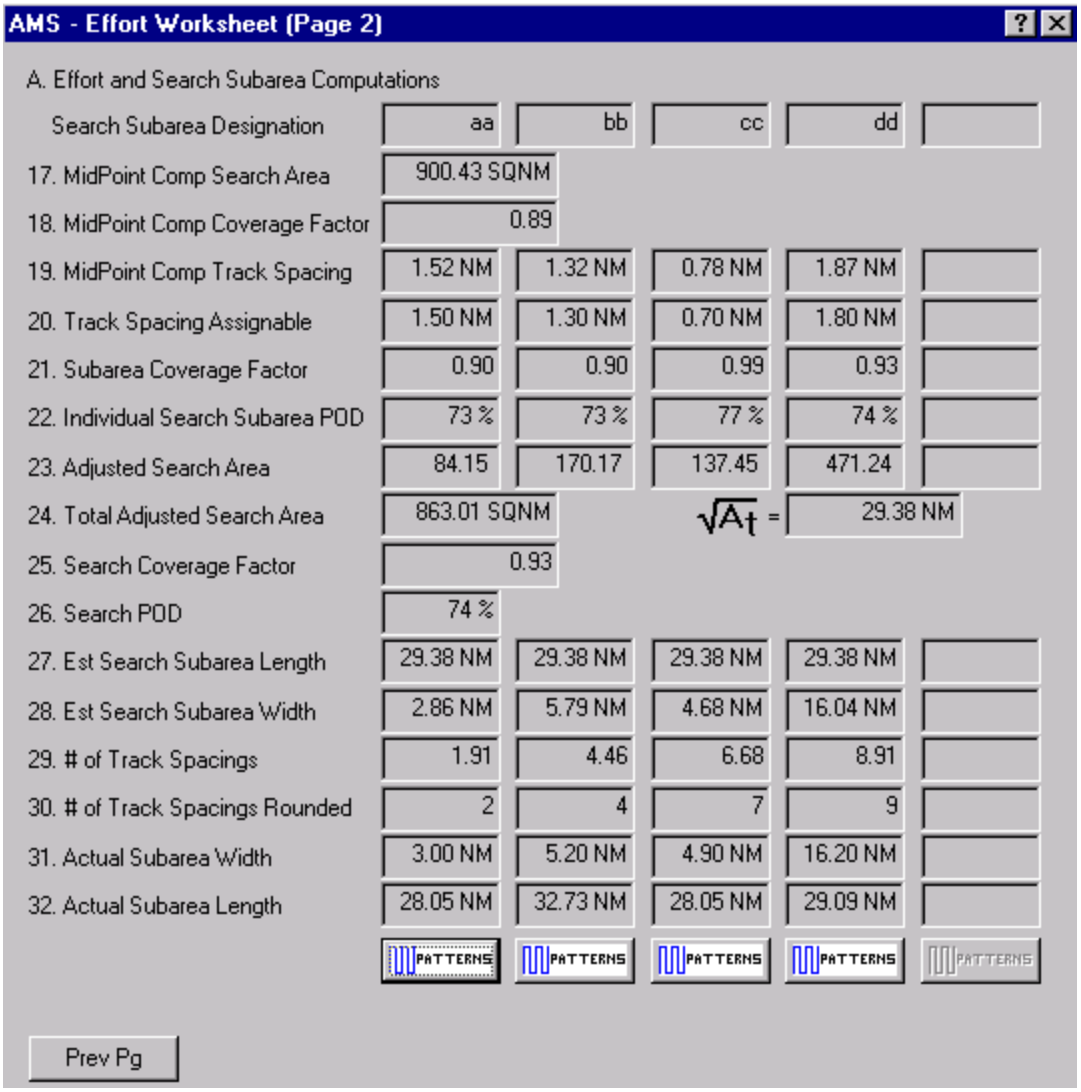
12. SRU Speed Correction
Obtain entry from the *Maritime Sweep Width Tables*. If you use the Sweep Width button, the value from the Sweep Width Table is entered here.

13. **Corrected Sweep Width**
    Defaults to the Uncorrected Sweep Width, the Weather Corrected Factor, the Fatigue Correction Factor, and the SRU Speed Correction multiplied together.
14. **Effort**
    Defaults to the Trackline Miles multiplied by the Corrected Sweep Width.
15. **Total Effort**
    Defaults to the total of the individual effort entries.
16. **Optimum Search Area**
    Defaults to an entry automatically calculated from the Search Area Worksheet. You may also manually enter a user-defined Optimum Search Area; this option is typically used for training, except on rare occasions.

Effort Worksheet, Page Two

Note: When the Total Effort is greater than the Optimum Search Area, the Excess Resource Planning window appears as page two of the Effort Worksheet. See Effort Worksheet (Excess Resource Planning) for instructions on the Excess Resource Planning window.

Effort Worksheet (Page 2) Window



AMS - Effort Worksheet (Page 2)

A. Effort and Search Subarea Computations

Search Subarea Designation	aa	bb	cc	dd	
17. MidPoint Comp Search Area	900.43 SQNM				
18. MidPoint Comp Coverage Factor	0.89				
19. MidPoint Comp Track Spacing	1.52 NM	1.32 NM	0.78 NM	1.87 NM	
20. Track Spacing Assignable	1.50 NM	1.30 NM	0.70 NM	1.80 NM	
21. Subarea Coverage Factor	0.90	0.90	0.99	0.93	
22. Individual Search Subarea POD	73 %	73 %	77 %	74 %	
23. Adjusted Search Area	84.15	170.17	137.45	471.24	
24. Total Adjusted Search Area	863.01 SQNM		$\sqrt{A_t}$ =	29.38 NM	
25. Search Coverage Factor	0.93				
26. Search POD	74 %				
27. Est Search Subarea Length	29.38 NM	29.38 NM	29.38 NM	29.38 NM	
28. Est Search Subarea Width	2.86 NM	5.79 NM	4.68 NM	16.04 NM	
29. # of Track Spacings	1.91	4.46	6.68	8.91	
30. # of Track Spacings Rounded	2	4	7	9	
31. Actual Subarea Width	3.00 NM	5.20 NM	4.90 NM	16.20 NM	
32. Actual Subarea Length	28.05 NM	32.73 NM	28.05 NM	29.09 NM	
	PATTERNS	PATTERNS	PATTERNS	PATTERNS	PATTERNS

Prev Pg

Effort and Search Subarea Computations (continued from page one)

Search Subarea Designation

Displays the value entered in Search Subarea Designation on page one of the Effort Worksheet.

17. MidPoint Comp Search Area

Defaults to the sum of the Total Effort and the Optimum Search Area divided by two.

18. MidPoint Comp Coverage Factor

Defaults to the Total Effort divided by the MidPoint Compromise Search Area.

19. MidPoint Comp Track Spacing

Defaults to the Corrected Sweep Width divided by the MidPoint Compromise Coverage.

20. Track Spacing Assignable
Enter the actual track spacing assignable to the SRU. Typically, this is rounded down from the Midpoint Comp Track Spacing to account for the accuracy of the SRU's navigation equipment.

21. Subarea Coverage Factor
Defaults to the Corrected Sweep Width divided by the Track Spacing Assignable.

22. Individual Search Subarea POD
Defaults to the POD (Probability of Detection) computed for the Corrected Sweep Width at Track Spacing Assignable, using the "Any Single Search" curve.

23. Adjusted Search Area
Defaults to the Trackline Miles multiplied by the Track Spacing Assignable.

24. Total Adjusted Search Area
Defaults to the square root of the sum of the individual Adjusted Search Area figures from above. This determines the length of a side of the square.

25. Search Coverage Factor
Defaults to the Total Effort divided by the Total Adjusted Search Area.

26. Search POD
Defaults to the Probability of Detection based on the Search Coverage Factor.

27. Est Search Subarea Length
Defaults to the square root of the Total Adjusted Search Area in item.

28. Est Search Subarea Width
Defaults to the Individual Search Subarea divided by the Estimated Search Subarea Length.

29. # of Track Spacings
Defaults to the Estimated Search Subarea Width divided by the Track Spacing Assignable.

30. # of Track Spacings Rounded
Defaults to the values from the Number of Track Spacings rounded to a whole number.

31. Actual Subarea Width
Defaults to the number of Track Spacings multiplied by the Track Spacing Assignable.

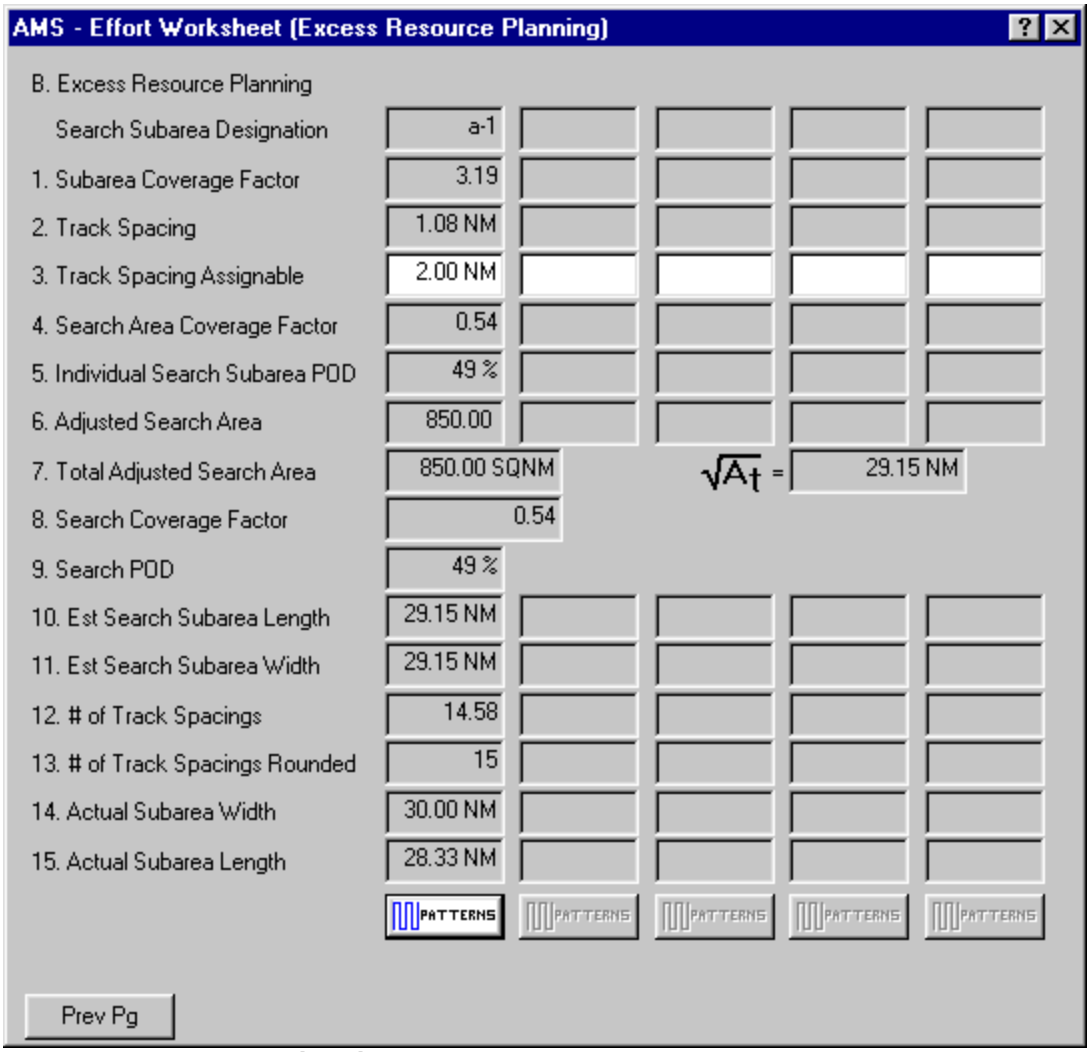
32. Actual Subarea Length
Defaults to the Adjusted Search Area divided by the Actual Subarea Width.

To create a search pattern from the data in the Effort Worksheet (Page 2) window, click the Patterns button ( ). You can create a search pattern for each search described in this worksheet (up to five).
To update a search pattern after changing information in the effort worksheet, click the Patterns button ( ) again. A dialog window appears, asking if you want to replace the old search pattern, update the old search pattern, or cancel the Pattern operation.

Effort Worksheet (Excess Resource Planning)

When the Total Effort is greater than the Optimum Search Area, the Excess Resource Planning window appears as page two of the Effort Worksheet.

Effort Worksheet (Excess Resource Planning) Window



B. Excess Resource Planning

Search Subarea Designation

Displays the value entered in Search Subarea Designation on page one of the Effort Worksheet.

1. Subarea Coverage Factors

Defaults to the Coverage Factor based on the Total Effort and the Search Area.

2. Track Spacing

Defaults to the Corrected Sweep Width divided by the MidPoint Compromise Coverage.

3. Track Spacing Assignable
Enter the actual track spacing assignable to the SRU. Typically, this is rounded down from the Track Spacing to account for the accuracy of the SRU's navigation equipment.

4. Search Area Coverage Factor
Defaults to the Corrected Sweep Width divided by the Track Spacing Assignable.

5. Individual Search Subarea POD
Calculates the Single Search POD.

6. Adjusted Search Area
Defaults to the Trackline Miles multiplied by the Track Spacing Assignable.

7. Total Adjusted Search Area
Defaults to the square root of the sum of the individual Adjusted Search Area figures from above. This determines the length of the side of the square.

8. Search Coverage Factor
Defaults to the Total Effort divided by the Total Adjusted Search Area.

9. Search POD
Calculates the Total Single Search POD.

10. Est Search Subarea Length
Defaults to the square root of the total Adjusted Search Area.

11. Est Search Subarea Width
Defaults to the Individual Search Subarea divided by the Estimated Search Subarea Length.

12. # of Track Spacings
Defaults to the Estimated Search Subarea Width divided by the Track Spacing Assignable.

13. # of Track Spacings Rounded
Enters the value from the Number of Track Spacings rounded to the nearest whole number.

14. Actual Subarea Width
Defaults to the Number of Track Spacings multiplied by the Track Spacing Assignable.

15. Actual Subarea Length
Defaults to the Adjusted Search Area divided by the Actual Subarea Width.

To create a search pattern from the data in the Effort Worksheet (Excess Resource Planning) window, click the Patterns button (

). You can create a search pattern for each search described in this worksheet (up to five).
To update a search pattern after changing information in the effort worksheet, click the Patterns button (

) again. A dialog window appears, asking if you want to replace the old search pattern, update the old search pattern, or cancel the Pattern operation.

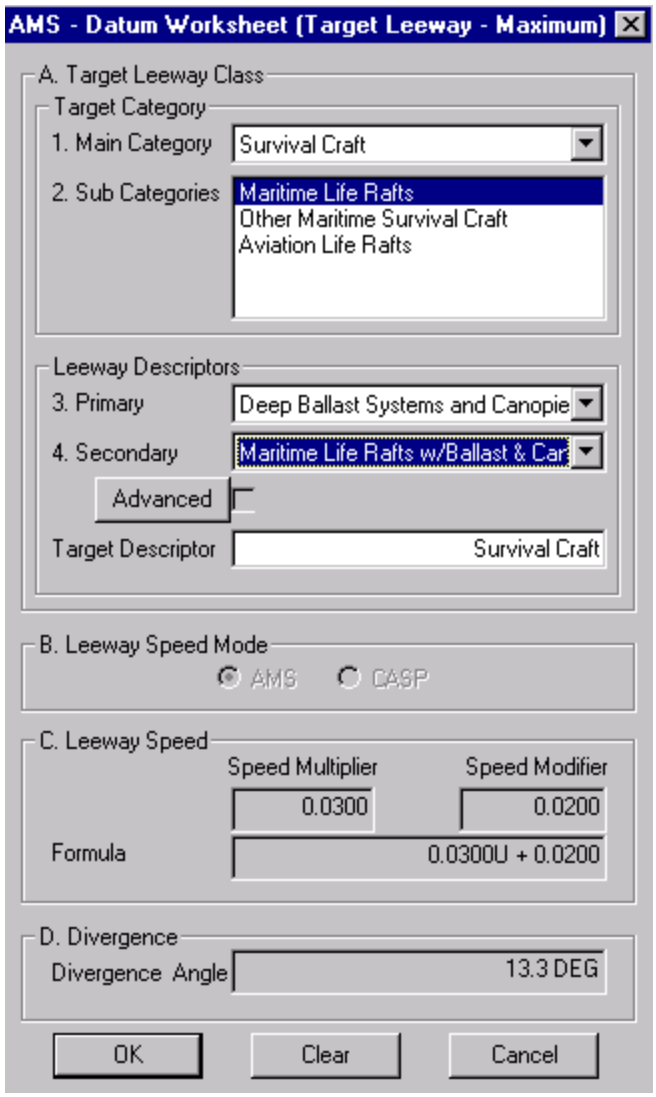
Additional Worksheets

The sub-worksheets included in this section all originate in the Datum Worksheet. To preserve the flow of the main worksheets, these sub-worksheets are located here rather than in the middle of the Datum Worksheet.

Datum Worksheet (Target Leeway)

This sub-worksheet derives from page one of the Datum Worksheet. To access it, click Minimum or Maximum at B. Drift Start Position. The AMS – Datum Worksheet (Target Leeway - Maximum/Minimum) window appears.

Target Leeway Worksheet Window



A. Target Leeway Class

Allows the user to select the following from drop-down menus:

1. Main Category
2. Sub Category

3. Primary Descriptor
4. Secondary Descriptor

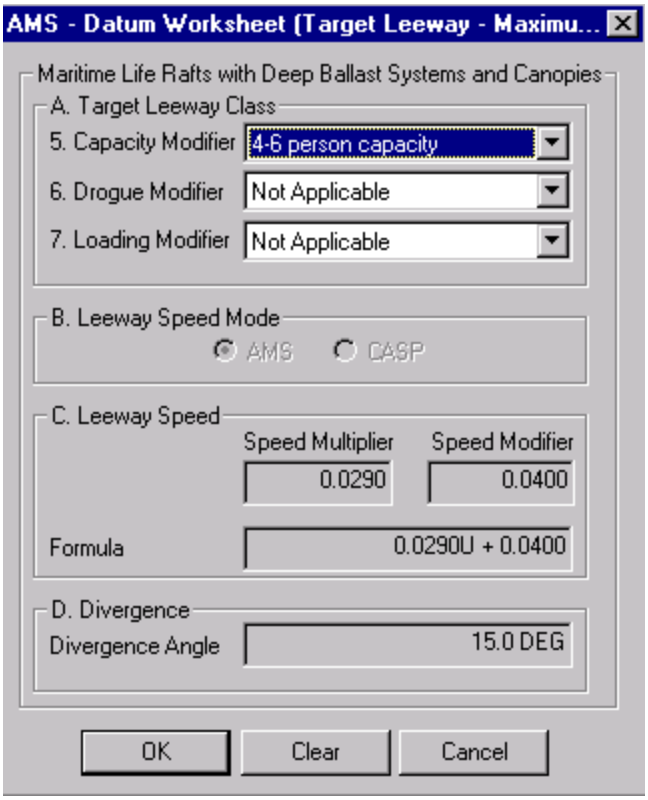
The Target Descriptor field defaults to the Main Category but can be manually changed to provide a meaningful description of the target.

If the Main Category – User Defined Target Leeway is selected, the user is able to enter the following information manually:

- Target Descriptor
- Speed Multiplier
- Speed Modifier
- Divergence Angle

If the Primary Descriptor – Deep Ballast Systems and Canopies and the Secondary Descriptor – Maritime Life Rafts w/Ballast & Canopy are selected, the Advanced button is activated. When the Advanced button is clicked, the Target Leeway – Advanced sub-window with additional Target modifiers displays.

Target Leeway - Advanced Worksheet



This window allows the user to select the following from drop-down menus:

5. Capacity Modifier
6. Drogue Modifier
7. Loading Modifier

The Leeway Speed Mode is displayed as AMS.

When finished with the Target Leeway – Advanced sub-window Worksheet, return to the Target Leeway Worksheet:

- To save entries and return to the Target Leeway Worksheet, click OK.
- To return to the Target Leeway Worksheet without saving entries, click Cancel.
- To empty the fields and return to the Target Leeway Worksheet, click Clear.

B. Leeway Speed Mode

Displayed as AMS.

C. Leeway Speed

Displays the speed multiplier, speed modifier, and formula from the Leeway table for the above selected categories, descriptors, and modifiers.

D. Divergence

Displays the divergence angle from the Leeway table for the above selected categories, descriptors, and modifiers.

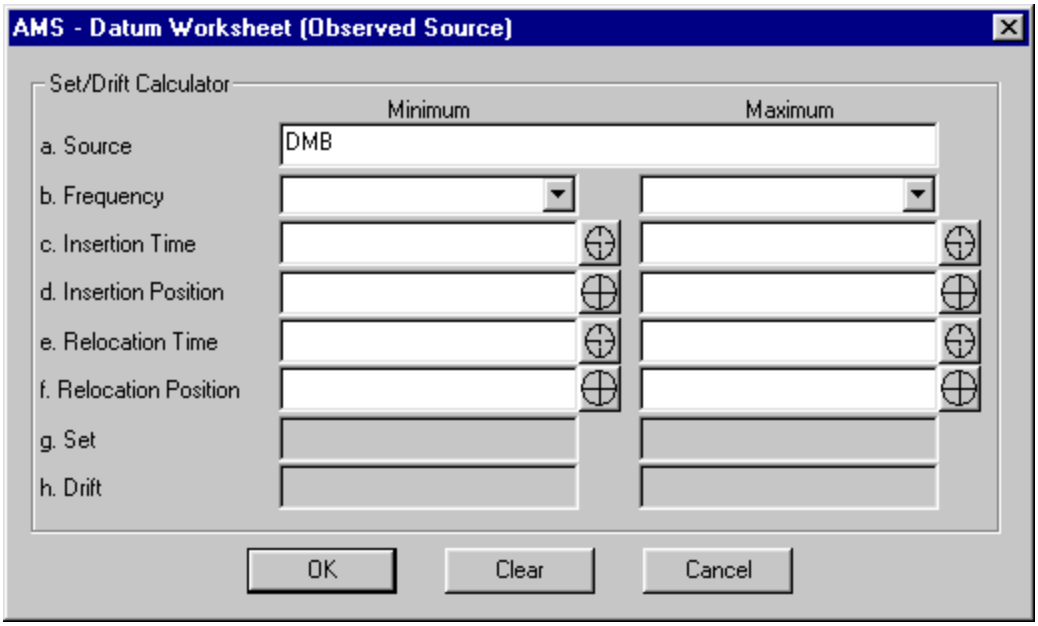
When finished with the Target Leeway Worksheet, return to the Datum Worksheet:

- To save entries and return to the Datum Worksheet, click OK.
- To return to the Datum Worksheet without saving entries, click Cancel.
- To empty the fields and return to the Datum Worksheet, click Clear.

Datum Worksheet (Observed Source)

This sub-worksheet derives from page two of the Datum Worksheet. To access it, click Advanced at D.1 Observed Source. This window enables you to calculate the speed and direction of the drift using an observed source.

Datum Worksheet (Observed Source) Window



a. Source

Enter the type of observed source; the default entry is DMB (for datum marker buoy).

b. Frequency

From the list, pick the frequency, if applicable, for minimum and maximum drift.

c. Insertion Time

Enter the time of insertion for minimum and maximum drift. You can either enter its numerical value or use the Crosshairs button (as described in Using the Crosshairs button).

d. Insertion Position

Enter the position of the source at insertion for minimum and maximum drift. You can either enter its numerical value or use the Crosshairs button (as described in Using the Crosshairs button).

e. Relocation Time

Enter the time of relocation for minimum and maximum drift. You can either enter its numerical value or use the Crosshairs button (as described in Using the Crosshairs button).

f. Relocation Position

Enter the position of the source at relocation for minimum and maximum drift. You can either enter its numerical value or use the Crosshairs button (as described in Using the Crosshairs button).

g. Set

This field reflects the bearing for the drift of the observed source for minimum and maximum drift.

h. Drift

This field reflects the speed for the drift of the observed source for minimum and maximum drift.

At the bottom of each page, these three buttons appear:

OK

Saves entries and returns to the Datum Worksheet.

Clear

Empties all fields and returns to the Datum Worksheet.

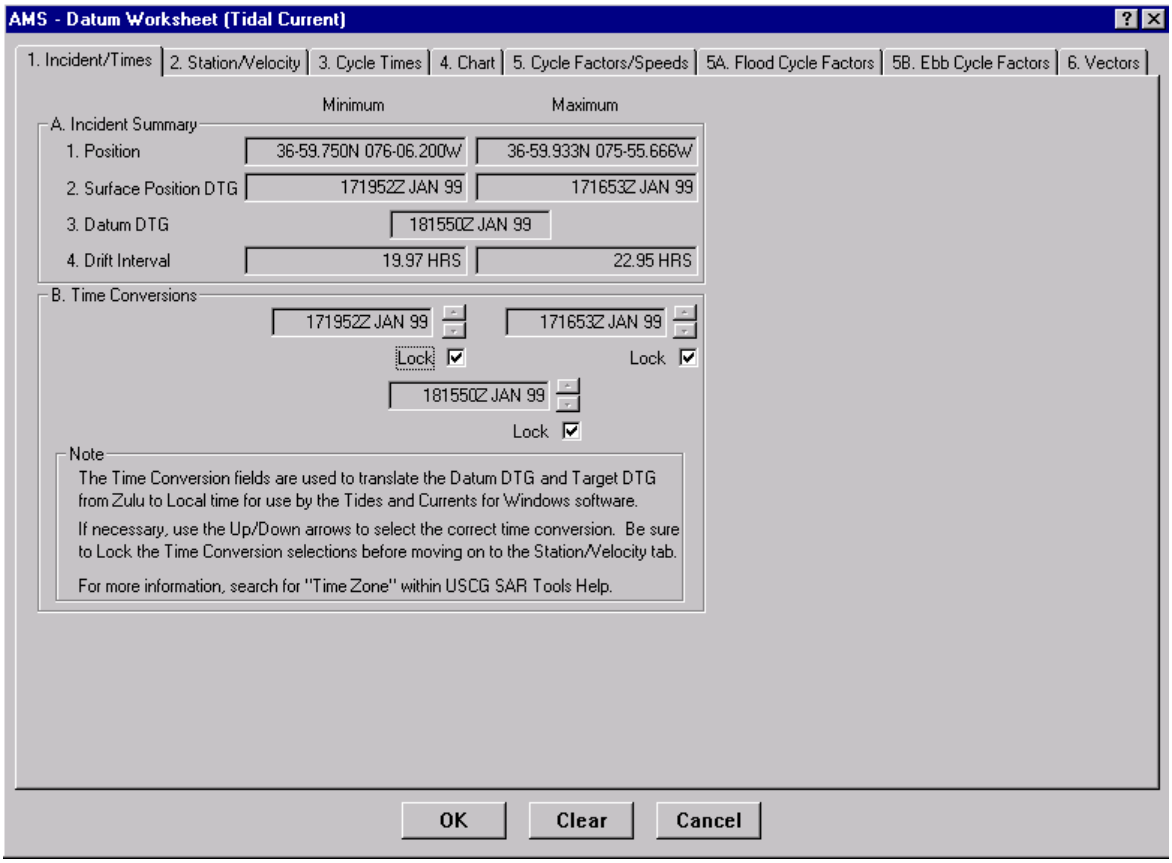
Cancel

Returns to the Datum Worksheet without saving entries.

Datum Worksheet (Tidal Current)

This sub-worksheet derives from page two of the Datum Worksheet. To access it, click Advanced at D.2 Tidal Current Vector. The Tidal Current Worksheet uses Tides&Currents (see Tides & Currents for more information); this software should be installed for this worksheet to function with maximum ease of use. If Tides&Currents is not installed, the worksheet can still be used manually by using the *National Oceanographic and Atmospheric Administration (NOAA) Tidal Current Tables* for the appropriate area.

Datum Worksheet (Tidal Current) Window



This worksheets contains eight pages, all accessed by tabs at the top:

- Incident/Times
- Station/Velocity
- Cycle Times
- Chart
- Cycle Factors/Speeds
- Flood Cycle Factors
- Ebb Cycle Factors
- Vectors

At the top of each page, select Minimum or Maximum to view information associated with either the Minimum or Maximum column of the Datum Worksheet.

At the bottom of each page, these three buttons appear:

OK

Saves entries and returns to the Datum Worksheet.

Clear

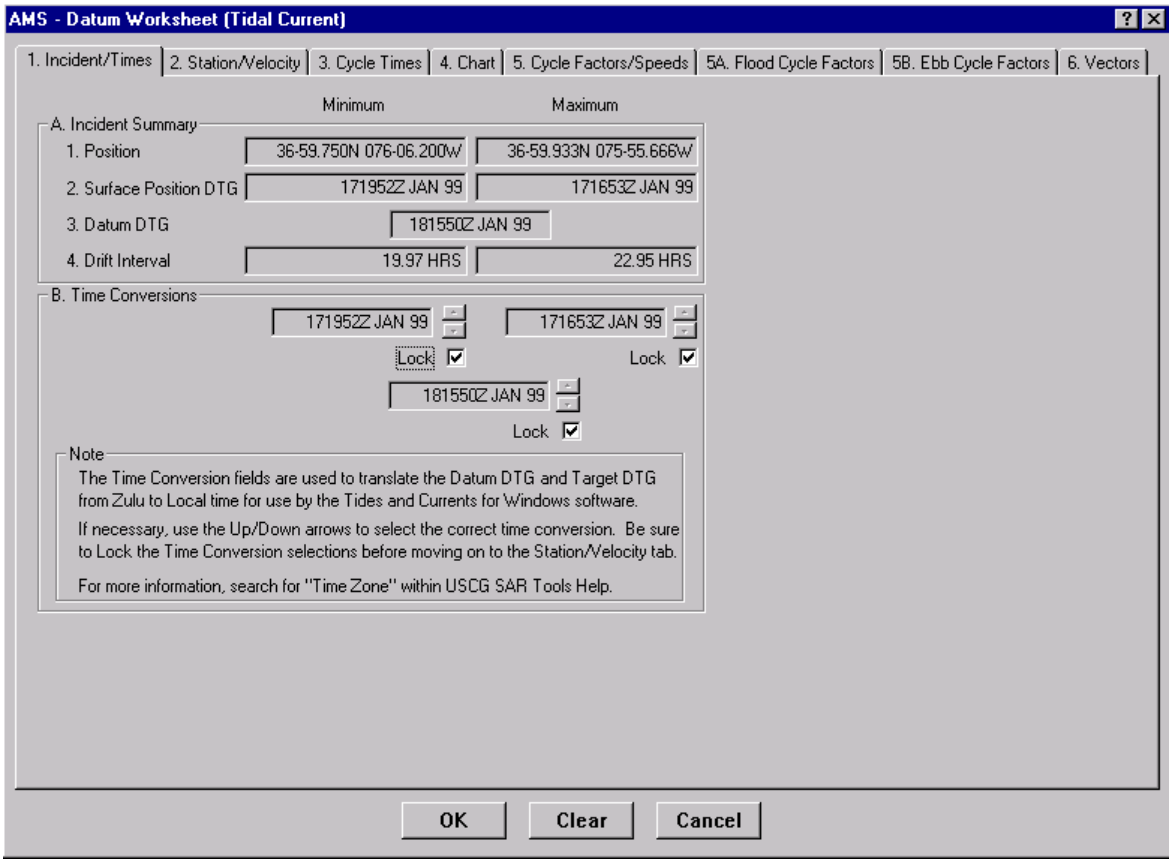
Empties all tidal fields and returns to the Datum Worksheet.

Cancel

Returns to the Datum Worksheet without saving entries.

Incident/Times

Datum Worksheet (Tidal Current) Window, Incident/Times Page



A. Incident Summary

Displays the Position, Surface Position DTG, Datum DTG, and Drift Interval from the Datum Worksheet.

B. Time Conversions

The time zone fields default based on the accompanying longitude, assuming the Lock checkbox is not checked. Defaulting occurs only upon first entering the Tidal Currents Worksheet.

If the Lock checkbox is not checked, you may select the local time for each DTG by pressing the up and down keys beside each DTG. The Lock checkbox sets the current time zone for future modifications.

Note: The Time Conversion fields are used to translate the Datum DTG and Target DTG from Zulu time to Local time for use by the Tides and Currents for Windows software. If necessary, use the Up/Down arrows to select the correct time conversion. Be sure to Lock the Time Conversion selections before moving on to the Station/Velocity tab.

For more information, see How do I find the correct time zone? and How do I use the World Map of Time Zones to convert times?

World Map Of Time Zones

Station/Velocity

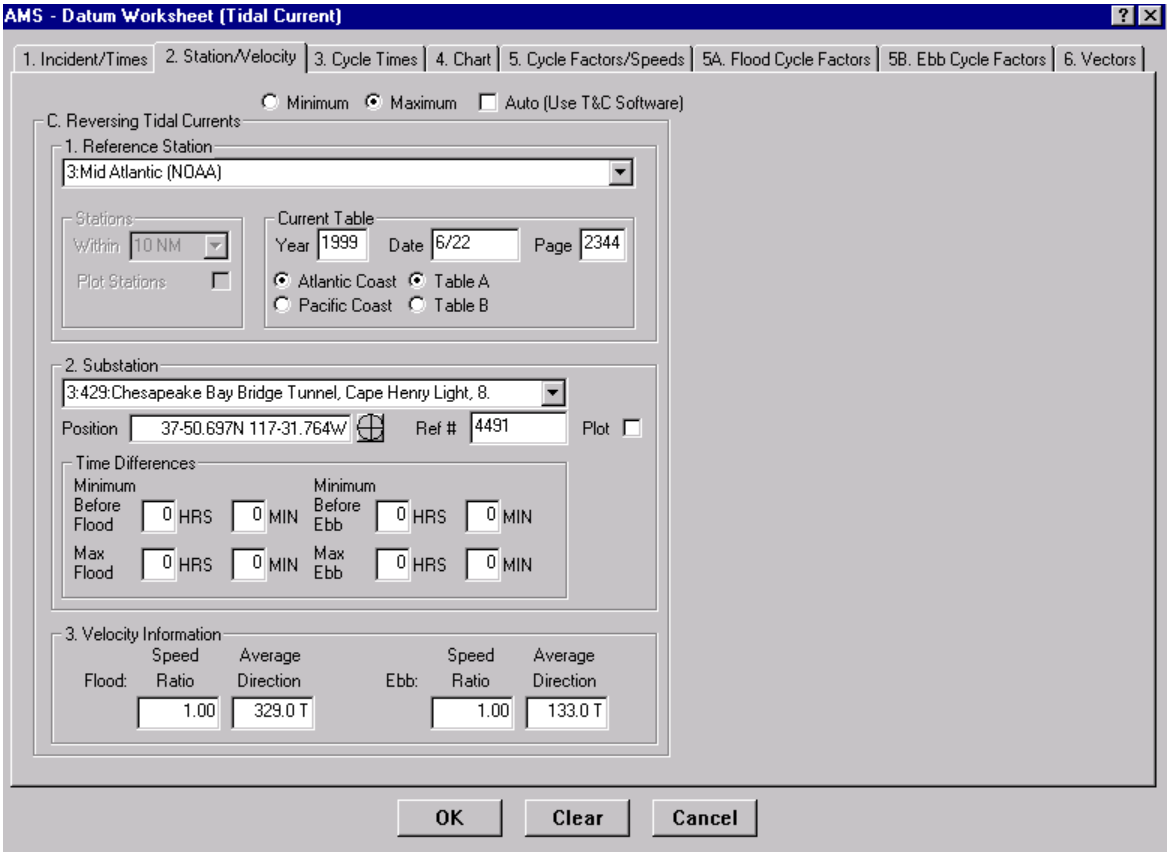
This page may be completed in one of two ways, which also affects the third page, Cycle Times.

- manually;
- automatically, using the Tides & Currents software.

To enter Station/Velocity data manually

To enter data manually, ensure that Auto (Use T&C Software) is *unchecked*.

Datum Worksheet (Tidal Current) Window, Station/Velocity Page, manual entry



C. Reversing Tidal Currents

1. Reference Station

Enter the name of the reference station for the tidal current data.

The Stations area is unavailable for manual entry.

In the Current Table area, enter the year, date, and page number for the tidal currents table that you are using. Select either Atlantic Coast or Pacific Coast, and then select either Table A or Table B.

Note: The only required entry in this section is Table A/B.

---

2. Substation

Enter the name of the substation for the tidal current data.

- In the Position field, enter the position of the substation either by entering its numerical value or by using the Crosshairs button (as described in Using the Crosshairs button).
- In the Ref # field, enter the reference number of the substation.
- To plot the substation on the C2PC map, select the Plot checkbox.
- In the Time Differences field, enter the minimum times before and times at maximum flood and ebb.

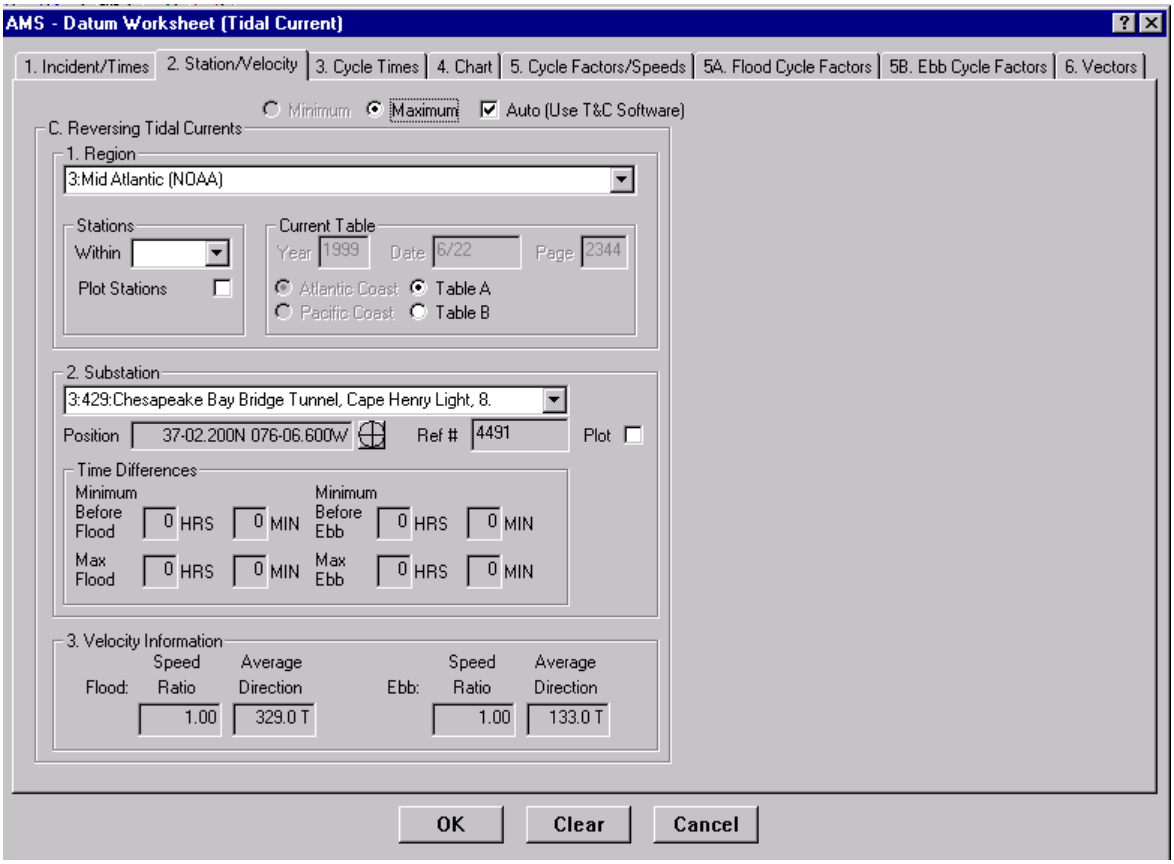
3. Velocity Information

Enter the Speed Ratios and the Average Directions for both flood and ebb tides.

To enter Station/Velocity data using the Tides&Currents software

To use the Tides&Currents software, select the Auto (Use T&C Software) checkbox.

Datum Worksheet (Tidal Current) Window, Station/Velocity Page, automatic entry



C. Reversing Tidal Currents

1. Region

Select a region from a list of available regions (pulled from the Tides&Currents software).

– In the Stations area, select a range from the provided list of ranges, or enter a range manually. This will search the selected region for stations within the range of the datum position and populate the Substation list. Select the Plot Stations checkbox to plot all stations within range on the C2PC map.

– In the Current Table area, select either Table A or Table B.

2. Substation

Select a substation from a list of available substations. This will populate the Position and Ref # fields, set the Time Differences fields to zero, and populate the Speed Ratio and Average Directions fields in Section 3.

Alternately, if Plot Stations (above) is checked, you may double-click a station on the C2PC map to select the desired station.

Select the Plot checkbox to plot the substation on the C2PC map.

3. Velocity Information

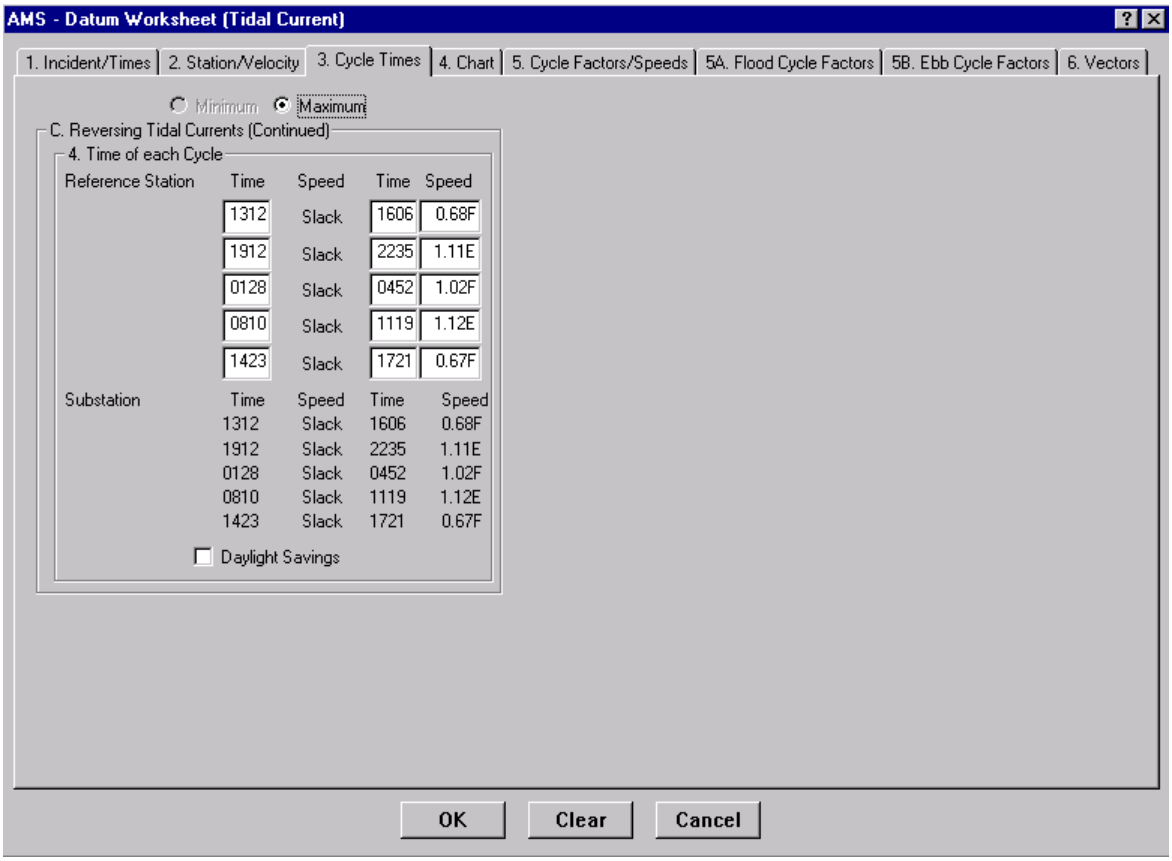
The Speed Ratio and Average Direction fields are pre-populated (read-only) based on the Substation selection made in Section 2.

Cycle Times

This content of this window varies according to whether the Station/Velocity page was filled out manually or automatically.

Manual entry

Datum Worksheet (Tidal Current) Window, Cycle Times Page, manual entry



C. Reversing Tidal Currents (Continued)

4. Time of each Cycle

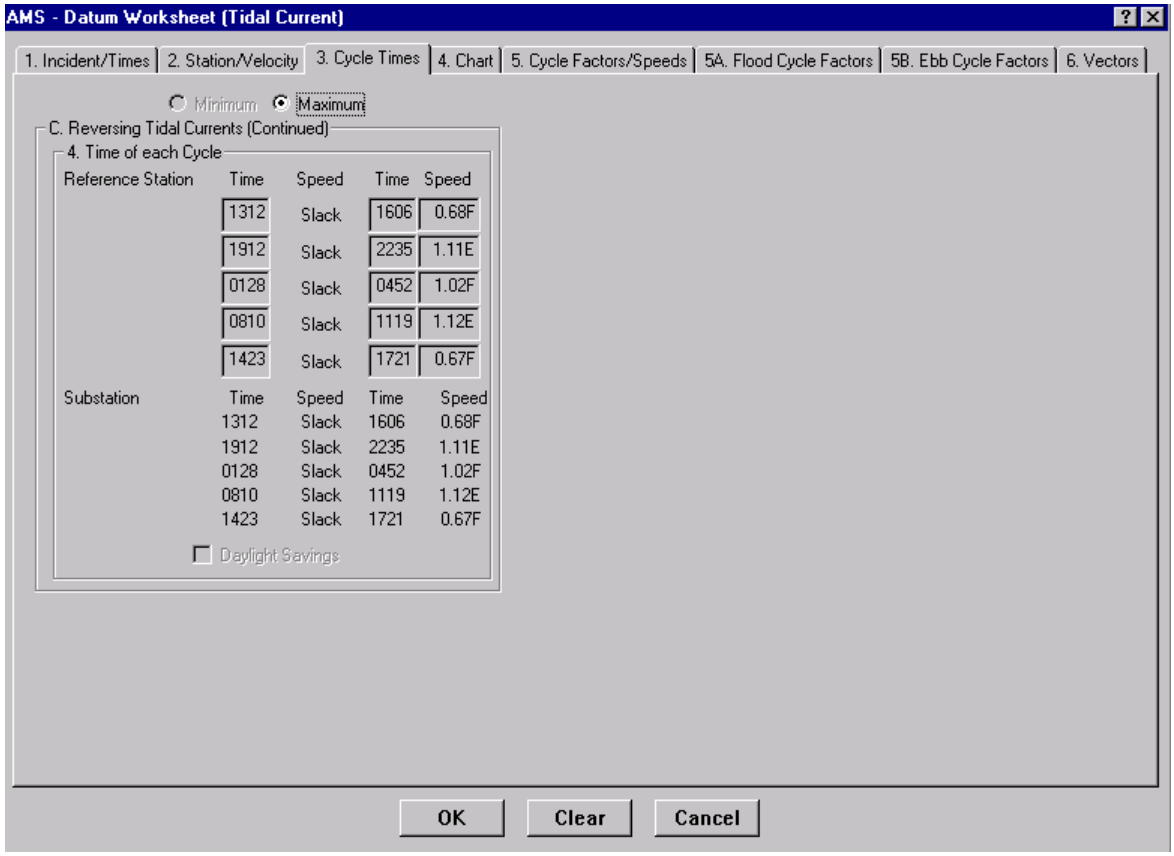
In the Reference Area, enter the time of each cycle and speeds for the reference station.

The Substation Area displays the time of each cycle and speeds for the substation.

To calculate times for Daylight Savings Time, select the Daylight Savings checkbox.

Automatic entry

Datum Worksheet (Tidal Current) Window, Cycle Times Page, automatic entry



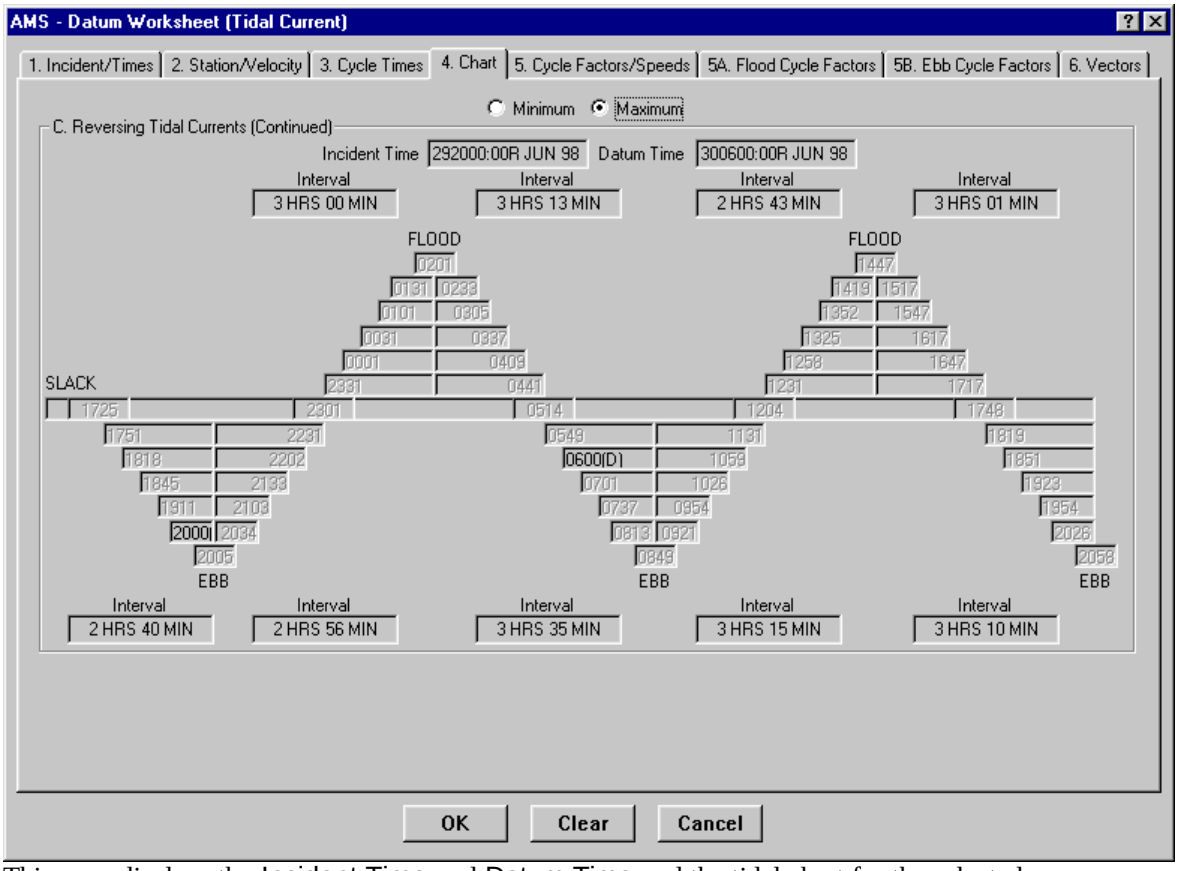
C. Reversing Tidal Currents (Continued)

4. Time of each Cycle

Displays the time of each cycle and speeds for the reference station and substation.

Chart

Datum Worksheet (Tidal Current) Window, Chart Page



This page displays the Incident Time and Datum Time and the tidal chart for the selected reference station/substation for the affected interval.
Two possible error messages may appear if data has not been entered properly.

Incident Time not on Tidal Chart!

Check the following:

Time Conversion settings on “1. Incident/Times” Page

Cycle Times on “3. Cycle Times” Page

Datum Time not on Tidal Chart!

Check the following:

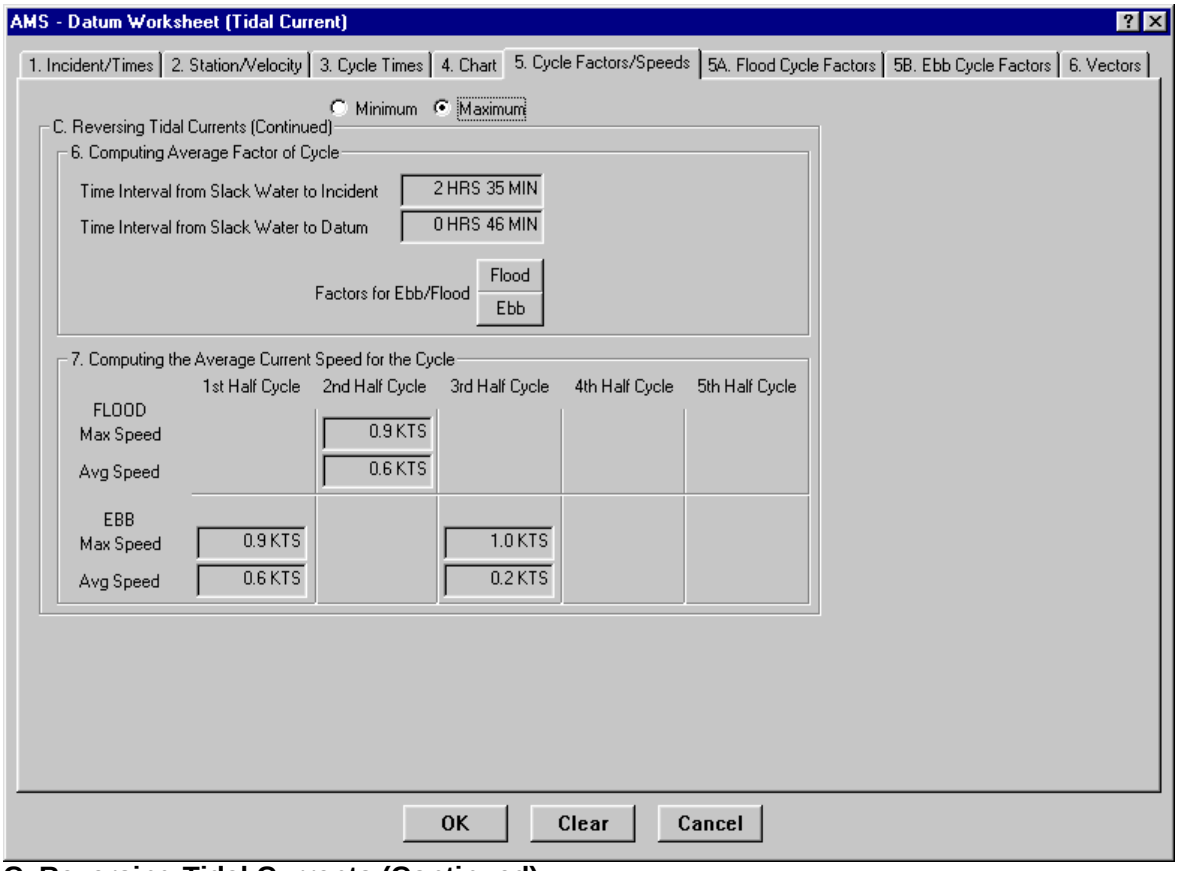
Time Conversion settings on “1. Incident/Times” Page

Cycle Times on “3. Cycle Times” Page

Drift Interval over 24 hours (see A.4 on “1. Incident/Times” Page)

Cycle Factors/Speeds

Datum Worksheet (Tidal Current) Window, Cycle Factor/Speeds Page



C. Reversing Tidal Currents (Continued)

6. Computing Average Factor of Cycle

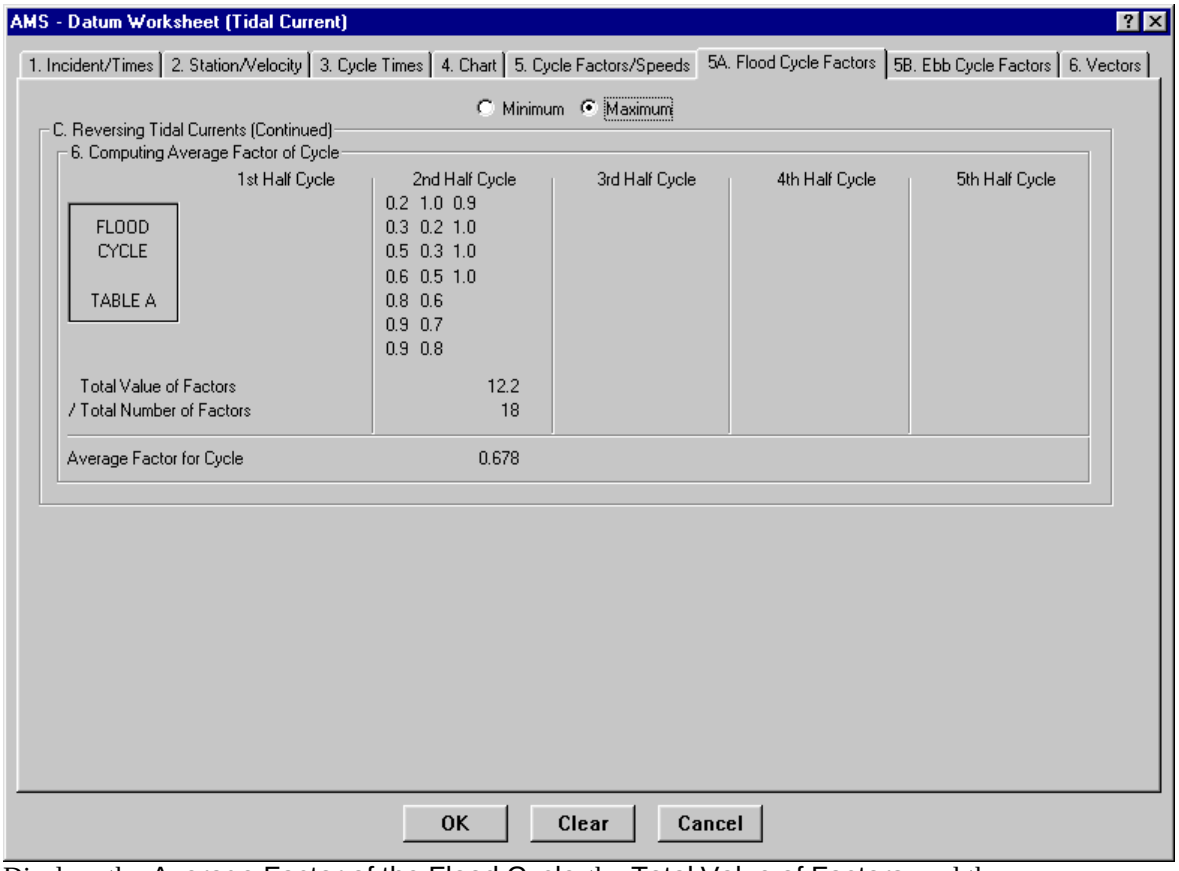
Displays time intervals from Slack Water to Incident and Slack Water to Datum. To view the factors for flood or ebb, click the Flood or Ebb button. Flood displays page 5A, Flood Cycle Factors (see Flood Cycle Factors), and Ebb displays page 5B, Ebb Cycle Factors (see Ebb Cycle Factors).

7. Computing Average Current Speed for the Cycle

Displays the Average Current Speed for the Cycle for both Flood and Ebb cycles.

Flood Cycle Factors

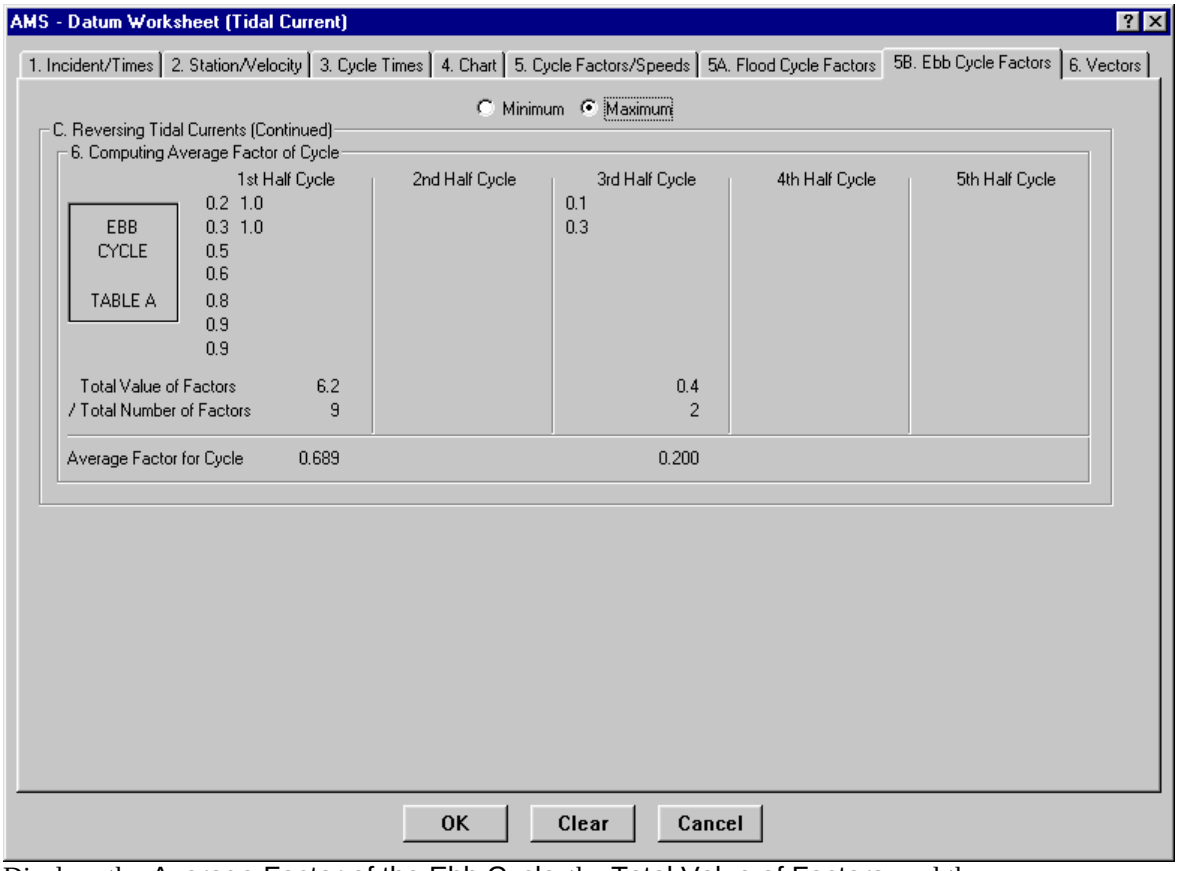
Datum Worksheet (Tidal Current) Window, Flood Cycle Factors Page



Displays the Average Factor of the Flood Cycle, the Total Value of Factors, and the Average Factor for the Flood Cycle.

Ebb Cycle Factors

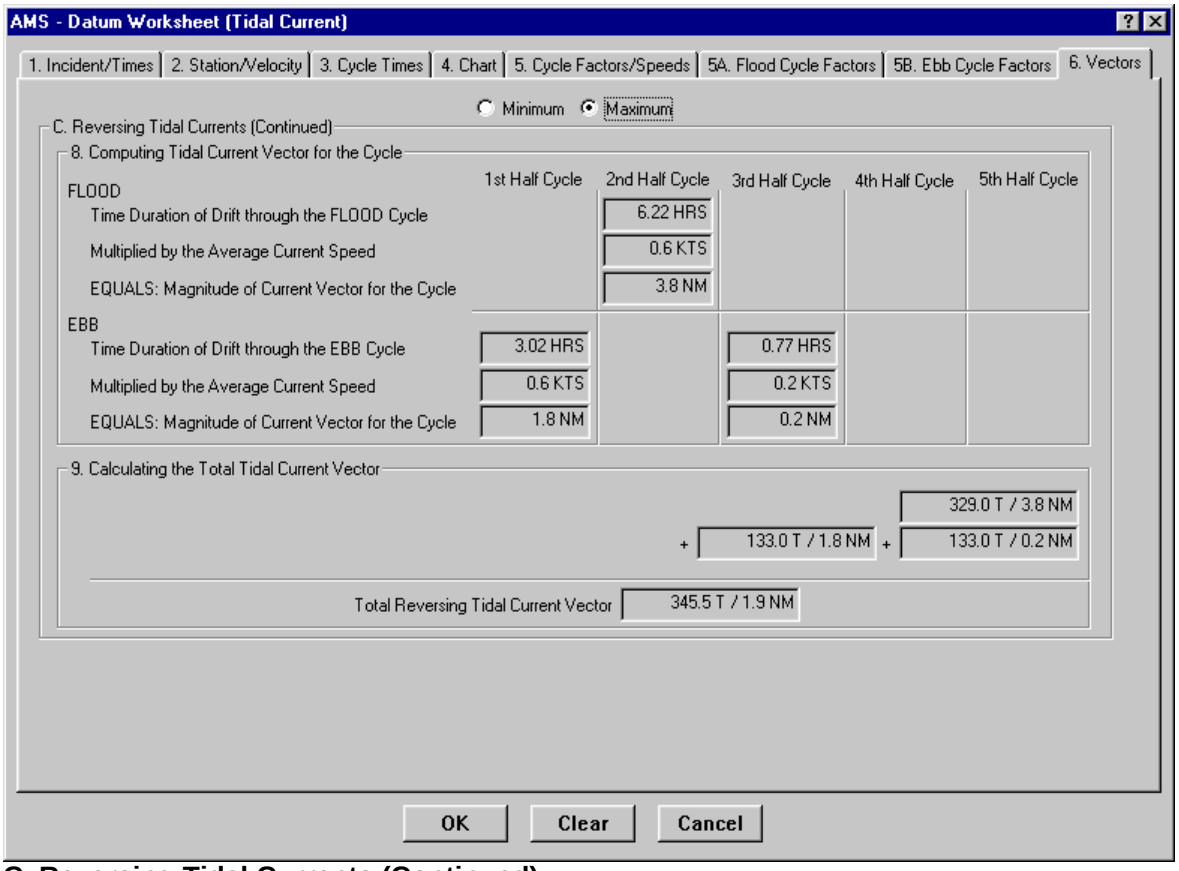
Datum Worksheet (Tidal Current) Window, Ebb Cycle Factors Page



Displays the Average Factor of the Ebb Cycle, the Total Value of Factors, and the Average Factor for the Ebb Cycle.

Vectors

Datum Worksheet (Tidal Current) Window, Vectors Page



C. Reversing Tidal Currents (Continued)

8. Computing Tidal Current Vector for the Cycle

Displays the Time Duration of Drift through each cycle, multiplied by the Average Current Speed. This equals the Magnitude of the Current Vector for the Cycle.

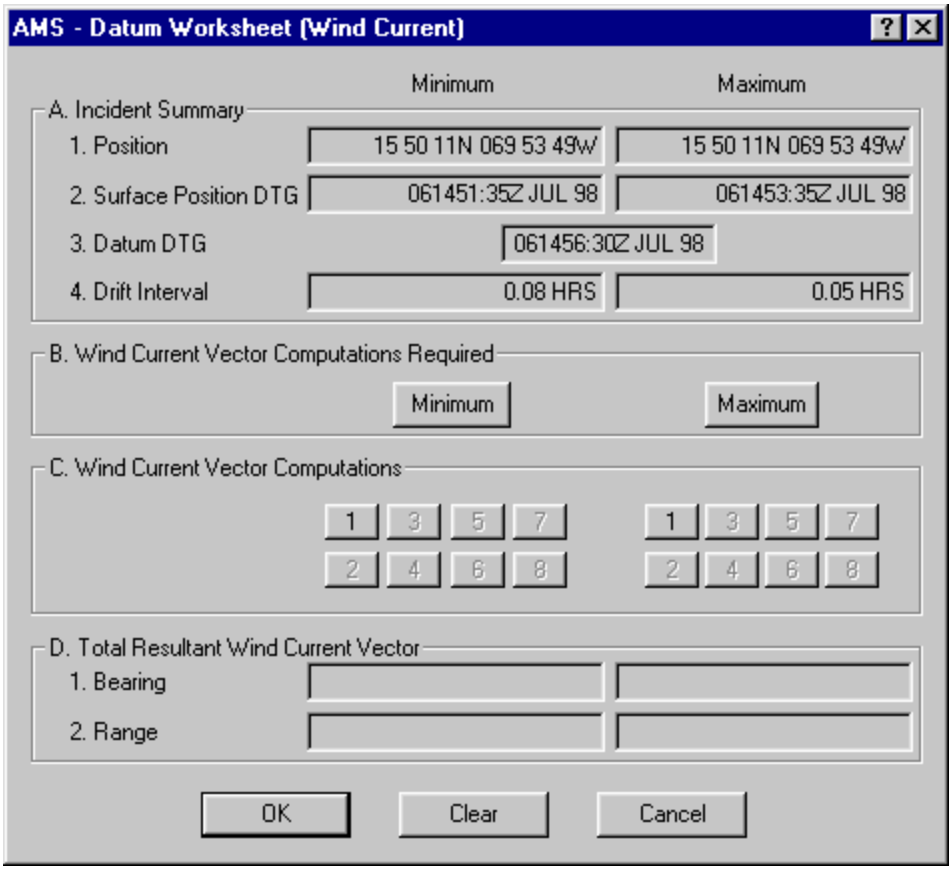
9. Calculating the Total Tidal Current Vector

The Total Reversing Tidal Current Vector displays at the bottom of the page. This vector carries back to the Datum Worksheet when the OK button is clicked.

Datum Worksheet (Wind Current)

This sub-worksheet derives from page three of the Datum Worksheet. To access it, click Advanced at D.4 Wind Current (WC Vector).

Datum Worksheet (Wind Current) Window



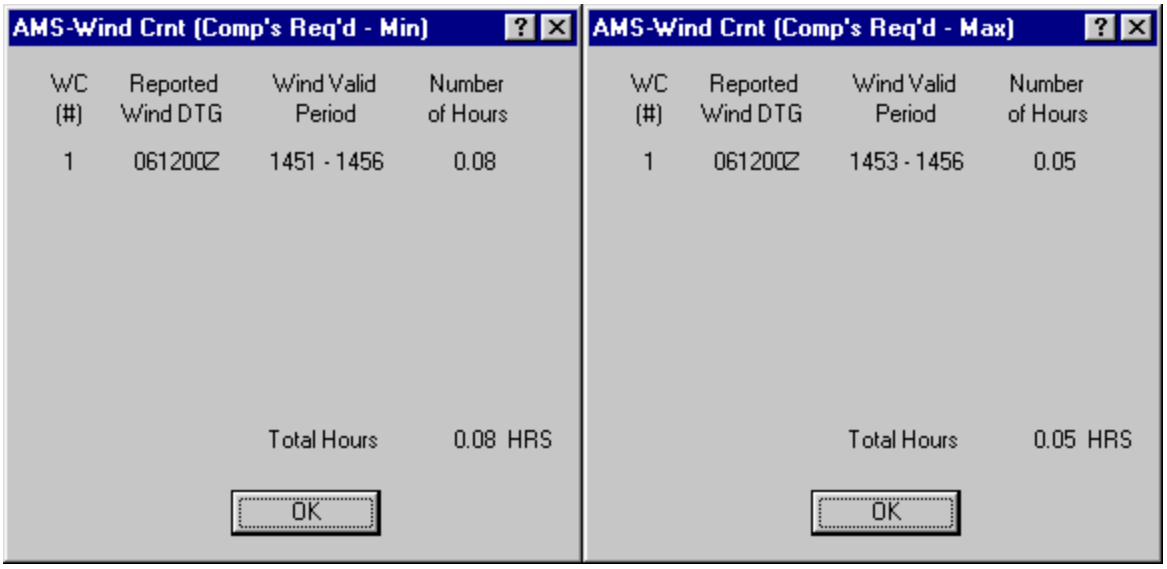
A. Incident Summary

Displays the Position, Surface Position DTG, Datum DTG, and Drift Interval from the Datum Worksheet.

B. Wind Current Vector Computations Required

To display what wind calculations are needed, click either Minimum or Maximum. For Minimum, the Wind Crnt (Com's Req'd - Min) window appears. For Maximum, the Wind Crnt (Com's Req'd - Max) window appears.

Wind Crnt (Comp's Req'd - Min/Max) Window



WC (#)

Displays consecutively numbered wind reporting periods from surface position time to datum time.

Reported Wind DTG

Displays the wind DTG calculated every six hours over a maximum period of 48 hours.

Wind Valid Period

Displays the time within the reporting period that wind affects the search object. This will be less than the full period when incident time and/or datum time fall within the period.

Number of Hours

Displays the duration of the Wind Valid Period.

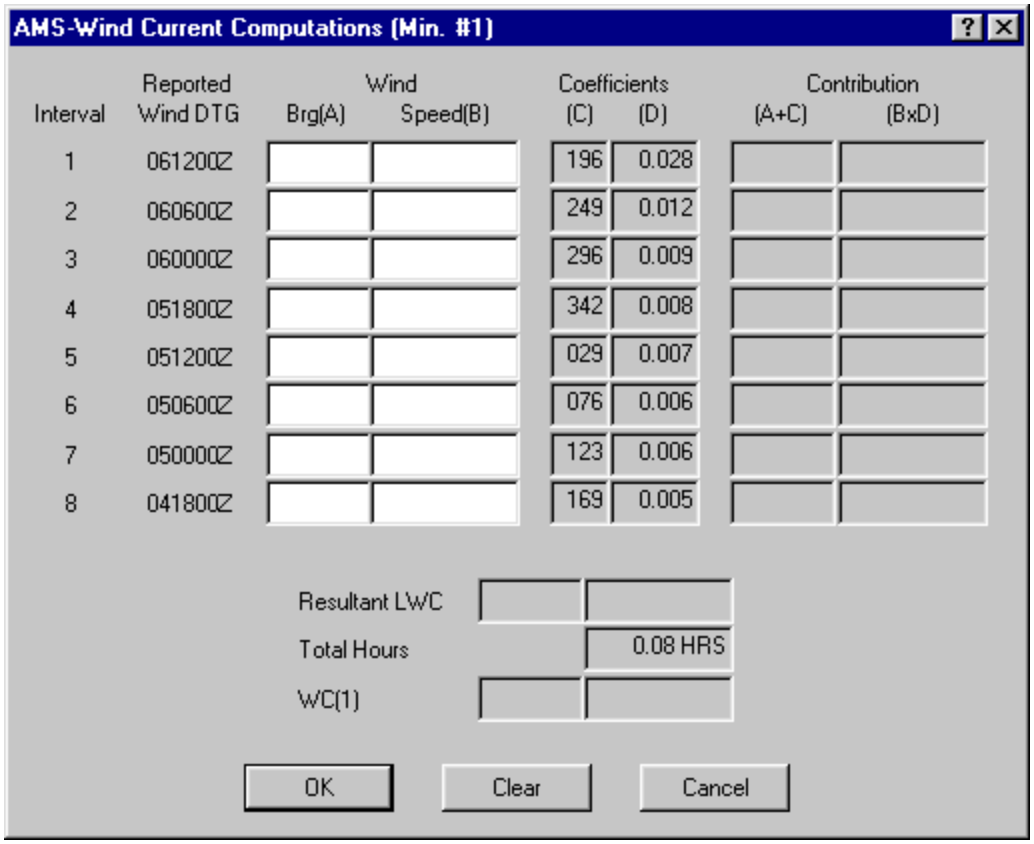
Total Hours

Displays the total number of wind current hours.

C. Wind Current Vector Computations

Under Minimum and Maximum, each selectable square that has a number represents a period for which to calculate wind current. To display the appropriate window, click the square. The Wind Current Computation (Min. # / Max. #) appears.

Wind Current Computations (Min. #1) Window



– For each Interval, enter the wind bearing and speed in the Brg(A) and Speed(B) fields.

– In the Coefficients column, the wind coefficients default except for latitudes between 5 Degrees North and 5 Degrees South. The Contribution column calculates for each entry.

The Resultant LWC and Total Hours display at the bottom of the dialog box. The Total Resultant Wind Current Vector (WC [x]) also appears, displaying the calculated result of direction and distance in tenths of degrees (0.X) and nautical miles (NM).

- To save entries and return to the wind current worksheet page, click OK.
- To return to the wind current worksheet without saving entries, click Cancel.
- To empty the fields and close the window, click Clear.

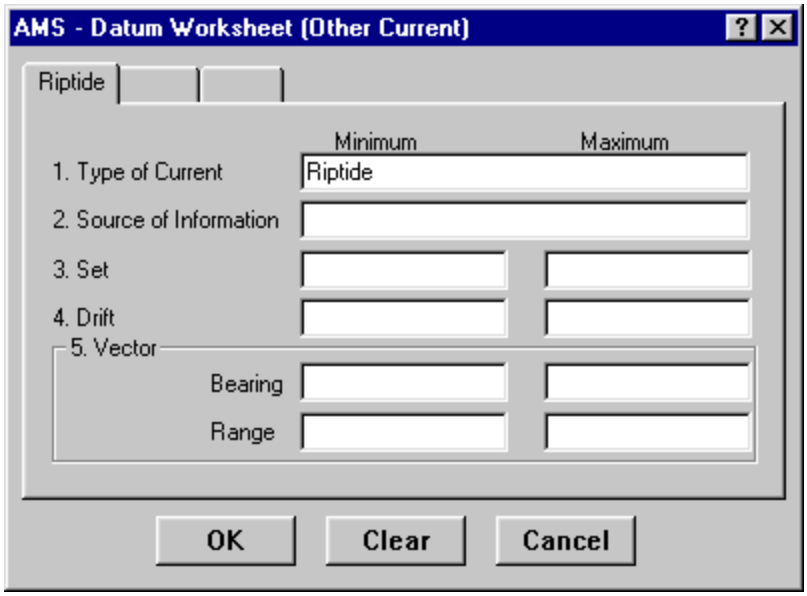
When finished with the wind current worksheet, return to the Datum Worksheet:

- To save entries and return to the Datum Worksheet, click OK.
- To return to the Datum Worksheet without saving entries, click Cancel.
- To empty the fields and return to the Datum Worksheet, click Clear.

Datum Worksheet (Other Current)

This sub-worksheet derives from page three of the Datum Worksheet. To access it, click Advanced at D.5 Other Water Current (OC Vector).

Datum Worksheet (Other Current) Window



This window contains a page for three currents, accessed by the tabs at the top. Initially, the tabs are blank (in this example, the second and third tabs). When the type of current is entered, the tab for that page automatically reflects that entry.

1. Type of Current

Enter the type of current (e.g., longshore current, lake current).

2. Source of Information

Enter the source of information.

3. Source

Enter the publication from which your data is observed.

4. Set

Enter the true direction of the observed current.

5. Drift

Enter the drift speed of the observed sea current.

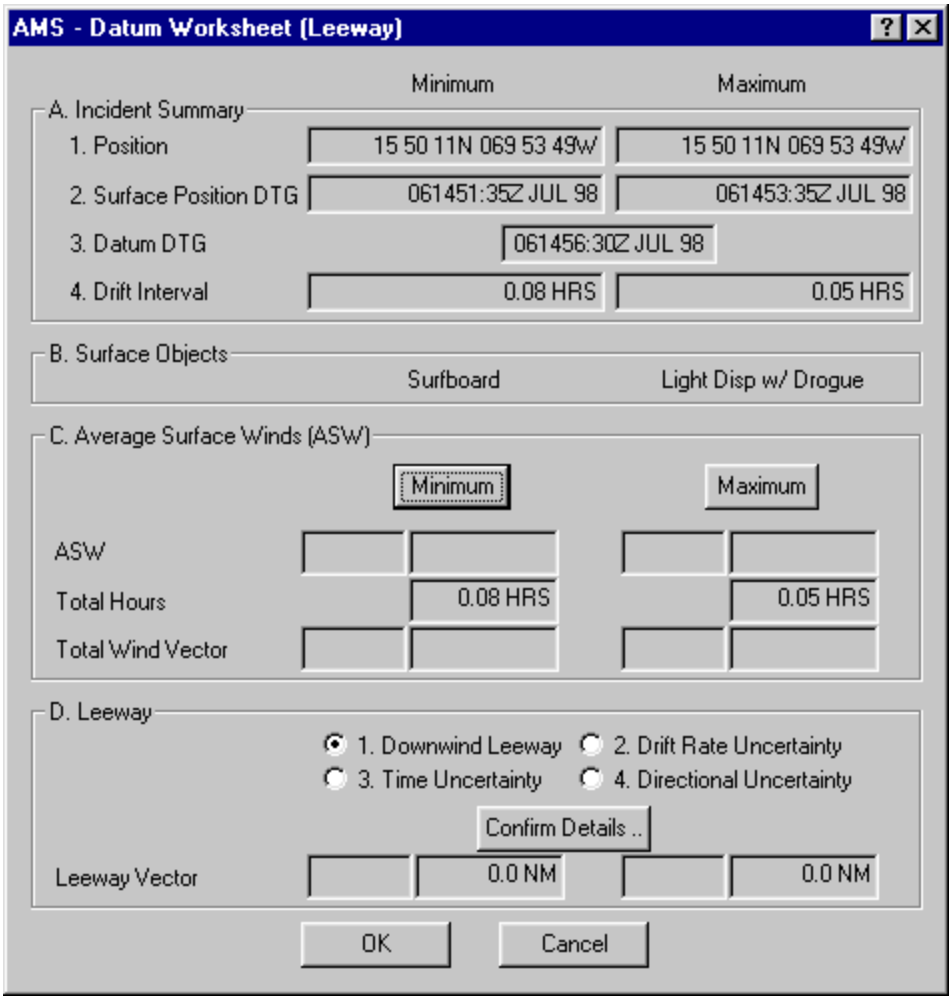
When finished with the other current worksheet, return to the Datum Worksheet:

- To save entries and return to the Datum Worksheet, click OK.
- To return to the Datum Worksheet without saving entries, click Cancel.
- To empty the fields and return to the Datum Worksheet, click Clear.

Datum Worksheet (Leeway)

This sub-worksheet derives from page three of the Datum Worksheet. To access it, click Advanced at E.1 LW Vector.

Leeway Worksheet Window



A. Incident Summary

Displays the Position, Surface Position DTG, Datum DTG, and Drift Interval based on entries from the Datum Worksheet.

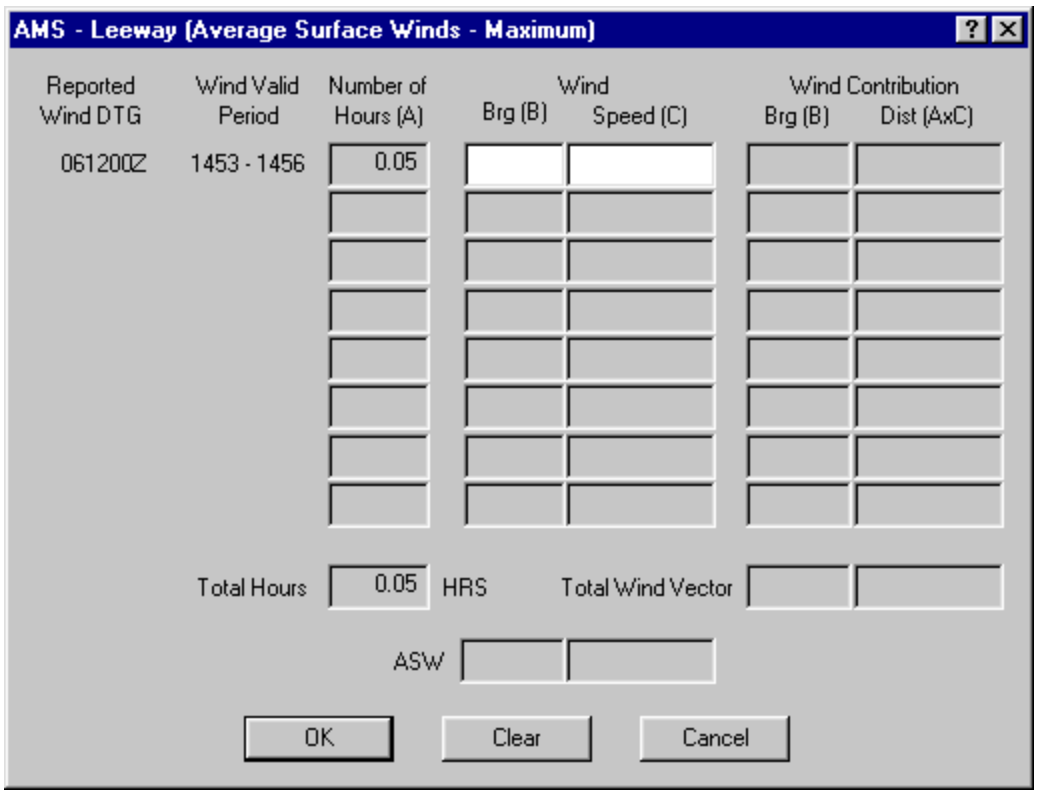
B. Surface Objects

Displays the observed target entered on page one of the Datum Worksheet.

C. Average Surface Winds (ASW)

To display the either the Minimum or Maximum worksheet, click the appropriate button. (Winds entered on the Wind Current Worksheet automatically default.) The Leeway (Average Surface Winds - Maximum/Minimum) window appears.

Leeway (Average Surface Winds - Maximum) Window



Enter the wind bearings and speed. Only the needed information will be available. Some data may be available but pre-filled from the Wind Current worksheet; this data does not need to be re-entered.

The window displays the Reported Wind DTG, the Wind Valid Period, the Number of Hours, Wind Contribution, the Total Hours and the Total Wind Vector, and the final ASW according to your entries.

Note: Values for the Dist column will be computed with the lesser of 40 knots and the value that appears in the Speed column (i.e., the leeway calculator will use 40 knots for all values exceeding 40 knots).

When finished with the ASW Worksheet, return to the Leeway Worksheet:

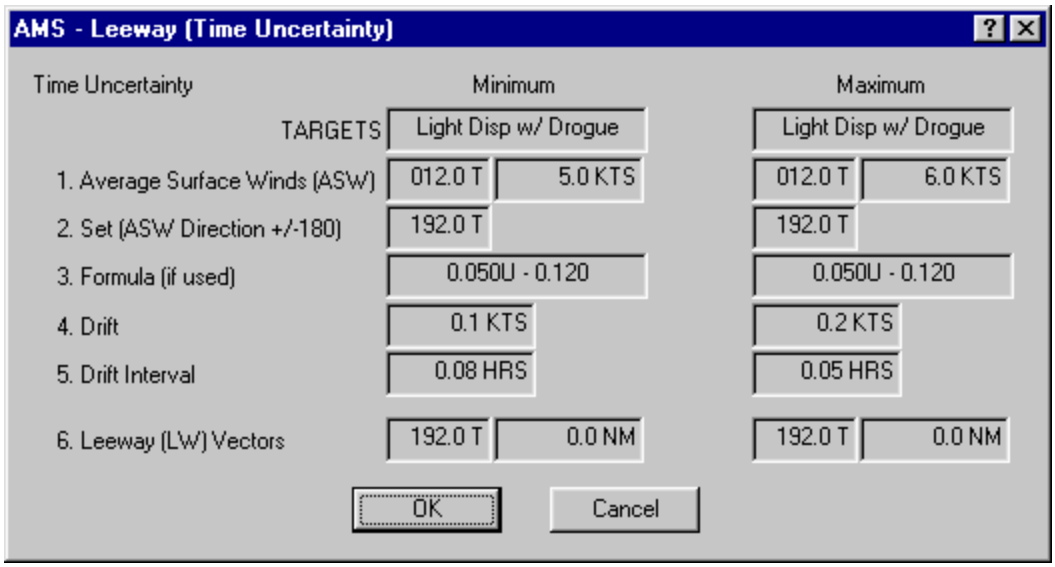
- To save entries and return to the Leeway Worksheet, click OK.
- To return to the Leeway Worksheet without saving entries, click Cancel.
- To empty the fields and return to the Leeway Worksheet, click Clear.

D. Leeway

Of the four options, one is automatically selected according to your entries on Page 1 of the Datum Worksheet. The other three are unavailable. Note that changing your entries on Page 1 of the Datum Worksheet does not automatically affect the Leeway Worksheet. You must open the Leeway Worksheet to update its entries.

To display the leeway details, click Confirm Details. One of the leeway windows appears (each leeway type has its own window).

Leeway (Time Uncertainty) Window



This window displays the Average Surface Winds (ASW), Set (ASW Direction +/-180), Formula (if used), Divergence (only for Directional Uncertainty), Drift, Drift Interval, and Leeway (LW) Vectors.

Click OK to confirm entries and return to page three of the Datum Worksheet. Click Cancel to return to the Leeway Worksheet.

For information about Leeway drift see Appendix B: DESCRIPTIONS OF LEEWAY DRIFT OBJECTS.

When finished with the Leeway Worksheet, return to the Datum Worksheet:

- To save entries and return to the Datum Worksheet, click OK.
- To return to the Datum Worksheet without saving entries, click Cancel.

AMS Utilities

- AMS Viewing Properties
- AMS Options
- Decision Matrix
- AMS Case Summary Window

AMS Viewing Properties

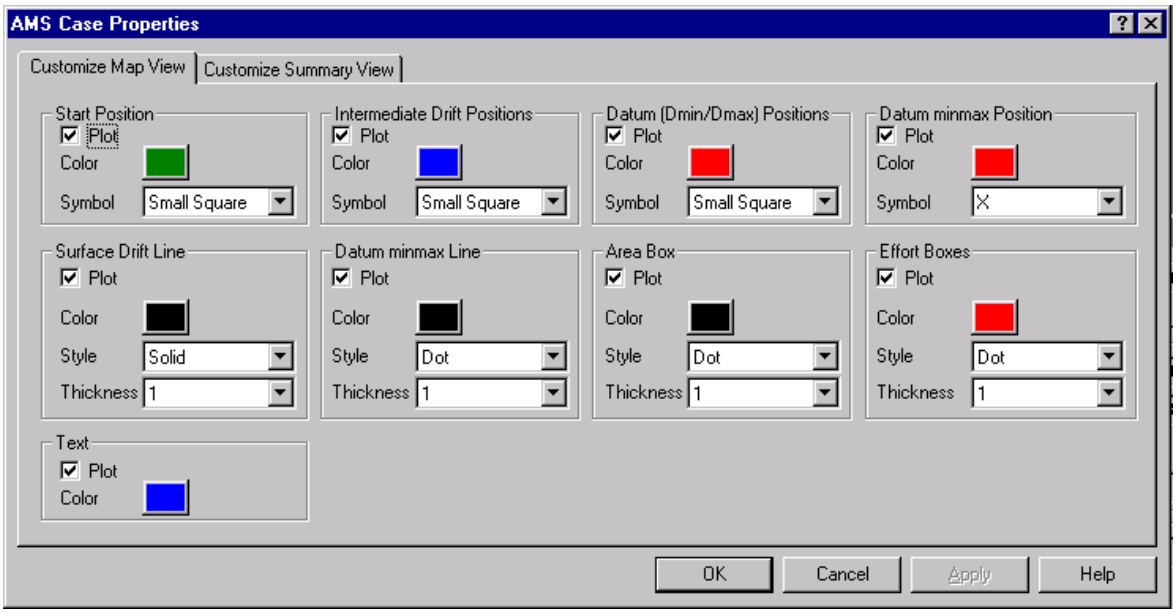
The AMS Viewing Properties window enables you to set how an AMS case appears on the C2PC map.

To set AMS viewing properties:

1. Select an AMS case.

2. Select Viewing Properties from the AMS menu. The AMS Case Properties window appears.

AMS Case Properties Window, Customize Map View page



3. Set the options on the two pages as you wish. Descriptions of the options on the two pages follow.

The AMS Case Properties window contains two pages, accessed by the tabs at the top. This window contains four buttons at the bottom that are available for both pages.

OK

Applies the changes and closes the AMS Case Properties window.

Cancel

Closes the AMS Case Properties window without applying the changes.

Apply

Not yet implemented.

Help

Not yet implemented.

Customize Map View

See AMS Case Properties Window, Customize Map View page for a view of this page.

Customize Map View contains an area for each of the following nine map items:

- Start Position
- Intermediate Drift Positions
- Datum (Dmin/Dmax) Positions
- Datum minimax Position
- Surface Drift Line
- Datum minimax Line

- Area Box
- Effort Boxes
- Text

Each area contains two to four of the following controls that govern how the item is displayed by the C2PC map.

Plot Checkbox

Select this checkbox to plot the item on the map. If not selected, the item does not appear on the map.

Color Button

Click this button to change the color in which the item appears on the map.

Symbol/Style Field

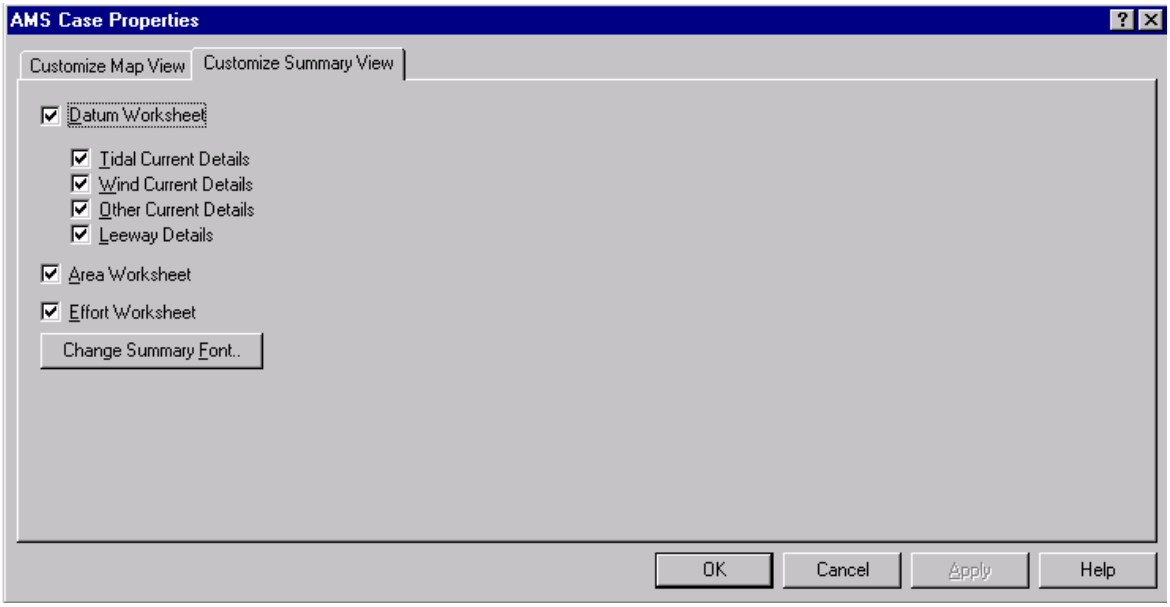
When available, select either a symbol or a line style in which the item appears on the map. This field contains a scrollable list of available symbols or line styles.

Thickness

Select how thick you want the selected line to appear. The units are points (1 point lines, 2 point lines, etc.).

Customize Summary View

AMS Case Properties Window, Customize Summary View page



The Customize Summary View page contains seven checkboxes:

- Datum Worksheet
- Tidal Current Details
- Wind Current Details
- Other Current Details

- Leeway Details
- Area Worksheet
- Effort Worksheet

These checkboxes toggle the corresponding information shown in the AMS window area. When on, the information is displayed and when off, the information is not displayed. The properties also apply to the AMS Case Summary window.
This page also contains a Change Summary Font button. Click this button to change the font in the AMS window area. The properties also apply to the AMS Case Summary window. Only those fonts available for your system appear.

Note: Fixed width fonts (e.g., Courier) are recommended because much of the information is aligned by character position.

AMS Options

Select Options from the AMS menu. The AMS Options window appears.

Note: An AMS case must be selected for this option to be available.

AMS Options Window

The AMS Options window contains two radio buttons:

- Save One Position
- Save All Positions

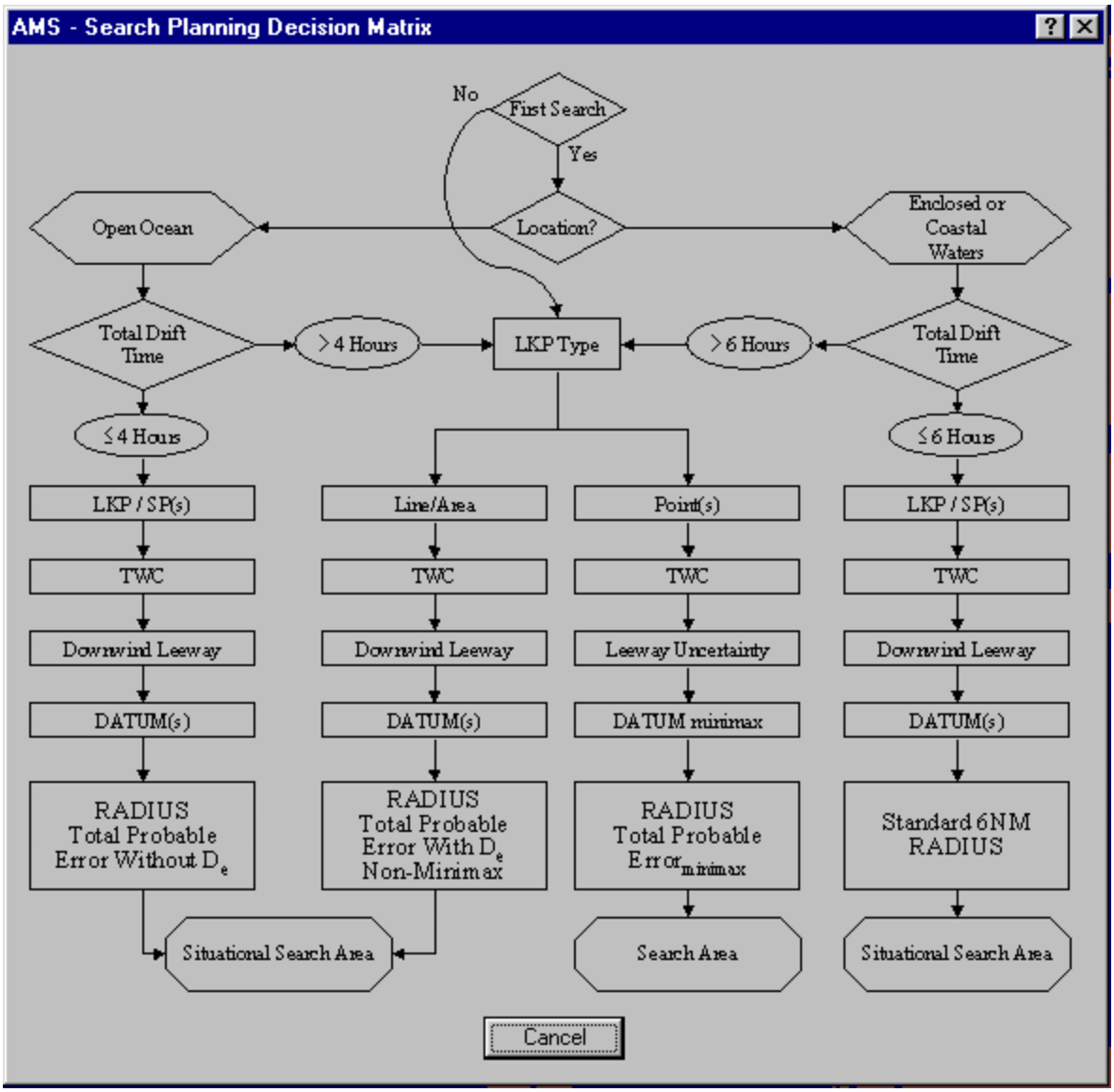
AMS stores the size and screen positions of most windows and restores them the next time that AMS is used. Use the SAVE One Position option to cause all worksheets to appear at the same (top left) position. Use Save All Positions to allow each worksheet to remember its own position.
The window also contains a Clear Dialog Positions button.
This option is provided only as a safeguard in case windows or worksheets get “lost” or otherwise misplaced (for example, when changing display resolutions).
Click OK to close the window and apply the changes, or click Cancel to close the window without applying the changes.

Decision Matrix

Select Decision Matrix from the AMS menu. The Search Planning Decision Matrix window appears. (The search planning decision matrix is also known as the four-legged monster.)

Note: An AMS case must be selected for this option to be available.

Search Planning Decision Matrix Window



This window is for display only.

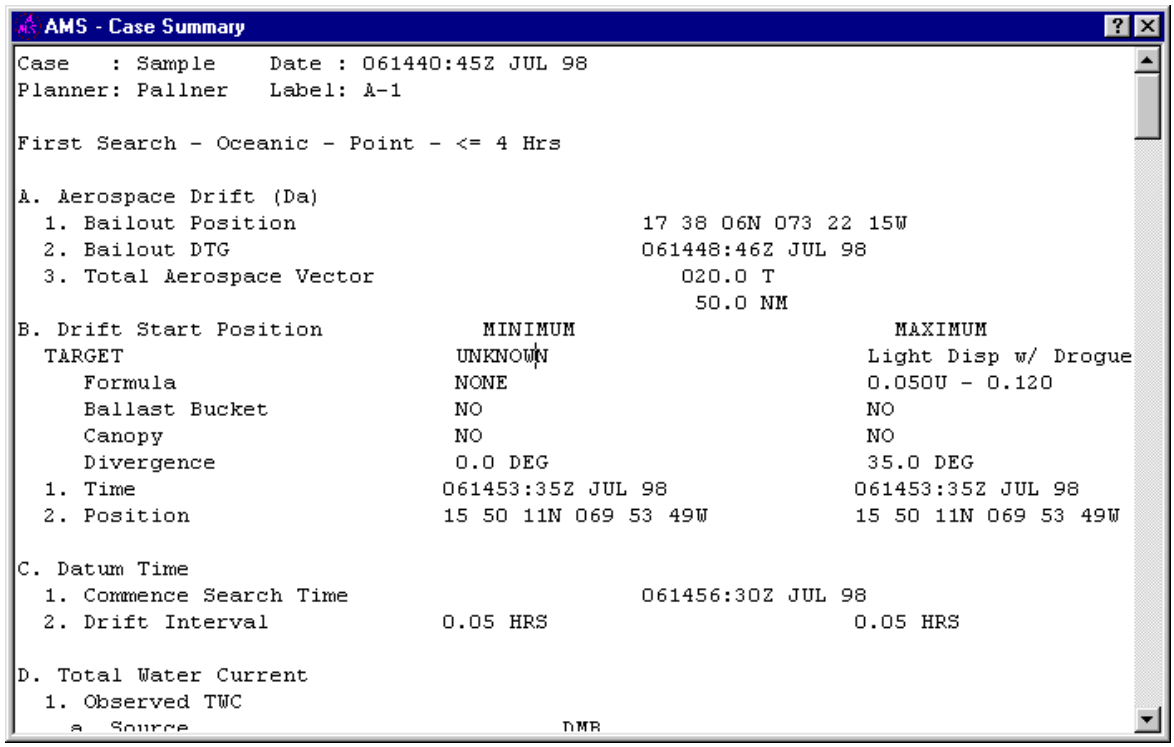
AMS Case Summary Window

The AMS Case Summary window contains textual information on the selected AMS case. The summary includes data from all the worksheets. This window may be accessed in two ways:

- Select an AMS case and choose AMS > Summary > Show Summary Dialog.
- Select an AMS case and click the Summary Log button on the AMS toolbar.

The AMS Case Summary window appears.

AMS Case Summary Window



```
AMS - Case Summary
Case    : Sample     Date : 061440:45Z JUL 98
Planner: Pallner    Label: A-1

First Search - Oceanic - Point - <= 4 Hrs

A. Aerospace Drift (Da)
  1. Bailout Position                          17 38 06N 073 22 15W
  2. Bailout DTG                               061448:46Z JUL 98
  3. Total Aerospace Vector                       020.0 T
                                                   50.0 NM
B. Drift Start Position            MINIMUM                        MAXIMUM
  TARGET                          UNKNOWN                       Light Disp w/ Drogue
     Formula                      NONE                          0.050U - 0.120
     Ballast Bucket               NO                            NO
     Canopy                       NO                            NO
     Divergence                   0.0 DEG                       35.0 DEG
  1. Time                        061453:35Z JUL 98             061453:35Z JUL 98
  2. Position                    15 50 11N 069 53 49W          15 50 11N 069 53 49W

C. Datum Time
  1. Commence Search Time                      061456:30Z JUL 98
  2. Drift Interval              0.05 HRS                      0.05 HRS

D. Total Water Current
  1. Observed TWC
    a. Source                                  DMB
```

See Using Textual Windows for instructions on saving and printing this information.

Computer Aided Search Planning

Computer Aided Search Planning (CASP) provides a graphical user interface for:

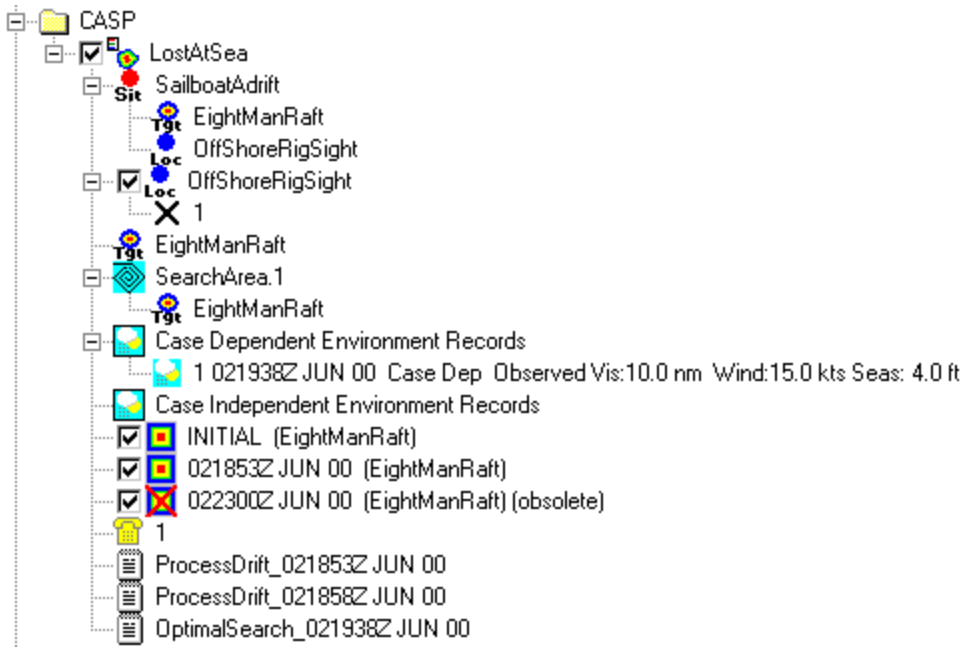
- entering SAR case data;
- connecting to the CASP program running on the Prime Computer at the Operations Systems Center (OSC) in Martinsburg, WV; and
- displaying the results (for example, using probability maps and optimal search areas) on the C2PC map.

The CASP program at OSC performs complex calculations using Monte Carlo simulation techniques and databases (for example, live and historical environmental data) not available to every C2PC installation. It is sometimes referred to as “CASP central” or the “CASP server.”

CASP Cases

Within the tree directory, a folder represents each CASP case; each element of the CASP case is represented by an icon in the tree directory.

The CASP Tree



All icons may be double-clicked to view and edit the data associated with that particular icon. All icons also have a context menu (see Using Context Menus (Right Pop-up Menus) for invoking common tasks on the data associated with that particular icon (for example: Edit, New). The following icons are shown, top to bottom (see figure above for a picture of a CASP tree):

- The CASP case (for example, SAGEN)
  - Situation (for example, Situation.1)

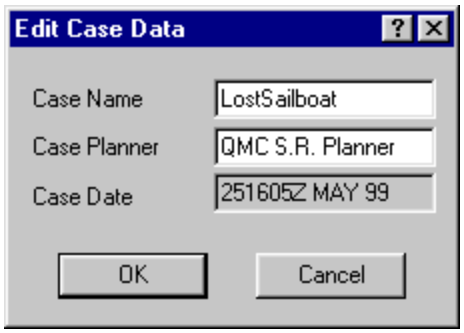
    - Target (for example, Sailboat). A situation many only have one target.
    - Any locations included within this situation (for example, Location.1). A situation may have numerous locations.
  - Any locations included within this CASP case (for example, Location.1)
    - Any positions included within this location (for example, 1)
  - Any targets included within this CASP case (for example, Sailboat)
  - Any search areas included within this CASP case (for example, SearchArea.1)
    - All targets contained within this CASP case (for example, Sailboat)
  - Case Dependent Environment Records
    - Any case dependent environment records included within this CASP case.
  - Case Independent Environment Records
    - Any case independent environment records included within this CASP case.
  - Any replications included within this CASP case.
  - Login
  - ProcessDrift and OptimalSearch log files

To open a new CASP case

1. A new CASP case may be opened in two ways:
   - From the Edit menu, choose CASP Cases > New.
   - From the context menu for CASP Cases in the tree directory, choose New.

   The Edit Case Data window appears.

Edit Case Data Window



2. In the Case Name field, enter an alphanumeric name.
3. In the Case Planner field, enter the name of the SAR planner.

The Case Date field contains the DTG of creation; it cannot be manually altered.

4. To close the window and apply the name and planner to the new CASP case, click OK.

   To close the window without applying the name and planner to the new CASP case, click Cancel. Note that a new CASP case is added even if you click Cancel; it doesn't have a name or planner, but the DTG reflects the creation of the CASP case.

   A situation, location, and target will be automatically created for this case.

To edit a CASP case

1. Open the Edit Case Data window in one of two ways:
   - Double-click an existing CASP case.
   - From the context menu for an existing CASP case, choose Properties.
2. Change the Case Name or the Case Planner. Note that you cannot change the Case Date.

To delete a CASP case

1. Select the CASP case you wish to delete.
2. Delete the CASP case using one of the following methods:
   - From the context menu, choose Delete.
   - From the Edit menu, select CASP Cases > Delete.
   - Press the [Delete] key on the keyboard.

Situation

A situation consists of a target and its possible locations.

To add a situation

A new situation can be added in two ways:

- On the CASP toolbar, click the Situation button.
- From the CASP menu, select Edit > Situation Records > New.

The Edit Situation Data window appears. See the The Edit Situation Data Window for instructions of this window.

To edit an existing situation

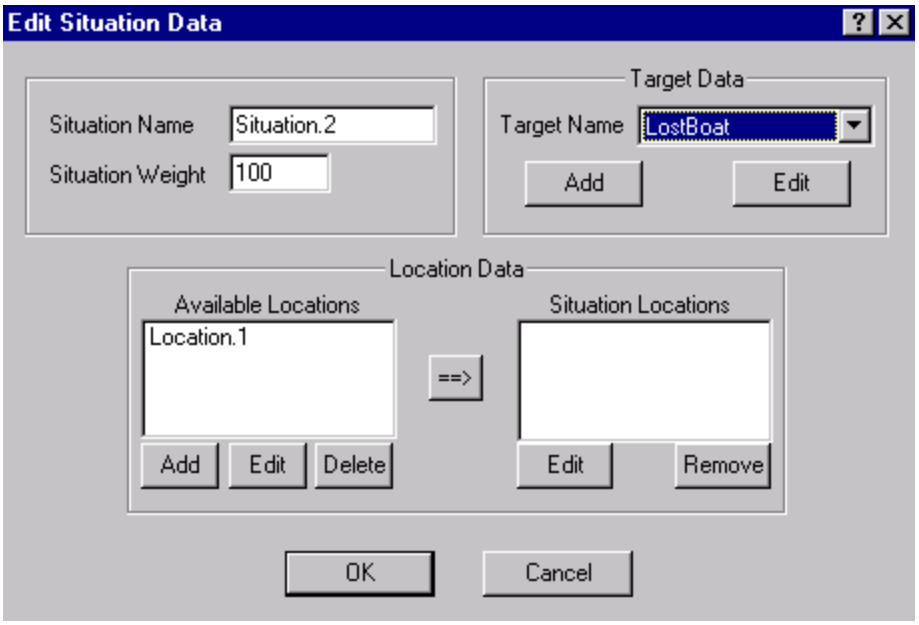
An existing situation can be edited in two ways:

- Double-click the situation in the tree directory.
- From the CASP menu, select Edit > Situation Records > Properties, select the situation, and click OK.

The Edit Situation Data window appears. See The Edit Situation Data Window for instructions on this window.

The Edit Situation Data Window

Edit Situation Data Window



The Edit Situation Data window contains the following fields and buttons:

Situation Name field

Reflects the name of the situation entered earlier. This field is editable.

Situation Weight field

Enter an integer between 0 and 100 to reflect this situation's weight relative to other situations.

Target Data Box

Target Name field

Select the target for this situation from the drop-down list of available targets. Only one target can be chosen. Note that a target must be first created to be available in this window. See Target for information on targets.

Add button

Invokes the Edit Target Data window. See Target for instructions on this window.

Edit button

Invokes the Edit Target Data window. See Target for instructions on this window.

Location Data Box

The Location Data area contains two boxes: Available Locations lists all locations available in this CASP case; Situation Locations lists all locations applicable to this situation.

To copy a location from the Available Locations box into the Situation Locations box, select it and click the arrow button located between the two boxes.

The Location Data area also contains five buttons: Add, Edit, and Delete under the Available Locations box; and Edit and Remove under the Situation Locations box.

Add

Click this button to add a new location to the CASP case. A new location is added both to the Available Locations box in this Situation and to the tree directory.

Edit

Select a location and click this button to edit it. The Edit Common Location Data window appears (see The Edit Common Location Data Window). You can also double-click a location in this box to edit it.

Delete

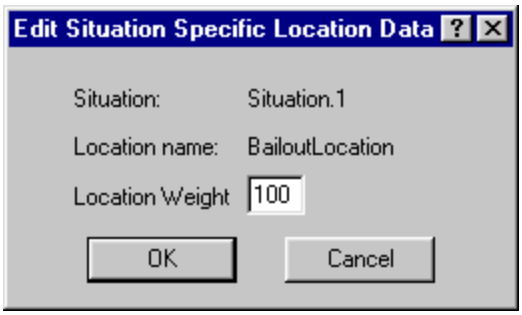
Select a location and click this button to delete a location. The location is deleted in the CASP case and all situations.

Situation Locations Box

Edit

Select a location and click this button to edit it. The Edit Situation Specific Location Data window appears. You can also double-click a location in this box to edit it.

Edit Situation Specific Location Data Window



In this window, only one field is available: the Location Weight field. Enter an integer between 1 and 100 that represents the weight of this particular location relative to other locations in the same situation. Click OK to exit the Edit Situation Specific Location Data window and apply your changes or click Cancel to exit without applying your changes.

Remove

Select a location and click this button to delete it from the Situations Locations box.

Click OK to close the Edit Situation Data window and apply the changes or click Cancel to close the window without applying the changes.

Location

A location consists of one or more possible target positions.

To add a location

A new location can be added in two ways:

- On the CASP toolbar, click the Location button.
- From the CASP menu, select Edit > Location Records > New.

A new location appears in the tree directory.

To edit an existing location

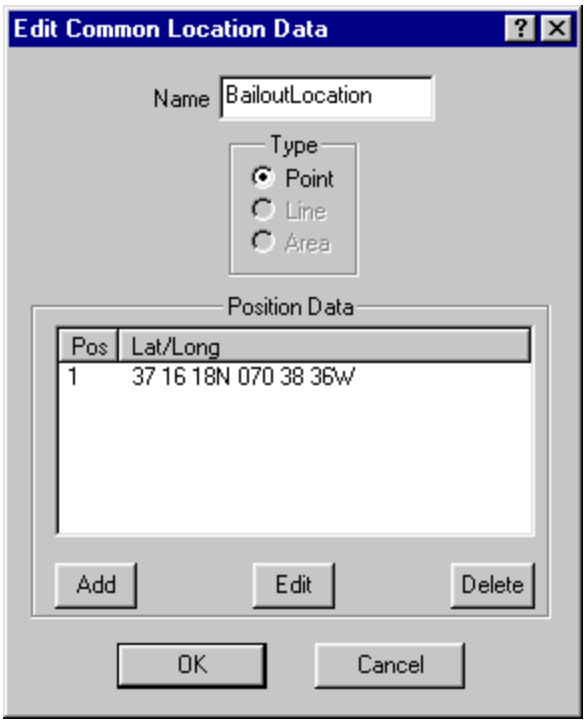
An existing location can be edited in two ways:

- Double-click the location in the tree directory.
- From the CASP menu, select Edit > Location Records > Properties, select the location, and click OK.

The Edit Common Location Data window appears. See The Edit Common Location Data Window for instructions on this window.

The Edit Common Location Data Window

Edit Common Location Data Window



The Edit Common Location Data window contains the following controls:

Name field

Enter the name of the location.

Type box

Reflects the locations chosen.

- If you have one position, the type is a Point.
- If you have two positions, the type is a Line.
- If you have three or more positions, the type is either a Line or an Area: select the one that applies.

Position Data box

Contains a box listing all positions for this location and three buttons: Add, Edit, and Delete.

Add

Click this button to add a new position. The Edit Position Data window appears. See The Edit Position Data Window for instructions for this window.

Edit

Select a position and click this button to edit it. The Edit Position Data window appears. See The Edit Position Data Window for instructions for this window.

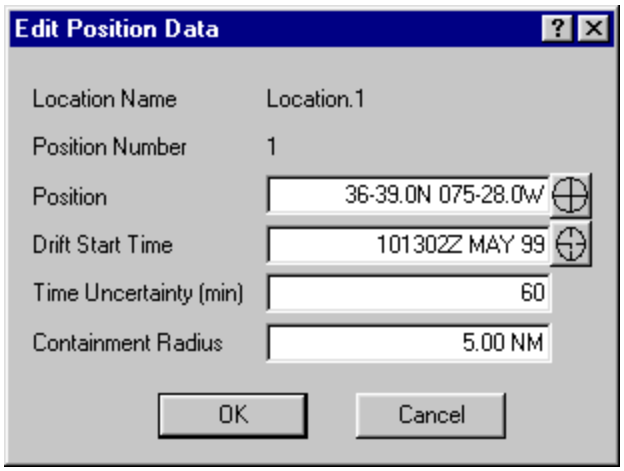
Delete

Select a position and click this button to delete it.

Click OK to close the Edit Common Location Data window and apply the changes or click Cancel to close the window without applying the changes.

The Edit Position Data Window

Edit Position Data Window



The Edit Position Data window contains the following fields:

Position

Enter the center coordinates either by entering the numerical value or by using the Crosshairs button (as described in Using the Crosshairs button).

Drift Start Time

Automatically enters the present date-time. You can also enter a different date-time either by entering the numerical value or by using the Crosshairs button (as described in Using the Crosshairs button).

Time Uncertainty (min)

Automatically enters a value of 60 minutes. You can also enter any integer between 0 and 5000.

Containment Radius

Enter the radius of the area that most likely contains the target.

Click OK to close the Edit Position Data window and apply the changes or click Cancel to close the window without applying the changes.

Note: When first entering the Edit Position Data window, the area may be drawn by clicking and dragging on the C2PC map. A circle is drawn by default and the Position and Radius fields are automatically entered. The area can also be modified by clicking and dragging the position handles on the map; these changes are reflected in the Edit Position Data window automatically.

Target

A target is a search object. A CASP case may have several targets.

To add a target

A new target can be added in two ways:

- On the CASP toolbar, click the Target button.
- From the CASP menu, select Edit > Target Records > New.

A new target appears in the tree directory.

To edit an existing target

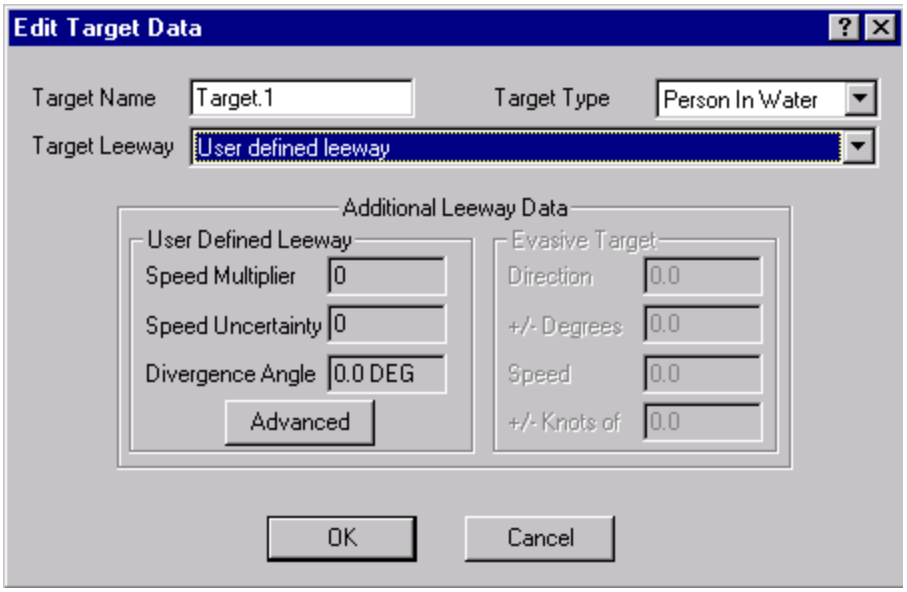
An existing target can be edited in two ways:

- Double-click the target in the tree directory.
- From the CASP menu, select Edit > Target Records > Properties, select the target, and click OK.

The Edit Target Data window appears. See The Edit Target Data Window for instructions on this window.

The Edit Target Data Window

Edit Target Data Window



The Edit Target Data window contains the following fields:

Target Name

Enter the name of the target.

Note: The target name cannot contain a tab, a space, or any of these characters:

`/,!@%\^*()=+|[]{}":;?'<>`

If a name containing one or more illegal characters is entered, an error window appears that states so.

Target Type

Select the target from the list (for example, Person in Water, Raft 1 Person).

Target Leeway

Select the leeway for the target (for example, Anchored or on land (no drift), Surfboard). For all but two of the entries in this field, the Additional Leeway Data box remains unavailable.

The Additional Leeway Data box contains two areas that reflect the selection in the Target Leeway field.

If the Target Leeway field is set to Evasive Target, the following fields are available:

Direction

Enter the target's direction in degrees (0 to 359.9).

+\- Degrees

Enter the range of error for the direction in the range 0 to 1.

Speed

Enter the target’s speed in the range 0 to 150 NM.

+\- Knots of

Enter the target's speed uncertainty in the range 0 to 1.

If the Target Leeway field is set to User Defined Leeway, the following fields are available:

Speed Multiplier

Enter the applicable multiplier in the range of 0 to 1.

Speed Uncertainty

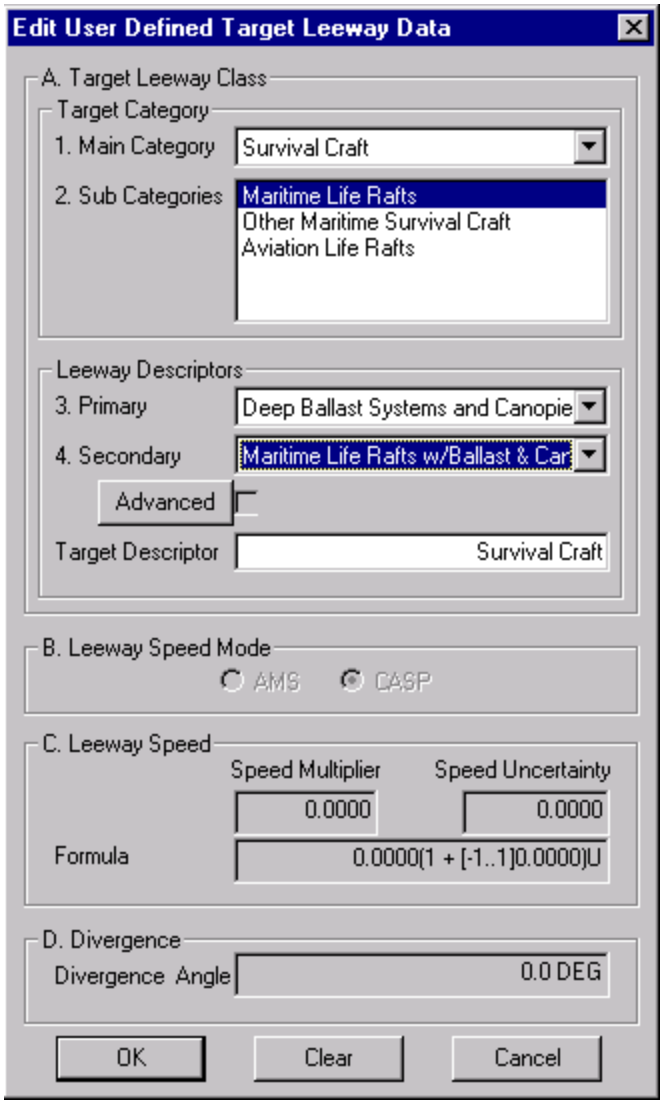
Enter the target’s speed uncertainty in the range 0 to 1.

Divergence Angle

Enter the divergence of the target in degrees (0 to 359.9).

The Advanced button is activated. When the Advanced button is clicked, the Edit User Defined Target Leeway Data window is displayed.

Edit User Defined Target Leeway Data Window



A. Target Leeway Class

Allows the user to select the following from drop-down menus:

1. Main Category
2. Sub Category
3. Primary Descriptor
4. Secondary Descriptor

The Target Descriptor field displays information.

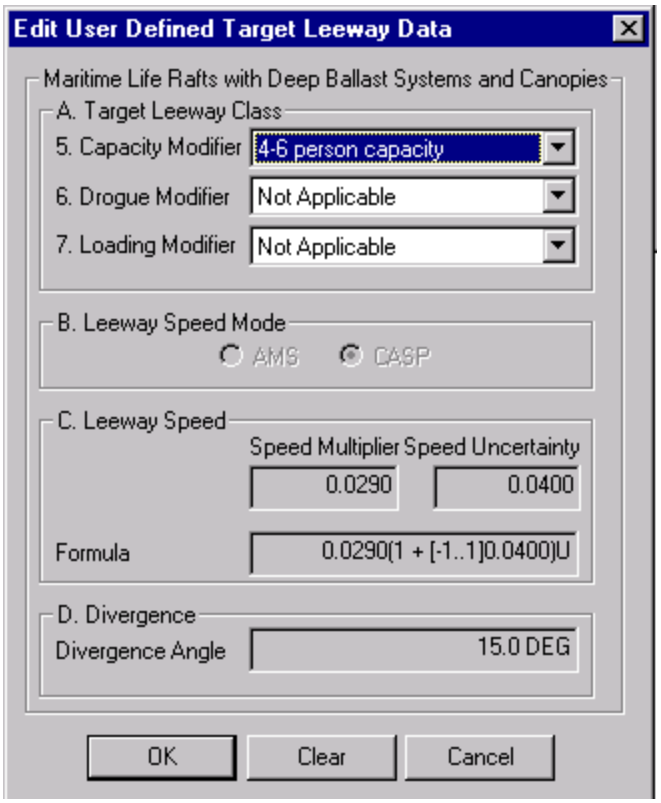
If the Main Category – User Defined Target Leeway is selected, the user is able to enter the following information manually:

- Target Descriptor

- Speed Multiplier
- Speed Uncertainty
- Divergence Angle

If the Primary Descriptor – Deep Ballast Systems and Canopies and the Secondary Descriptor – Maritime Life Rafts w/Ballast & Canopy are selected, the Advanced button is activated. When the Advanced button is clicked, the Edit User Defined Target Leeway Data sub-window with additional Target classes displays.

Edit User Defined Target Leeway Data Subwindow



This window allows the user to select the following from drop-down menus:

5. Capacity Modifier
6. Drogue Modifier
7. Loading Modifier

B. Leeway Speed Mode

Displayed as CASP.

When finished with the Edit User Defined Target Leeway Data sub-window, return to the Edit User Defined Target Leeway Data Window:

- To save entries and return to the Edit User Defined Target Leeway Data Window, click OK.
- To return to the Edit User Defined Target Leeway Data Window without saving entries, click Cancel.
- To empty the fields and return to the Edit User Defined Target Leeway Data Window, click Clear.

C. Leeway Speed

Displays the speed multiplier, speed uncertainty, and formula from the Leeway table for the above selected categories, descriptors, and modifiers.

D. Divergence

Displays the divergence angle from the Leeway table for the above selected categories, descriptors, and modifiers.

When finished with the Edit User Defined Target Data window, return to the Edit Target Data window:

- To save entries and return to the Edit Target Data window, click OK.
- To return to the Edit Target Data window without saving entries, click Cancel.
- To empty the fields and return to the Edit Target Data window, click Clear.

Click OK to close the Edit Target Data window and apply the changes or click Cancel to close the window without applying the changes.

Search Area

A search area is an area on the map that includes one or more targets.

To add a Search Area

A new search area can be added in two ways:

- On the CASP toolbar, click the Search Area button.
- From the CASP menu, select Edit > Search Area Records > New.

The Edit Search Area Data window appears. See The Edit Search Area Data Window for instructions on this window.

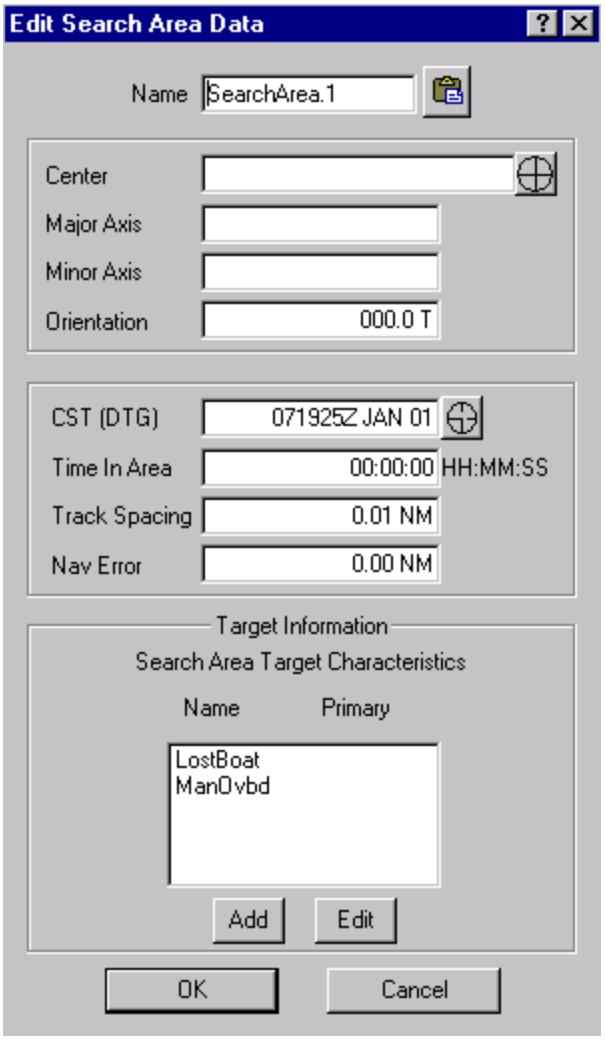
To edit an existing Search Area

1. Select CASP item.
2. From the CASP menu, select Edit > Search Area Records > Properties, select the search area, and click OK.

The Edit Search Area Data window appears.

The Edit Search Area Data Window

Edit Search Area Data Window



You may create a search area using one of the following methods:

- Copy the search area or a search pattern.
- Fill out the first two sections in the Edit Search Area Data window.
- Use the quick entry mode to draw a rectangular area on the C2PC map.

To copy the search area or a search pattern

1. In the tree directory, select either the search area or a search pattern. **Note:** The search area or pattern that you are copying *must* be rectangular to be pasted into the Edit Search Area Data window.
2. On the standard toolbar, click Copy ( ).

3. Open the Edit Search Area Data window (either add a new search area or edit an existing one) for a search area.
4. Next to the Name field, click Paste ( ).

Tip: You can also drag and drop a search pattern or area into the Edit Search Area Data window. To do this, click on the search area you wish to import, drag it onto the target CASP case, and release it.

To create a new search area

1. In the Name field, enter the name of the search area.
2. In the Center field, enter the center coordinates either by entering the numerical value or by using the Crosshairs button (as described in Using the Crosshairs button).
3. In the Major Axis field, enter the length of the major axis.
4. In the Minor Axis field, enter the length of the minor axis.

Note: The Major Axis must be larger than the Minor Axis.

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5. In the Orientation field, enter the rotation of the search area. This is always the direction of the major axis.
6. In the CST (DTG) field, the present date-time is entered automatically. You can also enter a different date-time for the Commence Search Time either by entering the numerical value or by using the Crosshairs button (as described in Using the Crosshairs button).
7. In the Time In Area field, enter the amount of time that the unit remains in the search area.
8. In the Track Spacing field, enter the spacing between each track leg in the range of 1 to 1000 nautical miles.
9. In the Nav Error field, enter the navigational error distance (in the range of 0.01 to 1000 nautical miles) specific to your SRU equipment.
10. In the Target Information area, all targets in the CASP case are listed.

    The box also contains two buttons: Add, and Edit.

    Add

    Click this button to add a new target. A new target appears both in this window and in the tree directory.

    Edit

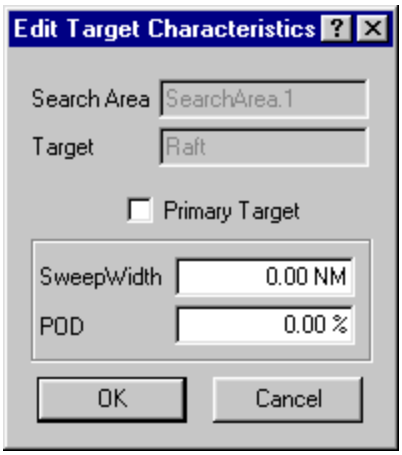
    Select a target and click this button to edit it. The Edit Target Characteristics window appears. You can also double-click the target to edit it. See The Edit Target Characteristics Window for instructions for this window.

11. Click OK to close the Edit Search Area Data window and the changes or click Cancel to close the window without applying the changes.

The Edit Target Characteristics Window

The Edit Target Characteristics window is available from the Edit Search Area Data window (see The Edit Search Area Data Window).

Edit Target Characteristics Window



The Edit Target Characteristics window contains the following controls:

Search Area field

This field cannot be edited; it contains the name of the search area.

Target field

This field cannot be edited; it contains the name of the target.

Primary Target checkbox

Select this box to designate this as the primary target for this search area. Only one primary target can be chosen.

Sweep Width field

Enter the sweep width.

POD field

Enter the probability of detection (0 to 100%) for the target.

Click OK to close the Edit Target Characteristics window and apply the changes or click Cancel to close the window without applying the changes.

Environment Data

There are two types of environment data: Case Dependent and Case Independent. This data is entered by the CASP client to supply information known locally. CASP central also uses various live and historical environmental data as needed when calculating drift.

To add an Environment Record

A new environment record can be added in two ways:

- On the CASP toolbar, click one of the Environment Record buttons (New Case Dependent Environment Record or New Case Independent Environment Record).
- From the CASP menu, select either Edit > Case Dependent Environment Record > New or Edit > Case Independent Environment Record > New.

The Edit Environment Record window appears. See The Edit Environment Record Window for instructions on this window.

To edit an existing Environment Record

An existing environment record can be edited in two ways:

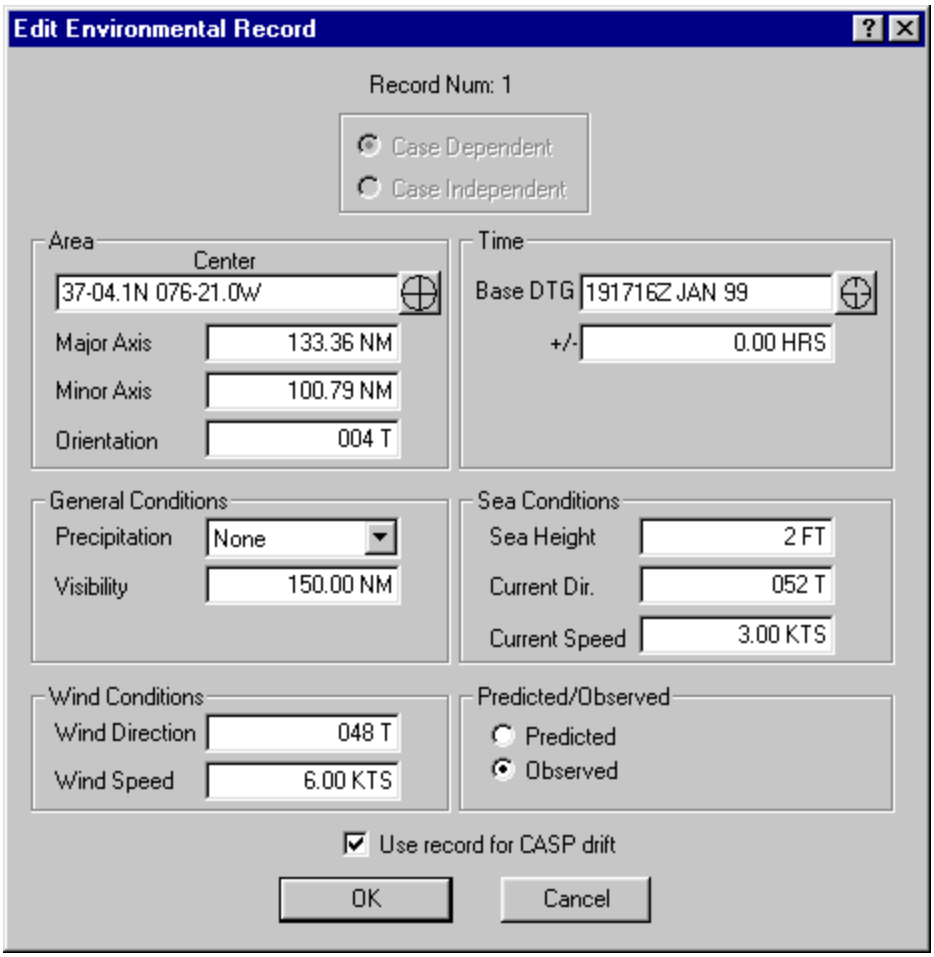
- Double-click the environment record in the tree directory.
- In the tree directory, select the CASP case that contains the environment record you wish to edit and then select the corresponding menu option:
  - CASP > Edit > Case Dependent Environment Records > Properties
  - CASP > Edit > Case Independent Environment Records > Properties

  Then select the environment record and click OK.

The Edit Environment Record window appears. See The Edit Environment Record Window for instructions on this window.

The Edit Environment Record Window

Edit Environment Record Window



At the top of the Edit Environment Record window, the record's number is shown. For a new record, Record Num: is set to 0; as soon as it is saved, Record Num: reflects the new number.

Just below Record Num: is a box with two radio buttons: this area can never be edited. It is either Case Dependent or Case Independent when it is created and cannot be changed.

The Edit Environment Record window contains six areas.

Area

Area contains the following fields:

Center

Enter the center coordinates either by entering the numerical value or by using the Crosshairs button (as described in Using the Crosshairs button).

Major Axis

Enter the length of the major axis.

Minor Axis

Enter the length of the minor axis.

Note: The major axis must be larger than the minor axis.

Orientation

Enter the rotation of the area.

Note: The area may also be added using the quick entry mode when a new record is created.

Time

Time contains the following fields:

Base DTG

Enter the base date-time either by entering the numerical value or by using the Crosshairs button (as described in Using the Crosshairs button).

+\- field

Enter the range of error for the date-time.

General Conditions

General Conditions contains the following fields:

Precipitation

Select the precipitation level (for example, None, Moderate Rain).

Visibility

Enter the visibility.

Sea Conditions

Sea Conditions contains the following fields:

Sea Height

Enter the sea's height.

Current Dir.

Enter the current's direction.

Current Speed

Enter the current's speed.

Wind Conditions

Wind Conditions contains the following fields:

Wind Direction

Enter the wind's direction in degrees true.

Wind Speed

Enter the wind's speed.

Predicted/Observed

Select the appropriate radio button according to whether the environment data is Predicted or Observed.

At the bottom of the Edit Environment Record window is the Use record for CASP drift checkbox. If this box is not checked, the data is stored locally but not uploaded to CASP. Click OK to close the Edit Environment Record window and apply the changes or click Cancel to close the window without applying the changes.

Drift Calculation

After required case data is entered (at least one properly configured situation, location, and target), it must be sent to CASP central for processing. The processing returns probability maps for display and further processing.

The CASP drift calculation can be accessed in two ways:

- From the CASP menu, select Process Drift.
- On the CASP toolbar, click the Process Drift button.

The Drift wizard appears, consisting of three successive instruction boxes. This wizard follows the conventions of Windows wizards. If you have included insufficient case data, an error window appears, detailing what information is missing.

Each instruction box contains four of the following five buttons at the bottom:

Back

Click this button to go back to the previous instruction box. This choice enables you to change information without cancelling the operation. In the first box, this button is disabled.

Next

Click this button to proceed to the next instruction box. In the last box, this button becomes the Finish button.

Finish

Click this button to perform the Drift calculation with the information given to the wizard. This button appears only in the last box.

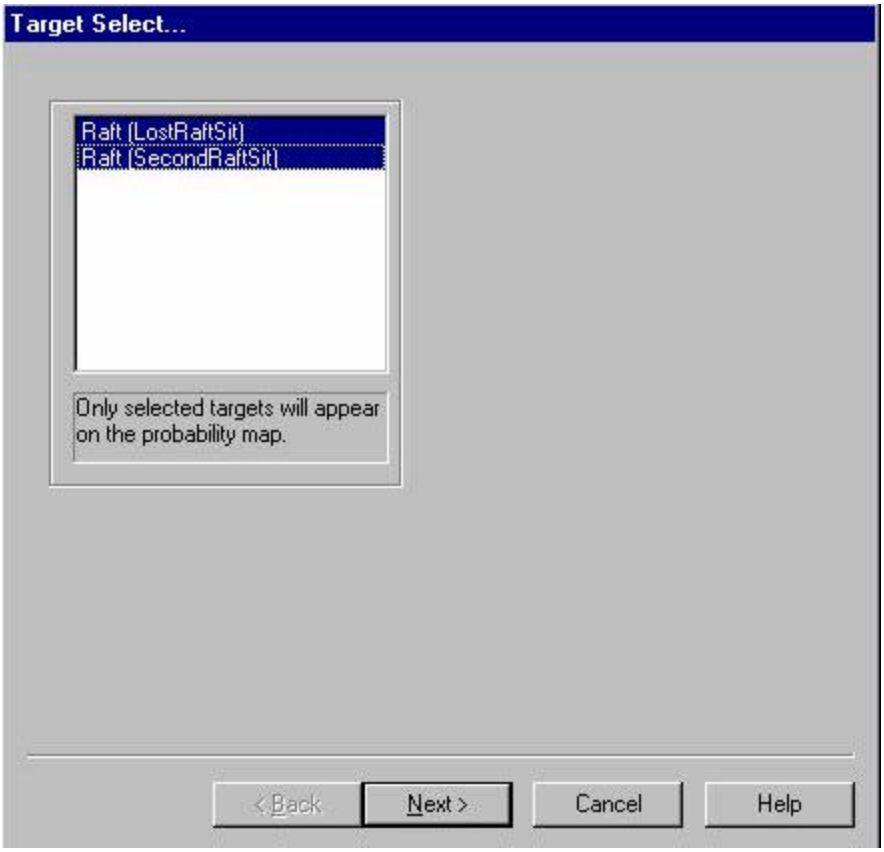
Cancel

Click this button to cancel the wizard without accepting any of the data entered.

Help

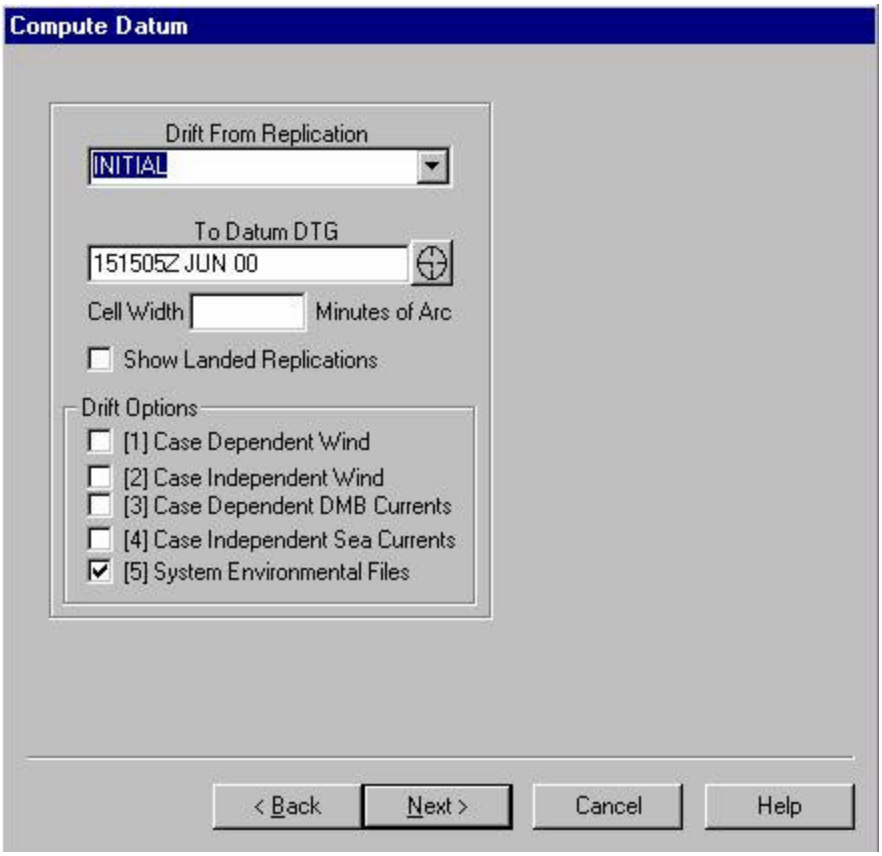
Would open Help. Not yet implemented.

Drift Wizard, Target Select... Window



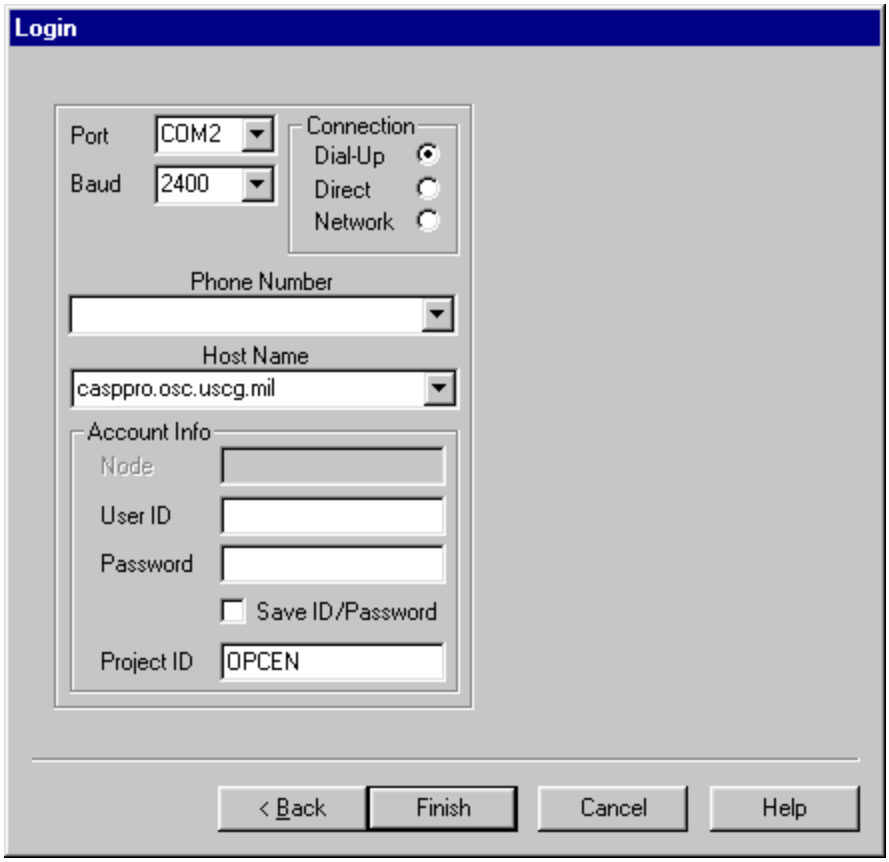
1. Select one or more targets for which to calculate drift.
2. Click Next to go to the Compute Datum page. This page allows you to select the Datum DTG and environment files to use when computing datum positions.

Drift Wizard, Compute Datum Window



3. In the Drift From Replication field, select from a list of previously computed drifts, or select INITIAL for an initial drift calculation.
4. In the To Datum DTG field, enter the time for which to calculate the drift either by entering its numerical value or by using the Crosshairs button (as described in Using the Crosshairs button).
5. In the Cell Width field, enter the cell width (in minutes) for the probability map, or leave the field blank to use the default width determined by CASP.
6. Check the Show Landed Replications checkbox to display replications that fall on land.
7. In the Drift Options area, check any number of options desired.
8. Click Next to go to the Login page. This page allows you to enter communications parameters and user account information to log onto the CASP server.

Drift Wizard, Login Window



9. In the Connection area, select one of the types of connections. This choice changes the available fields as noted below.
10. In the Port field, select one from the list of available ports. This field is available only with Dial-Up and Direct connections.
11. In the Baud field, select a baud rate from the list. This field is available only with Dial-Up and Direct connections.
12. In the Phone Number field, select one from the list of available numbers or enter another number to dial. If the Drift Wizard has been used for any CASP cases in this SAR plan previously, up to three phone numbers may already be in the list. You may select one of them, or change one of them. This field is available only with Dial-Up connections.
13. In the Host Name field, enter a valid host name. If the Drift Wizard has been used for any CASP cases in this SAR plan previously, up to three host names may already be in the list. You may select one of them, or change one of them. This field is available only with Network connections.
14. In the Node field, enter the node. This field is available only with Dial-Up and Direct connections.
15. In the User ID field, enter your user ID.

16. In the Password field, enter your password. For security, the characters in your password appears as asterisks (*).
17. To save your user ID and password so that you do not have to enter them each time you perform a drift calculation, select Save ID/Password.

Note: When selected, your user ID and password are saved in the Windows Registry in an encrypted format. The next time you enter this window, your user ID and password are automatically filled in. When not selected, your user ID and password are cleared from the Registry so that the next time you enter this window, your user ID and password must be reentered. The Registry entries used for this purpose are inaccessible to other users.

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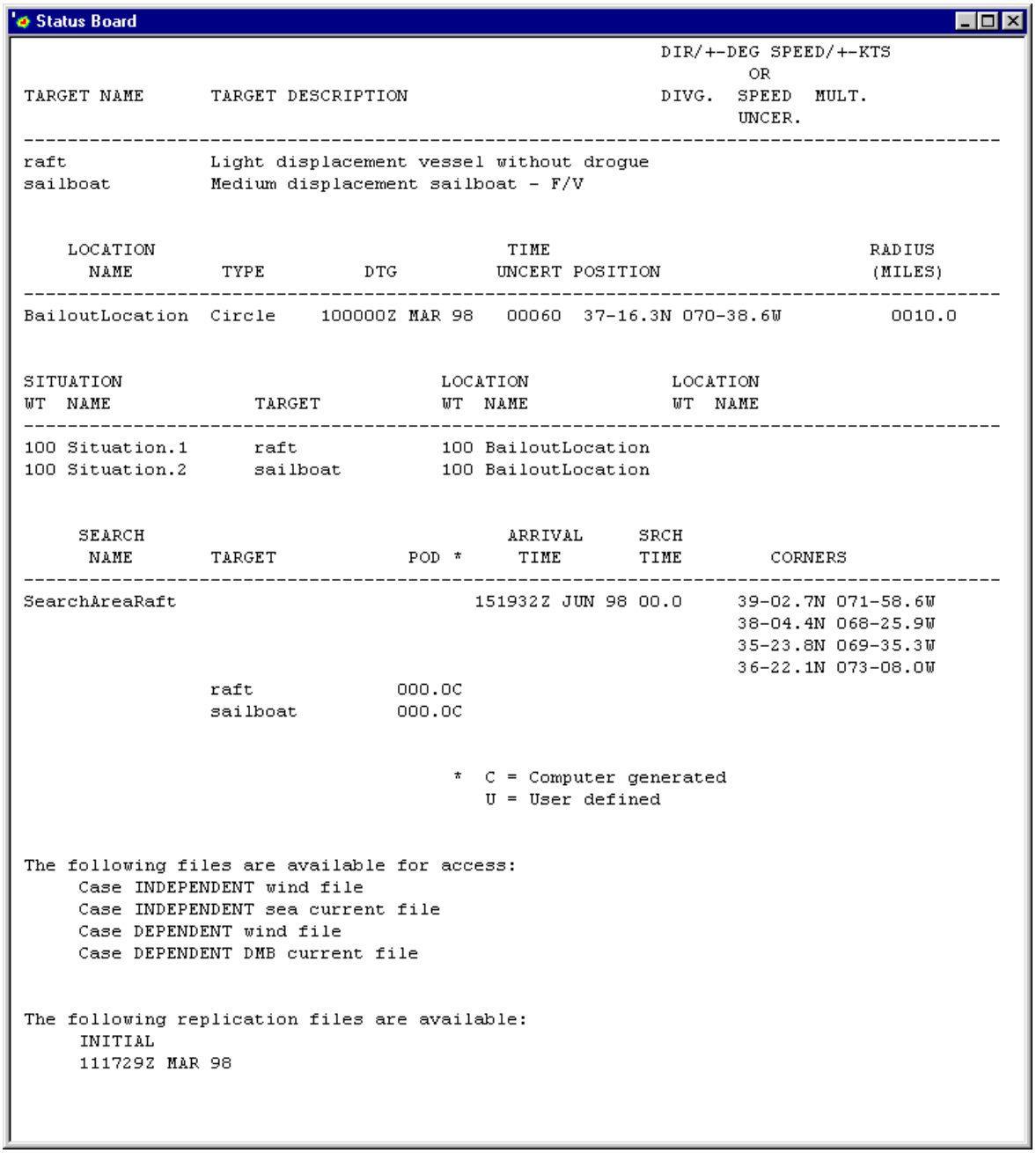
18. In the Project ID field, enter your project ID.
19. Click Finish.

The Communication Output Window appears. This window displays data passing back and forth between the CASP client and the CASP server.

Status Board

The Status Board window contains a textual summary of the current case data including targets, locations, situations, search areas, replications, and environmental files.

Status Board Window



```
Status Board

                                                          DIR/+-DEG SPEED/+-KTS
                                                                 OR
TARGET NAME      TARGET DESCRIPTION                       DIVG.  SPEED  MULT.
                                                                UNCER.
-------------------------------------------------------------------------------------
raft             Light displacement vessel without drogue
sailboat         Medium displacement sailboat - F/V


    LOCATION                                  TIME                              RADIUS
      NAME        TYPE         DTG          UNCERT POSITION                     (MILES)
-------------------------------------------------------------------------------------
BailoutLocation  Circle    100000Z MAR 98   00060  37-16.3N 070-38.6W          0010.0


SITUATION                                LOCATION             LOCATION
WT  NAME             TARGET              WT  NAME             WT  NAME
-------------------------------------------------------------------------------------
100 Situation.1      raft                100 BailoutLocation
100 Situation.2      sailboat            100 BailoutLocation


     SEARCH                                   ARRIVAL     SRCH
      NAME       TARGET            POD *      TIME       TIME        CORNERS
-------------------------------------------------------------------------------------
SearchAreaRaft                            151932Z JUN 98 00.0     39-02.7N 071-58.6W
                                                                  38-04.4N 068-25.9W
                                                                  35-23.8N 069-35.3W
                                                                  36-22.1N 073-08.0W
                 raft             000.0C
                 sailboat         000.0C


                                        *  C = Computer generated
                                           U = User defined


The following files are available for access:
     Case INDEPENDENT wind file
     Case INDEPENDENT sea current file
     Case DEPENDENT wind file
     Case DEPENDENT DMB current file


The following replication files are available:
     INITIAL
     111729Z MAR 98
```

See Using Textual Windows for instructions on saving and printing this information.

Replication Data

Replication data includes a probability map returned from CASP central and any optimal search areas computed against that probability map.

The Replication Data window can be opened in one of seven ways:

- From the CASP menu, select Edit > Replication Data.

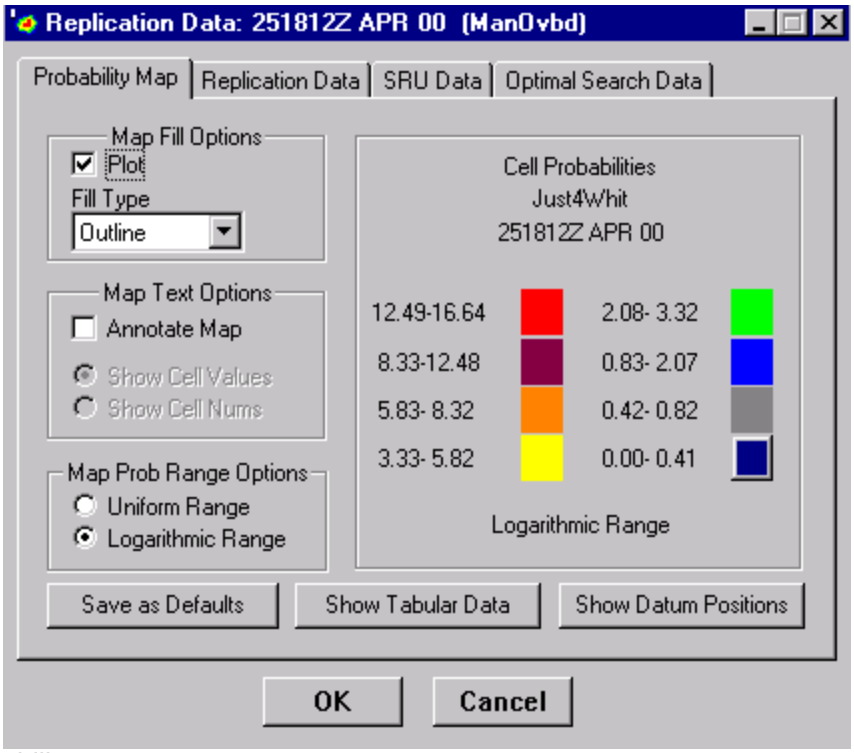
- From the CASP menu, select View > Probability Maps.
- From the CASP menu, select View > Optimal Searches.
- Click the Process Maps button ( ) on the CASP toolbar.
- Click the Optimal Search button ( ) on the CASP toolbar.
- Double-click the replication in the tree directory.
- Right-click a replication in the tree directory and select Properties from the pop-up menu.

The Select Replication window appears, containing a list of all replications in the CASP case. Select one and click OK. The Replication Data window appears.
The Replication Data window contains four pages:

- Probability Map
- Replication Data
- Optimal Search Data
- SRU Data

Probability Map

Replication Data Window, Probability Map page



The Probability Map page controls how the probability map appears on the C2PC map.

The Probability Map page contains four areas, described as follows.

Map Fill Options

Select one of these three options to control the map fill.

Map Text Options

Select the Annotate Map checkbox to display one of the types of cell information (immediately following this checkbox) on the map.

Select one of these two options to display either the probability figures for each cell or each cell's number. These are unavailable if the Annotate Map checkbox is cleared.

Map Prob Range Options

Select one of these two options to control the probability range as displayed on the map.

Cell Probabilities

This area shows the colors used to display ranges on the map. Only the background color (the last color listed) may be changed.

The Probability Map page contains the following buttons, described as follows:

Save as Defaults

This button is used to save the display settings to the registry on a per-user basis; these defaults will be applied for new probability maps.

Show Tabular Data

This button opens a textual information window, containing probability data for each cell in a table. This window may be saved as text or printed. See Using Textual Windows for instructions on saving and printing this information.

Show Datum Positions

This button opens a textual information window, containing drift positions for the datum and environmental data used to compute the drift. This window may be saved as text or printed. See Using Textual Windows for instructions on saving and printing this information.

OK

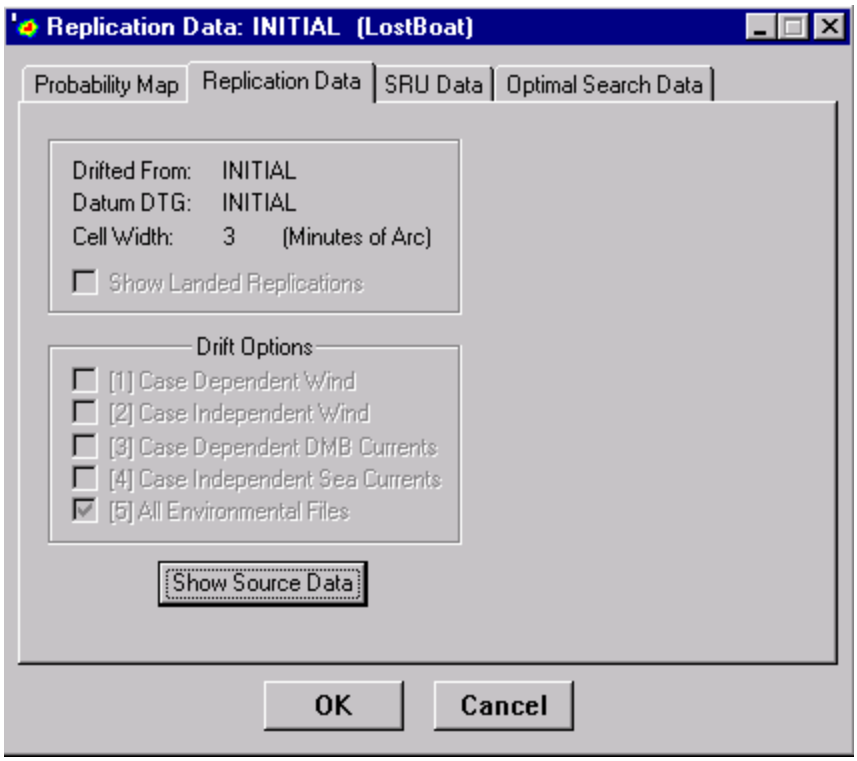
Applies the changes and closes the Replication Data window.

Cancel

Closes the Replication Data window without applying the changes.

Replication Data

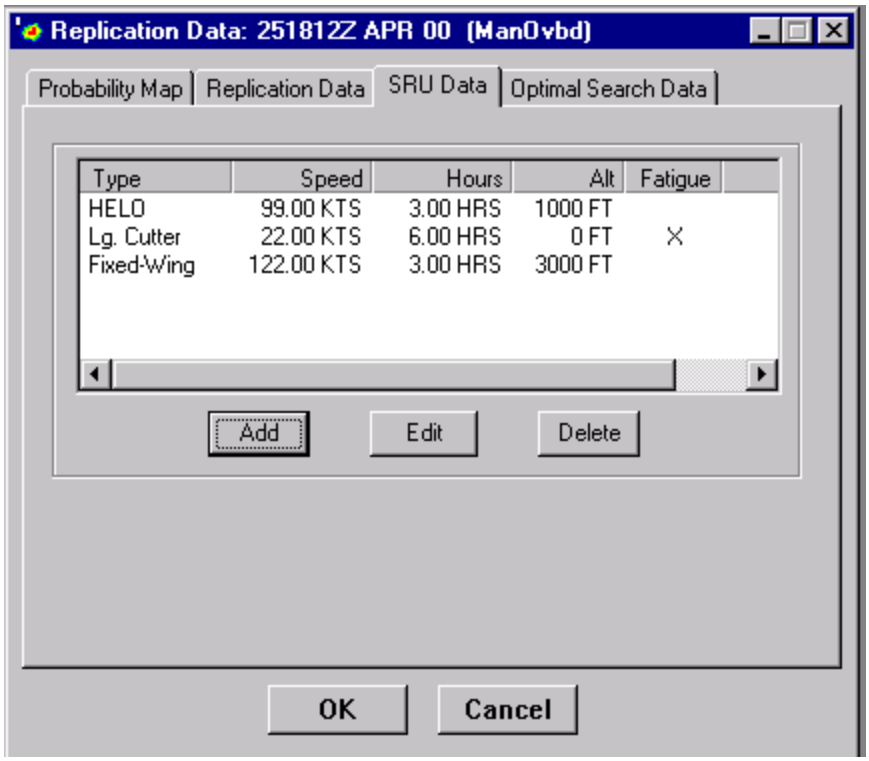
Replication Data Window, Replication Data page



This page displays data used to perform the drift calculation. It is not editable.

SRU Data

Replication Data Window, SRU Datapage



The SRU Data page contains a list of SRUs (Search and Rescue Units) available to conduct a search of the probability map. These assets are used in computing the optimal search areas. One area is generated for each SRU.

The list includes the type of SRU, its speed, how many hours the SRU can spend in the search area, its search altitude (0 for surface SRUs), Fatigue (an X indicates crew fatigue), and its track spacing (TSP). Note that TSP is blank until you compute an Optimal Search.

The page contains three buttons, described as follows.

Add

Click this button to add a new SRU. The Edit SRU Window appears.

Edit

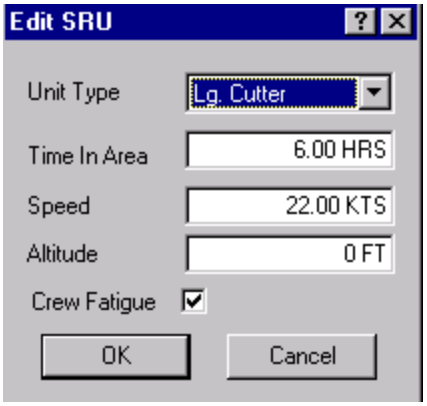
Click this button to edit the selected SRU. You can also double-click in an SRU. The Edit SRU Window appears.

Delete

Click this button to delete the selected SRU.

NOTE: The Add, Edit, and Delete buttons are grayed out for obsolete replication data.

Edit SRU Window



The Edit SRU window contains the following controls:

Unit Type field

Select a unit from the list; options are HELO, Fixed-Wing, Small Boat, and Lg. Cutter.

Time In Area field

Enter the time the SRU can spend in the search area.

Speed field

Enter the speed in knots at which this SRU will conduct the search.

Altitude field

Enter the unit's altitude in feet. Zero (0) may be entered for surface vessels.

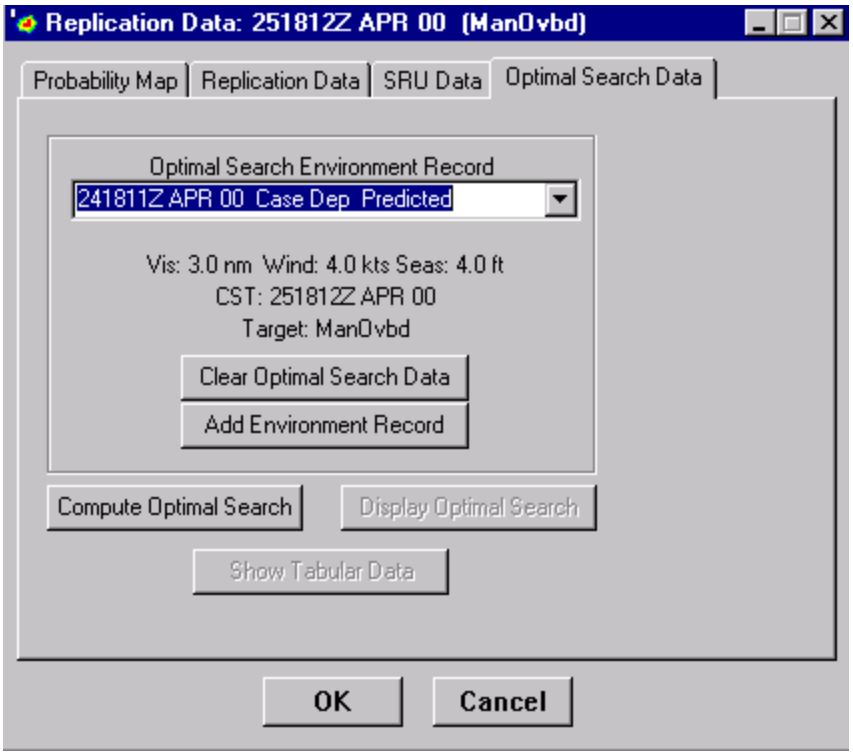
Crew Fatigue checkbox

Check this box to apply crew fatigue to the unit.

Click OK to close the Edit SRU window and apply the changes or click Cancel to close the window without applying the changes.

Optimal Search Data

Replication Data Window, Optimal Search Data page



The Optimal Search Data page allows you to enter data necessary for CASP central to compute search areas that best fit the probability map given environmental conditions and available assets.

The Optimal Search Data page contains one field, described as follows.

Optimal Search Environment Record

Select one record from a list of all environment records in the CASP case.

The area below the Optimal Search Environment Record field displays information about the target. None of it is editable.

The Optimal Search Data page contains five buttons, described as follows.

Clear Optimal Search Data

This button removes all optimal search data for this probability map, making the Compute Optimal Search, Display Optimal Search, and Show Tabular Data buttons unavailable until sufficient supporting data is reentered.

Add Environment Record

Opens the Edit Environment Record window. See Environment Data for instructions on this window.

Compute Optimal Search

Opens the Login window for opening a session to CASP central. See Drift Calculation for instructions on this window.

Display Optimal Search

Displays the optimal search area on the C2PC map.

Show Tabular Data

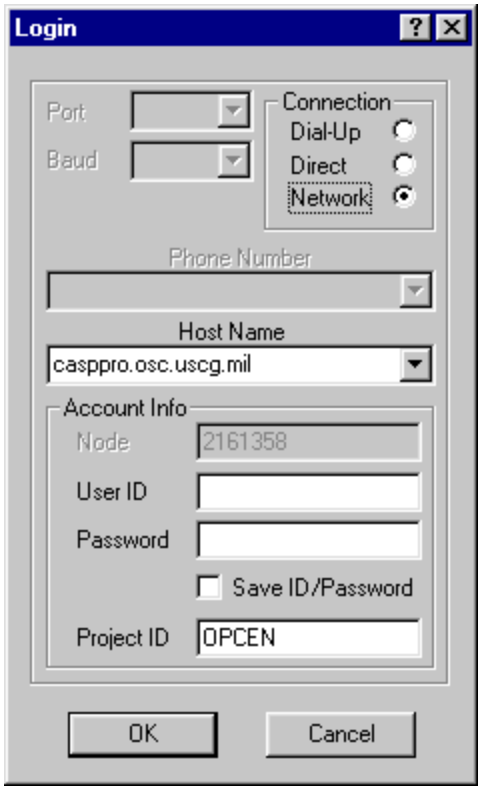
Opens a textual window containing information about the optimal search areas in a table. See Using Textual Windows for instructions on saving and printing this information.

NOTE: The Optimal Search Environment Record, Clear Optimal Search Data, Add Environment Record, and Compute Optimal Search buttons are grayed out for obsolete replication data.

Login

The Login window contains all the information used in the Drift Wizard during Drift Calculation. You can open this window to change the information at any time, without actually logging in on CASP central.

Login Window



To open the Login window, double-click the telephone icon in the tree directory (☎). You must complete the Drift Wizard before the Login appears in the tree directory.

Using a CASP case with search patterns and search areas

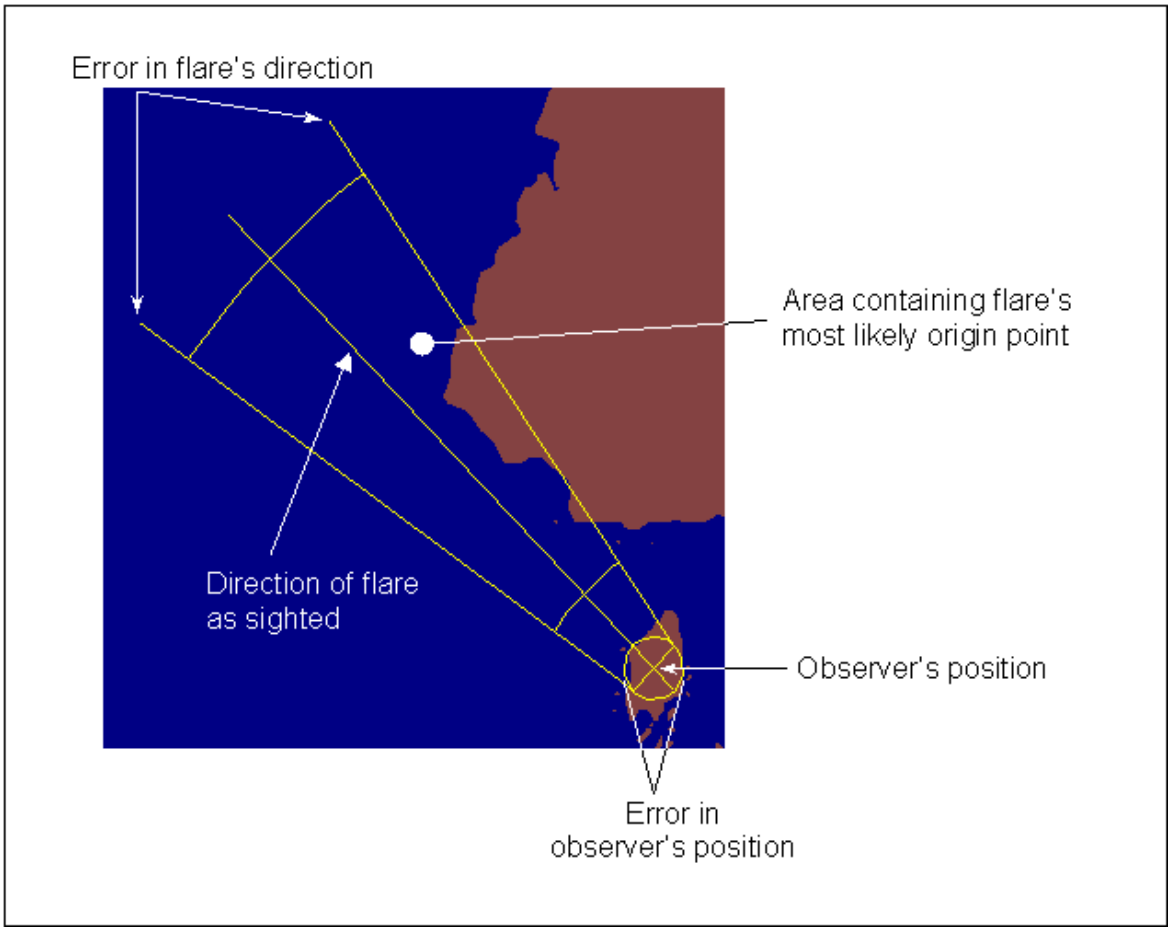
You can use CASP case data with search patterns and search areas:

- You can copy and paste a CASP case into a search pattern. (See To copy and paste a CASP case into a search pattern for instructions.)
- You can copy and paste a search pattern or the search area into a CASP case. (See To copy the search area or a search pattern for instructions.)
- You can drag and drop a CASP case into a search pattern. (See To drag and drop a CASP case into a search pattern.)

Flares

The Flares option enables you to place flare sightings on the C2PC map to enhance Search and Rescue planning. The flare plot on the map displays the position of the observer and an area covering the most likely origin of the flare (see the figure below.

Example of a Flare



When you select Handheld for the angle type and less than 10 ft. for Height of Eye:

- calculations are performed as if Height of Eye is set to 10 ft.;
- the minimum distance is set to 0 nautical miles;
- the maximum distance is set to around 7 nautical miles (i.e., geographic range).

The on-the-horizon distances are calculated using this formula: .

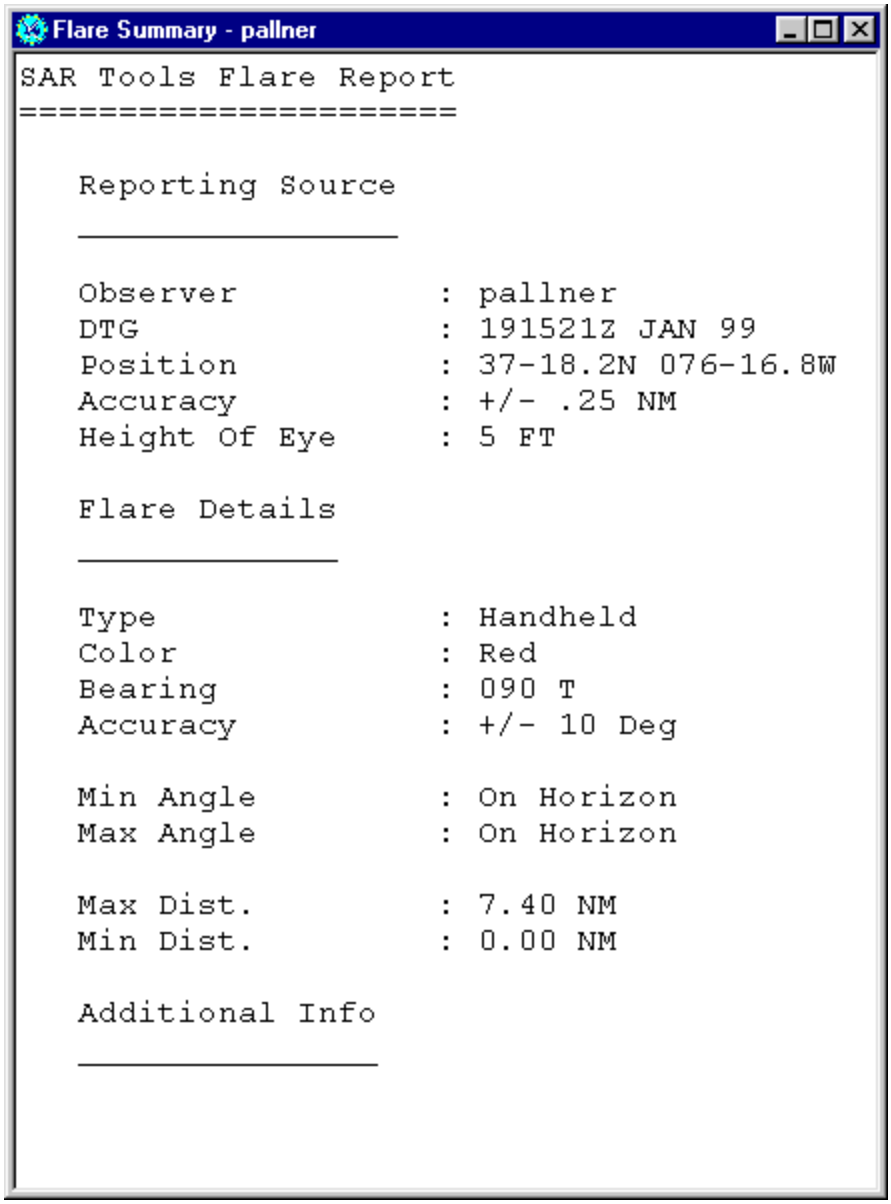
Flare Summary

The Flare Summary window contains textual information on the selected flare. This window may be accessed in two ways:

- Select a flare and choose Edit > Flares > Summary.
- Select a flare. From its context menu, select Summary.

The Flare Summary window appears.

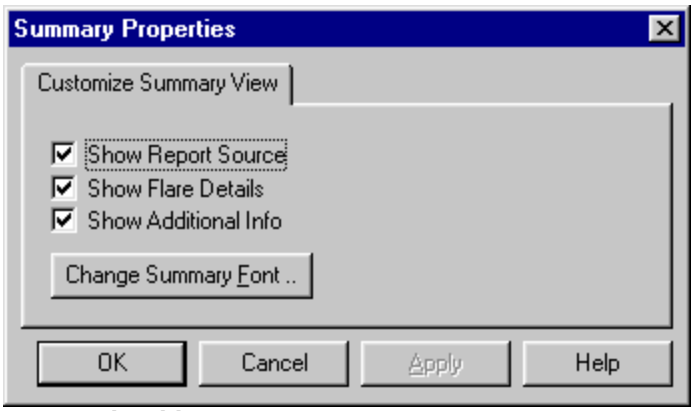
Flare Summary Window



The window includes information taken from the Reporting Source, Flare, and Addl. Info tabs of the Flare Properties window. See Using Textual Windows for instructions on saving and printing this information.

Also available is the Summary Properties window, which controls what information is shown in the Flare Summary window. Click (at the left in the Flare Summary window title bar) and select Properties from the menu. The Summary Properties window appears.

Summary Properties Window



Show Report Source checkbox

Select this checkbox to display information entered in the Reporting Source tab of the Flare Properties window in the summary table.

Show Flare Details checkbox

Select this checkbox to display information entered in the Flare tab of the Flare Properties window in the summary table.

Show Additional Info checkbox

Select this checkbox to display information entered in the Additional Info tab of the Flare Properties window in the summary table.

Change Summary Font button

Click this button to change the font in the Flare Summary window. Only those fonts available for your system appear.

OK button

Click this button to close the Summary Properties window and apply the changes to the Flare Summary window.

Cancel button

Click this button to close the Summary Properties window without applying the changes to the Flare Summary window.

Apply button

This button is unavailable.

Help button

This button would open Help, but it is not yet implemented.

Quick Overlays

A quick overlay may be one of the following types:

- Icon
- Range/Bearing Line
- Range Rectangle
- Range Ring

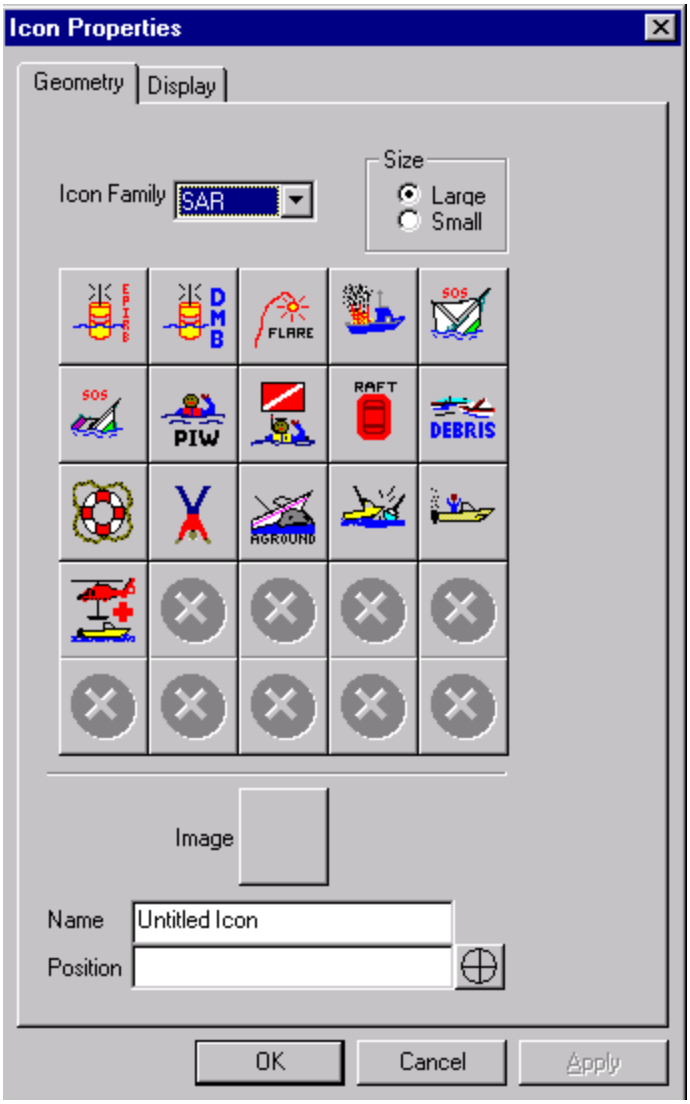
Icon

To add an icon

1. Open the Icon Properties window using *one* of these methods:
   - From the Edit menu, choose Quick Overlays > New > Icon.
   - From the context menu for Quick Overlays in the Window Area, choose New > Icon.
   - Click the New Icon button ( ) in the Objects toolbar.

   The Icon Properties window contains two tabs: Geometry and Display.

Icon Properties Window, Geometry page



2. In the Icon Family list box, select one of the types of icons available: SAR, USCG, Vessel, and Shapes.

3. In the Size box, select either Large or Small to specify the size of the icon.

   Because all icon families do not contain 25 icons, empty slots in the grid are unavailable for selection and appear thus: .

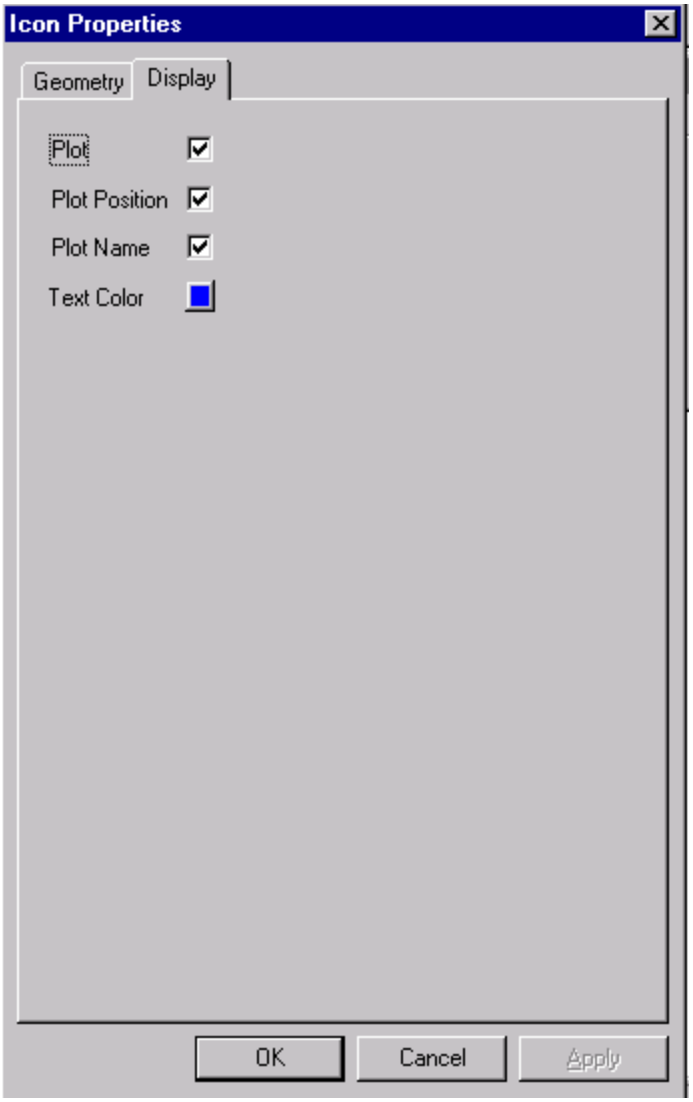
   The grid of icons contains the quick icons that are available according to your selections of the Icon Family and the Size.

4. In the grid of available icons, click the icon you wish to plot.

   The Image box displays the icon you select.

5. In the Name field, enter a name for the icon. The Name's default value describes the icon but may be changed.
6. In the Position field, specify the coordinates of the icon, either by entering the coordinates or by using the Crosshairs button (as described in Using the Crosshairs button).
7. Click the Display tab.

Icon Properties Window, Display page



8. To plot the icon on the map, ensure the Plot box is checked.
9. To plot the position on the C2PC map, ensure the Plot Position box is checked.
10. To plot the name on the C2PC map, ensure the Plot Name box is checked.
11. To select a color for the text portions of the quick icon (name and position), click the Color button and select a color. (See Selecting Colors for more details.)
12. Click OK. The Icon Properties window closes and the icon is plotted on the C2PC map.

An example of an icon plotted with all options is shown here:

Example of icon plot

The icon itself is the Life Ring icon (Plot checkbox). The position (Plot Position checkbox) is at the bottom and the name (Plot Name checkbox) is at the top. If the Plot checkbox is empty, neither the icon nor the name nor the position are plotted on the map.

To edit an existing icon

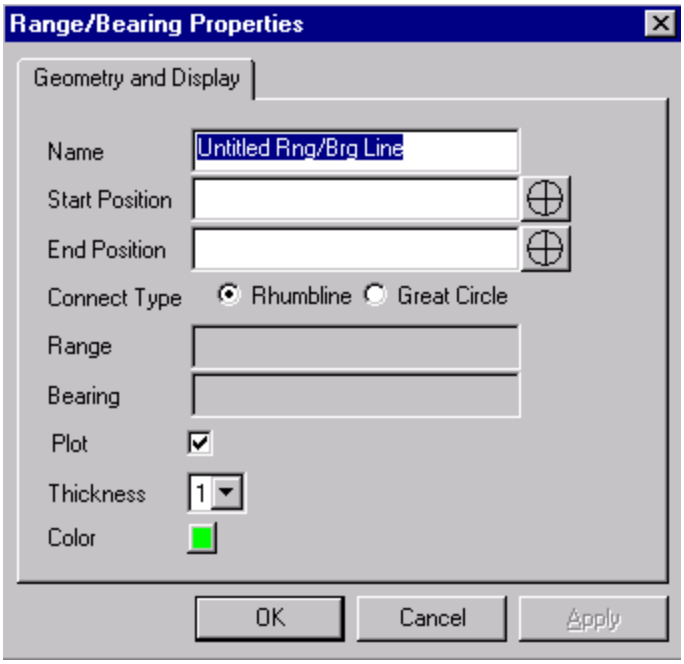
1. Select the icon in the tree directory and open the Icon Properties window using *one* of these methods:
   - From the Edit menu, select Quick Overlays > Properties.
   - From the context menu for an existing icon in the Window Area, select Properties.
2. Edit the fields you wish to change.

Range/Bearing Line

To Add a Range/Bearing Line

1. Open the Range/Bearing Properties window using *one* of these methods:
   - From the Edit menu, choose Quick Overlays > New > Range/Bearing Line.
   - From the context menu for Quick Overlays in the Window Area, choose New > Range/Bearing Line.
   - Click the New Rng/Brg button ( ) in the Objects toolbar.

Range/Bearing Properties Window



2. In the Name field, enter an alphanumeric name for the range/bearing line.
3. In the Start Position field, enter the coordinates for the start position of the line either by entering the data in the following fields or by using the Crosshairs button (as described in Using the Crosshairs button).
4. In the End Position field, enter the coordinates for the end position of the line either by entering the data in the following fields or by using the Crosshairs button (as described in Using the Crosshairs button).

   The Range and Bearing fields automatically update according to your entries in the Name, Start Position, and End Position fields.
5. Select the type of range/bearing line: either Rhumbline or Great Circle.
6. To plot the datum on the map, ensure the Plot box is checked.
7. To select how thick you want the pattern's track legs to appear on the map, select the point size in the Thickness box.
8. To select a color for the range and bearing line, click the Color button and select a color. (See Selecting Colors for more details.)
9. Click OK. The Range/Bearing Properties window closes and the range/bearing line is plotted on the C2PC map.

Tip: If you have C2PC set to use either kilometers or nautical miles (Tools > Options), the distance for a SAR Tools Range/Bearing line adjusts the display unit according to length. If the line is over 10 KM, the map displays the distance in KM; if the line is under 10 KM, the map displays the distance in meters. Likewise, if the line is over 10 NM, the map displays the distance in NM; if the line is under 10 NM, the map displays the distance in yards.

To edit an existing range and bearing line

1. Open the Range/Bearing Properties window using *one* of these methods:
   - From the context menu for an existing range/bearing line in the Window Area, choose Properties.
   - Select an existing range/bearing line. From the Edit menu, select Quick Overlays > Properties.
2. Edit the fields you wish to change.

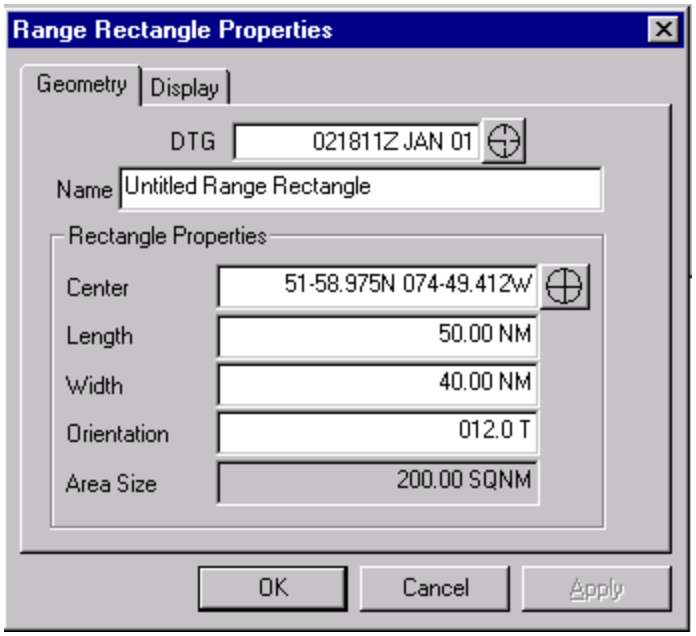
Range Rectangle

To plot a range rectangle

1. Open the Range Rectangle Properties window using *one* of these methods:
   - From the Edit menu, choose Quick Overlays > New > Range Rectangle.
   - From the context menu for Quick Overlays in the Window Area, choose New > Range Rectangle.
   - Click the New Range Rectangle button ( ) in the Objects toolbar.

The Range Rectangle Properties window contains two tabs: Geometry and Display.

Range Rectangle Properties Window, Geometry page

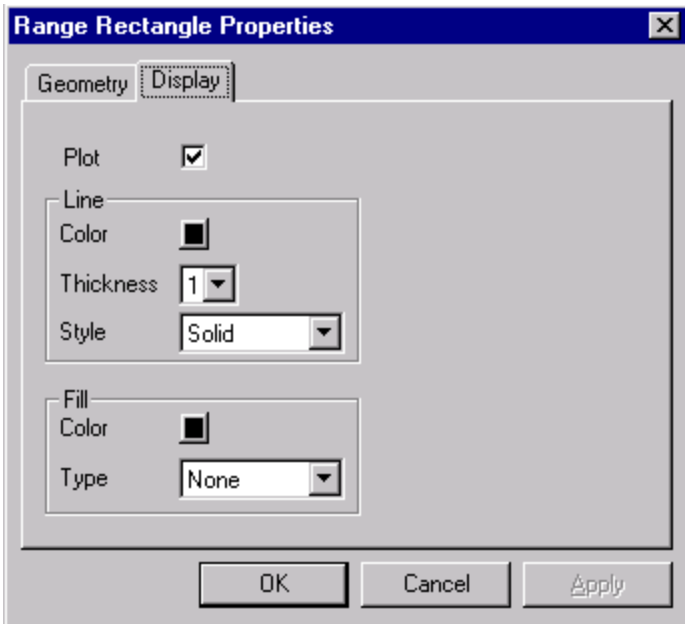


2. In the DTG field, enter a date-time by entering its numerical values or by using the Crosshairs button (as described in Using the Crosshairs button).
3. In the Name field, enter a name for the range rectangle.

4. In the Center field, specify the coordinates of the range rectangle, either by entering the coordinates or by using the Crosshairs button (as described in Using the Crosshairs button).
5. In the Length field, enter the length.
6. In the Width field, enter the width.
7. In the Orientation field, enter the orientation.

   The Area Size field automatically updates according to your entries in the Center, Length, Width, and Orientation fields.
8. Click the Display tab.

Range Rectangle Properties Window, Display page



9. To plot the rectangle on the map, ensure the Plot box is checked.
10. To select a color for the lines of the range rectangle, click the Color button in the Line box and select a color. (See Selecting Colorsfor more details.)
11. To select a thickness for the lines, select one of the types of thickness in the Thickness list box in the Line box.
12. To select a style for the lines, select one of the types of styles in the Style list box in the Line box.
13. To select a color for the inside of the range rectangle, click the Color button in the Fill box and select a color. (See Selecting Colors for more details.)
14. To select a type for the rectangle, select one of the types of types in the Type list box in the Fill box.
15. Click OK. The Range Rectangle Properties window closes and the range rectangle is plotted on the C2PC map.

An example of a range rectangle plotted with all options is shown here:

Example of range rectangle plot

The name is at the top. If the Plot checkbox is empty, neither the name nor the rectangle are plotted on the map.

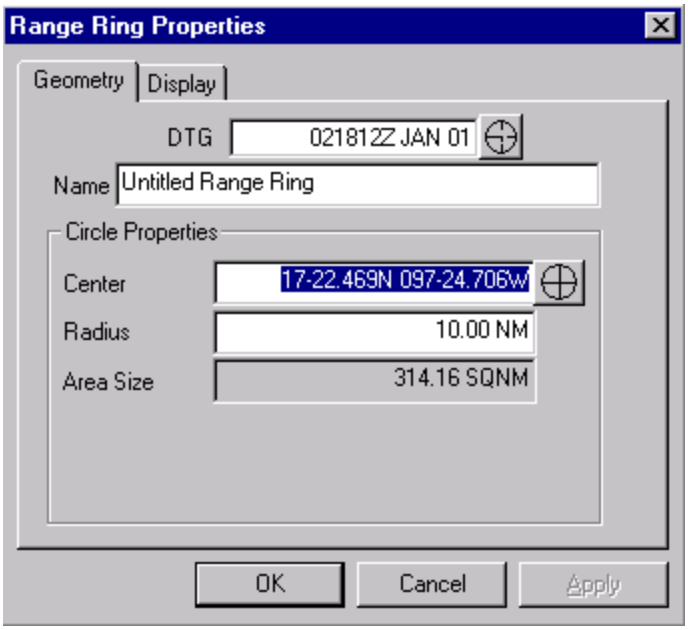
Range Ring

To plot a range ring

1. Open the Range Ring Properties window using *one* of these methods:
   - From the Edit menu, choose Quick Overlays > New > Range Ring.
   - From the context menu for Quick Overlays in the Window Area, choose New > Range Ring.
   - Click the New Range Ring button ( ) in the Objects toolbar

   The Range Ring Properties window contains two tabs: Geometry and Display.

   Range Ring Properties Window, Geometry page



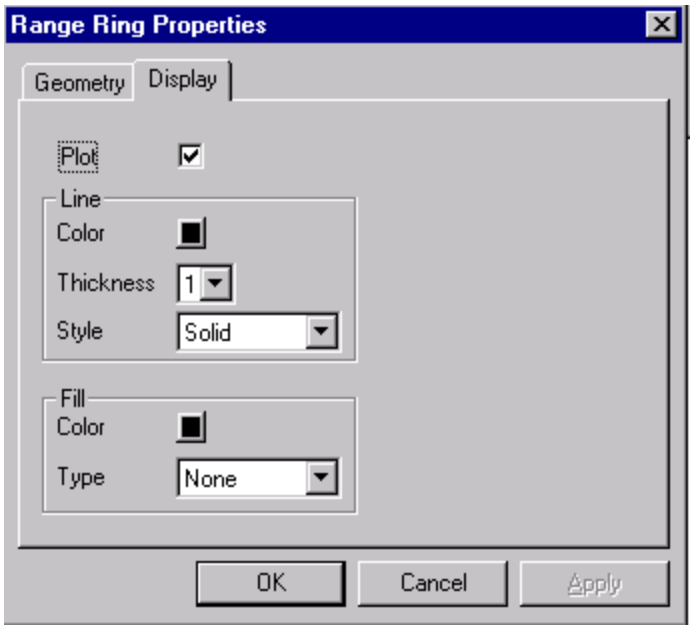
2. In the DTG field, enter date-time either by entering its numerical values or by using the Crosshairs button (as described in Using the Crosshairs button).
3. In the Name field, enter a name for the range ring.
4. In the Center field, specify the coordinates of the range rectangle, either by entering the coordinates or by using the Crosshairs button (as described in Using the Crosshairs button).

5. In the Radius field, enter the radius for the range ring.

   The Area Size field automatically updates according to your entries in the Center and Radius fields.

6. Click the Display tab.

Range Ring Properties Window, Display page



7. To plot the ring on the map, ensure the Plot box is checked.
8. To select a color for the lines of the range ring, click the Color button in the Line box and select a color. (See Selecting Colors for more details.)
9. To select a thickness for the lines, select one of the types of thickness in the Thickness list box in the Line box.
10. To select a style for the lines, select one of the types of styles in the Style list box in the Line box.
11. To select a color for the inside of the range ring, click the Color button in the Fill box and select a color. (See Selecting Colors for more details.)
12. To select a type for the ring, select one of the types of types in the Type list box in the Fill box.
13. Click OK. The Range Ring Properties window closes and the range ring is plotted on the C2PC map.

An example of a range ring plotted with all options is shown here:

Example of range ring plot

The name is at the top. If the Plot checkbox is empty, neither the ring nor the name are plotted on the map.

Search Patterns

Information on Search Patterns is divided into the following sections:

- Types of Search Patterns

  Describes shapes and coverage of search patterns.

- Adding and Editing Search Patterns

  Describes how to add new search patterns and edit existing search patterns.

- Pattern Summary

  Describes the Pattern Summary window.

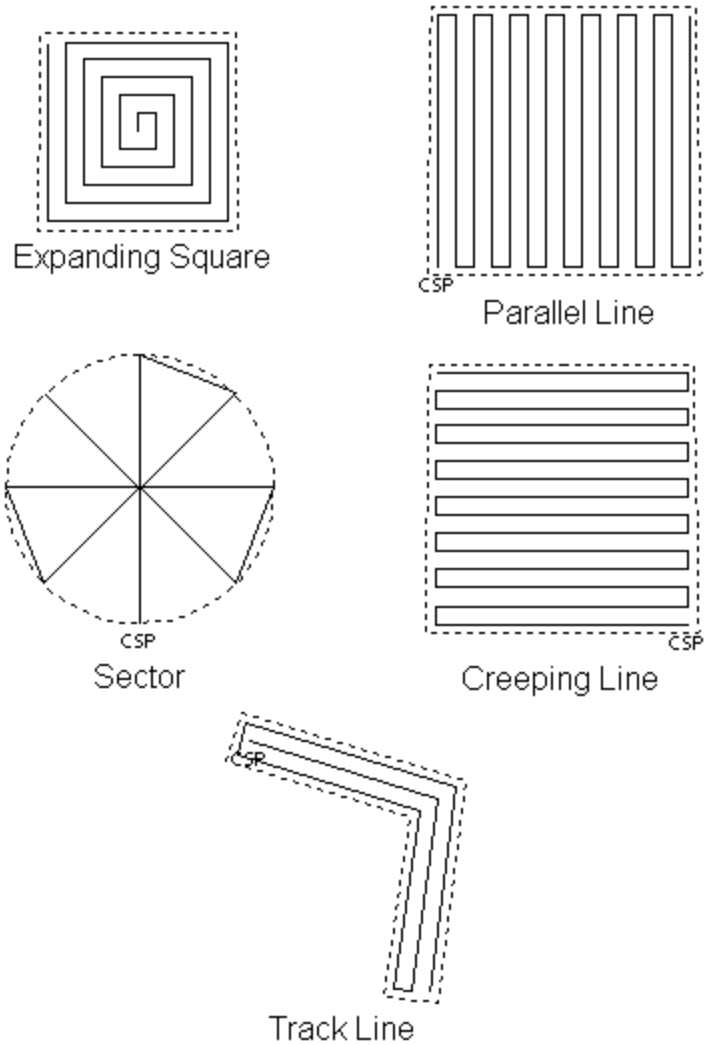
- Duplicating Search Patterns

  Describes how to duplicate a search pattern.

Types of Search Patterns

USCG SAR Tools includes five possible search patterns:

The Five Search Patterns



Expanding Square Pattern

This pattern is a spiral square, moving from the center to an outside corner.

Sector Pattern

This pattern is a circle divided into several sectors. The search begins at the edge of the circle. The fist leg moves to the opposite edge through the center. The second leg moves in a straight line, cutting an arc at the edge of the circle. (The arc's size is determined by the number of sectors.) The third leg moves to the opposite edge through the center. The pattern continues until the designated number of sectors is described.

Parallel Pattern

This pattern is a rectangle. The search begins at one corner, moves along a side, takes two 90 degree turns at the other side, and then continues parallel to the first line. The pattern continues to the last corner. The search legs run parallel to the rectangle's orientation.

Creeping Line Pattern

This pattern is a rectangle. The search begins at one corner, moves along a side, takes two 90 degree turns at the other side, and then continues parallel to the first line. The pattern

continues to the last corner. The search legs run perpendicular to the rectangle's orientation.

Track Line Pattern

This pattern consists of several straight lines, connected end-to-end. The search pattern begins at one end and follows the line to one side, then turns around and follows the line on the other side. The pattern may be defined to go around the line several times, each time moving further from the line.

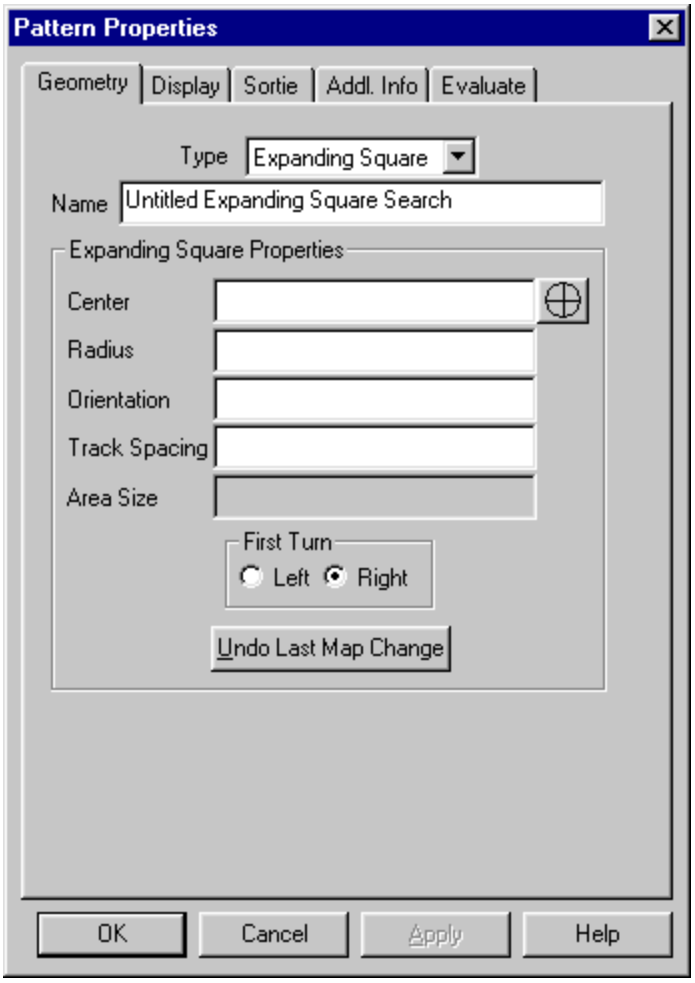
Adding and Editing Search Patterns

To add a new search pattern

1. Open the Pattern Properties window using *one* of these methods:
   - On the Objects toolbar, click the button of the desired pattern.
   - From the Edit menu, select Patterns > New > [pattern].
   - From the context menu for Patterns in the tree directory, select New : [pattern].

   The Pattern Properties window that appears is set up for the type of pattern you selected.

Pattern Properties Window



2. The Geometry tab must be filled out differently for each pattern. For details, see the following sections:
   - For the Expanding Square Pattern
   - For the Sector Pattern
   - For the Parallel Pattern
   - For the Creeping Line Pattern
   - For the Track Line Pattern
3. Fill out the other tabs:
   - Display
   - Sortie
   - Addl. Info
   - Evaluate

You can also generate a search pattern from an AMS case. See How do I associate a search pattern with an AMS case?.

To edit a search pattern

1. Open the Pattern Properties window using *one* of these methods:
   - Select a search pattern in the tree directory, and select Properties from the Edit menu.
   - Select a search pattern in the tree directory, and select Patterns > Properties from the Edit menu.
   - Right-click a search pattern in the tree directory. From its context menu, select Properties.
   - Double-click a search pattern.
   - On the C2PC map, double-click a plotted search pattern.
2. Select the tab with the information you wish to change and edit the fields you wish to change.

   See the following sections for details on the Geometry page for specific search patterns:

   - For the Expanding Square Pattern
   - For the Sector Pattern
   - For the Parallel Pattern
   - For the Creeping Line Pattern
   - For the Track Line Pattern

   See the following sections for details on the other tabs in this window:

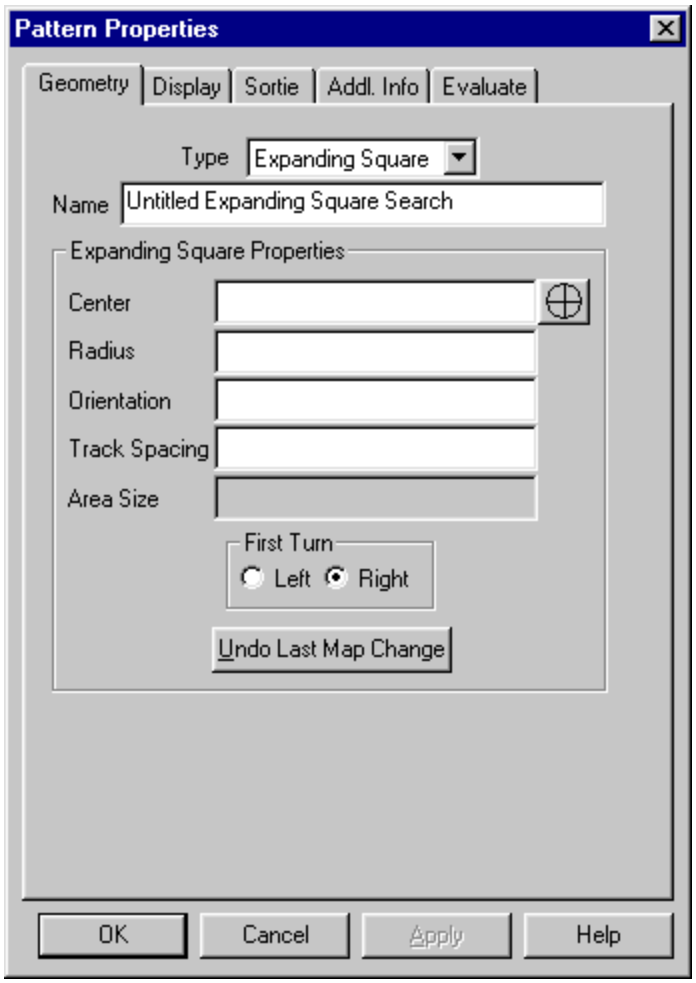
   - Display
   - Sortie
   - Addl. Info
   - Evaluate
3. Click OK to apply the changes to the search pattern.

To undo an edit

Click the Undo Last Map Change button on the Geometry tab to undo the last edit made to any field except the Type and Name fields in the Geometry tab. For example, if you dragged the pattern to a new position on the map, this option will place the pattern back in its original position, if used immediately.

For the Expanding Square Pattern

Expanding Square Pattern Properties Window, Geometry tab



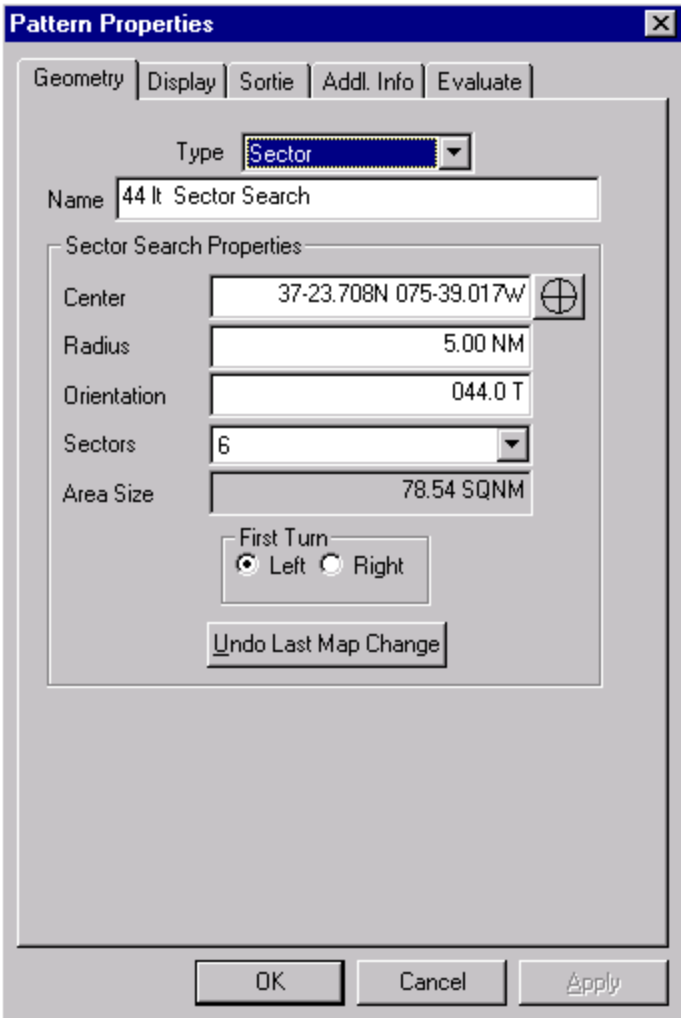
1. In the Type box, ensure that Expanding Square is selected.
2. In the Name field, enter an alphanumeric name for the search pattern.
3. Enter the position, size, rotation, and track information either by entering the data in the following fields or by using the Crosshairs button (as described in Using the Crosshairs button).
   a. In the Center field, specify the center coordinates of the search pattern.
   b. In the Radius field, enter the radius of the search.

      The Area Size field automatically updates according to your entry in the Radius field.
   c. In the Orientation field, enter the rotation of the search.
   d. In the Track Spacing field, enter the space between tracks.
4. In the First Turn box, select either Left or Right.

5. Select the Display tab and proceed to Display.

For the Sector Pattern

Sector Pattern Properties Window, Geometry tab



1. In the Type box, ensure that Sector is selected.
2. In the Name field, enter an alphanumeric name for the search pattern.
3. Enter the position, size, rotation, and track information either by entering the data in the following fields or by using the Crosshairs button (as described in Using the Crosshairs button).
   a. In the Center field, specify the center coordinates of the search pattern.
   b. In the Radius field, enter the radius of the search pattern.

      The Area Size field automatically updates according to your entry in the Radius field.
   c. In the Orientation field, enter the rotation of the search pattern.

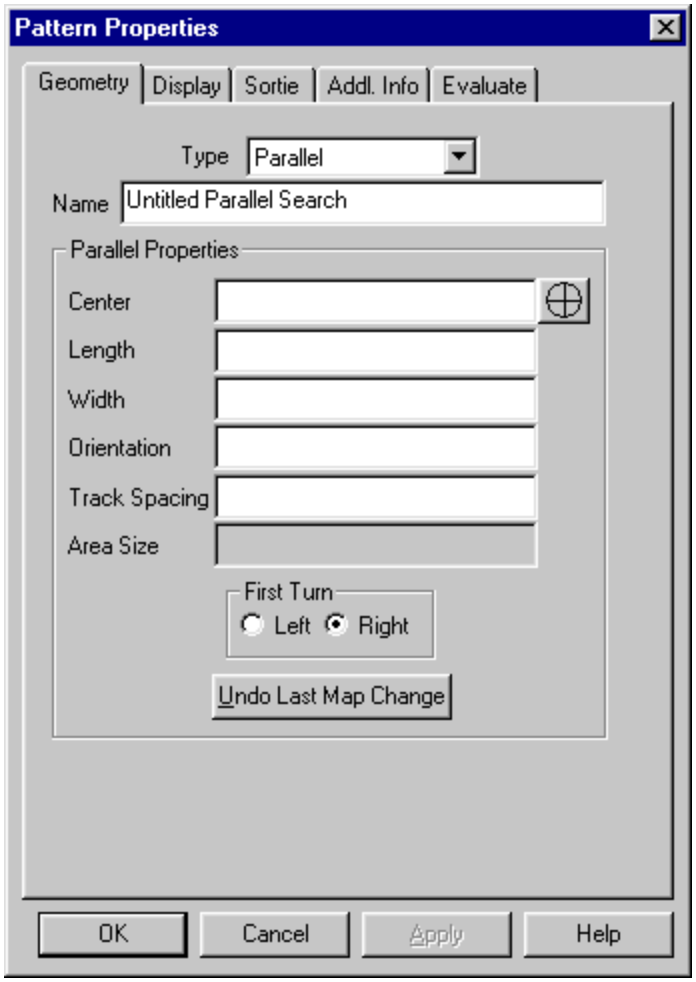
d. In the Sectors field, enter the number of sectors to be included in the search pattern from the drop-down box.

4. In the First Turn box, select either Left or Right.

5. Select the Display tab and proceed to Display.

For the Parallel Pattern

Parallel Pattern Properties Window, Geometry tab



1. In the Type box, ensure that Parallel is selected.

2. In the Name field, enter an alphanumeric name for the search pattern.

3. Enter the position, size, rotation, and track information either by entering the data in the following fields or by using the Crosshairs button (as described in Using the Crosshairs button).

   a. In the Center field, specify the center coordinates of the search pattern.

   b. In the Length field, enter the length of the search pattern.

   c. In the Width field, enter the width of the search pattern.

The Area Size field automatically updates according to your entries in the Length and Width fields.

d. In the Orientation field, enter the rotation of the search pattern.

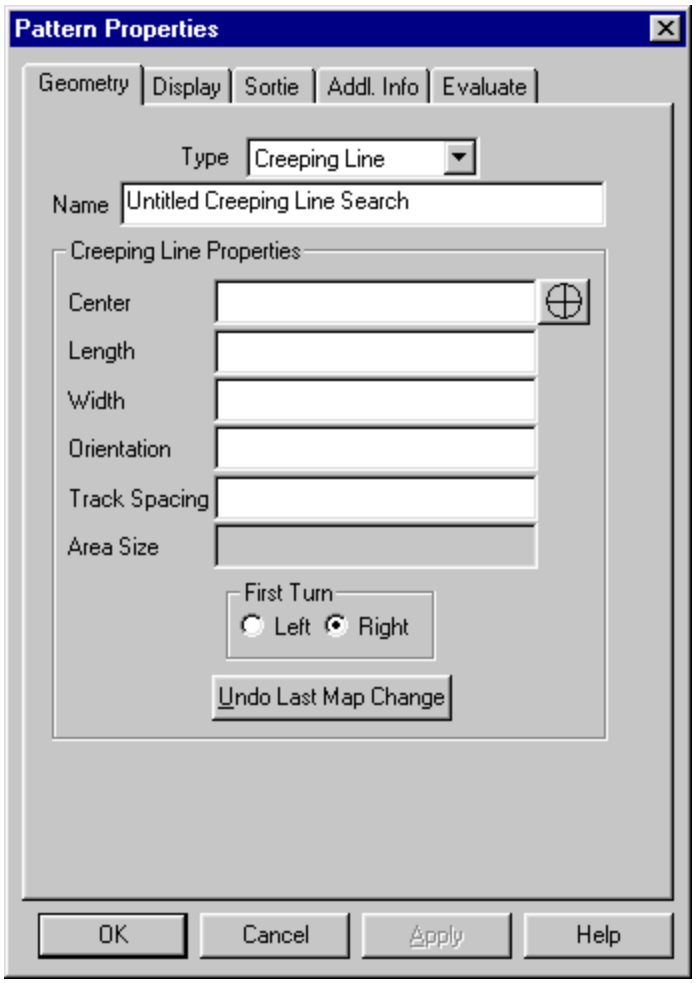
e. In the Track Spacing field, enter the space between tracks.

4. In the First Turn box, select either Left or Right.

5. Select the Display tab and proceed to Display.

For the Creeping Line Pattern

Creeping Line Pattern Properties Window, Geometry tab



1. In the Type box, ensure that Creeping Line is selected.

2. In the Name field, enter an alphanumeric name for the search pattern.

3. Enter the position, size, rotation, and track information either by entering the data in the following fields or by using the Crosshairs button (as described in Using the Crosshairs button).

   a. In the Center field, specify the center coordinates of the search pattern.

b. In the Length field, enter the length of the search pattern.

c. In the Width field, enter the width of the search pattern.

The Area Size field automatically updates according to your entries in the Length and Width fields.

d. In the Orientation field, enter the rotation of the search pattern.

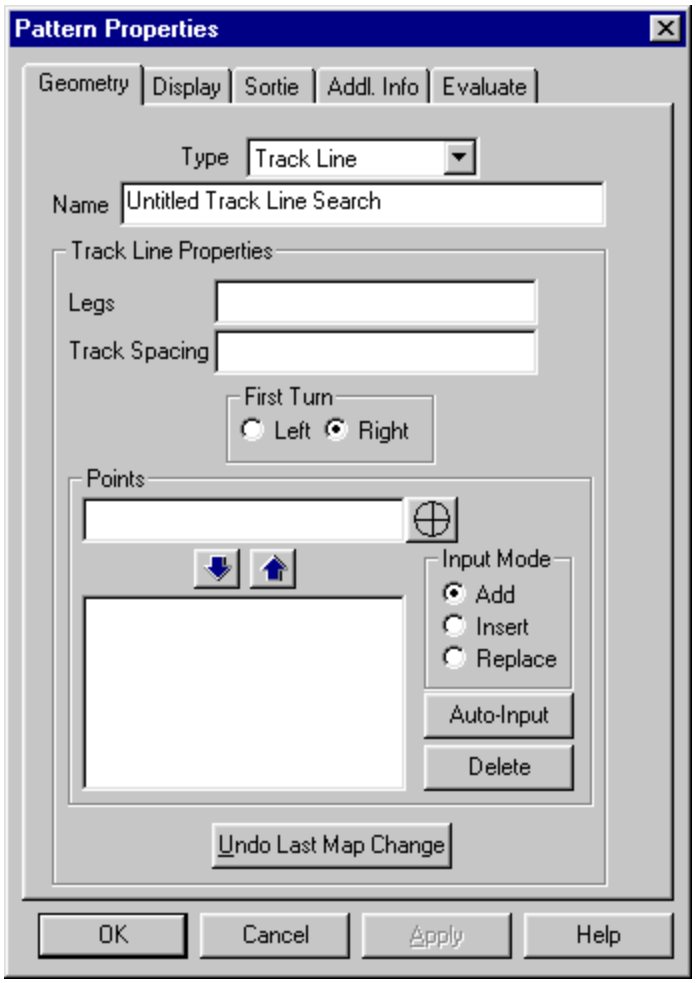
e. In the Track Spacing field, enter the space between tracks.

4. In the First Turn box, select either Left or Right.

5. Select the Display tab and proceed to Display.

For the Track Line Pattern

Track Line Pattern Properties Window, Geometry tab



1. In the Type box, ensure that Track Line is selected.

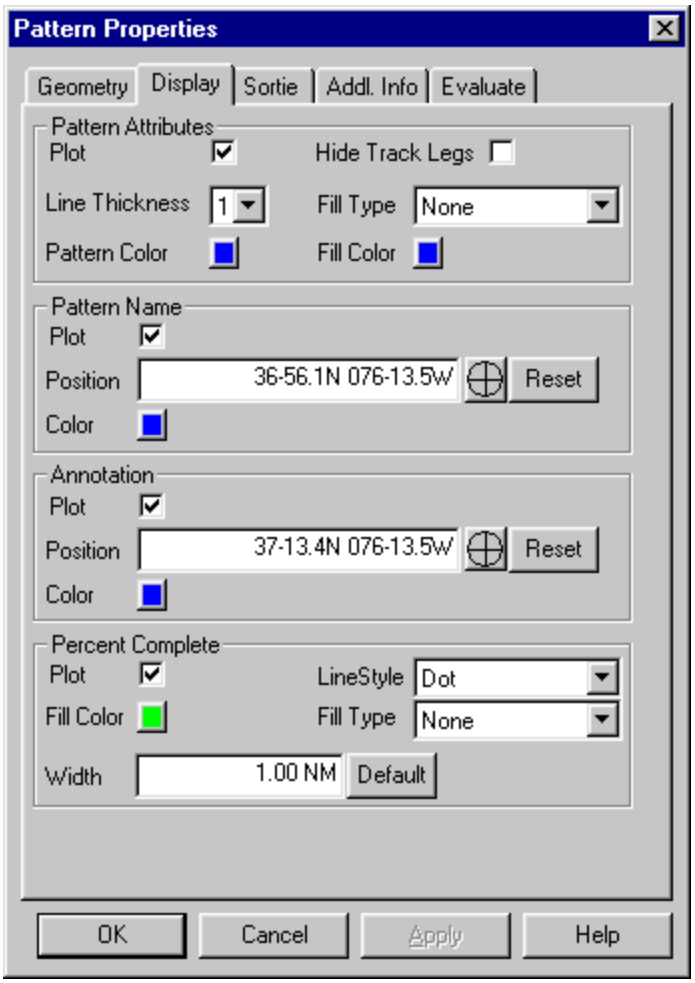
2. In the Name field, enter an alphanumeric name for the search pattern.

3. In the Legs field, enter the number of legs for the search.

4. In the Track Spacing field, enter the space between tracks.
5. In the First Turn box, select either Left or Right.
6. In the Points box, enter the points of the track.
   a. In the Input Mode box, select one of the following choices:
      - Add to add a new point to the end of the list
      - Insert to add a new point after an existing one.
      - Replace to change the value of an existing point.
   b. If Insert or Replace is selected in the Input Mode box, select the point in the list box that the new point should either follow or replace.
   c. Specify the coordinates of the new point either by entering its numerical value in the Points field or by using the Crosshairs button (as described in Using the Crosshairs button). To enter a series of points, click the Auto-Input button and then click each point on the map, ending with a double-click (similar to the polyline overlay in C2PC).
7. Select the Display tab and proceed to Display.

Display

Pattern Properties Window, Display tab



1. In the Pattern Attributes box, select the plotting characteristics of the pattern.
   a. To plot the search pattern on the map, select Plot.
   b. To plot only the outline of the search pattern, select Hide Track Legs.
   c. To select how thick you want the pattern's track legs to appear on the map, select the point size in the Line Thickness drop-down box.
   d. To select a color for the search pattern lines, click the Pattern Color button and select a color. (See Selecting Colors for more details.)
   e. To apply a fill pattern, select a pattern from the Fill Type drop-down box.
   f. To select a color for the fill pattern, click the Fill Color button and select a color. (See Selecting Colors for more details.)

2. In the Pattern Name box, select the plotting characteristics of the pattern's name.

   a. To plot the pattern name on the map, select Plot.

   b. In the Position field, enter the location in which to plot the pattern name either by entering the data or by using the Crosshairs button (as described in Using the Crosshairs button).

      To set the position to its default value, click the Reset button. The default position is centered directly below the pattern. See Example of Plotted Search Pattern to see the default position.

   c. To select a color for the pattern name, click the Color button and select a color. (See Selecting Colors for more details.)

3. In the Annotation box, select the plotting characteristics of the pattern's annotation. (See Addl. Info for instructions on adding an annotation.)

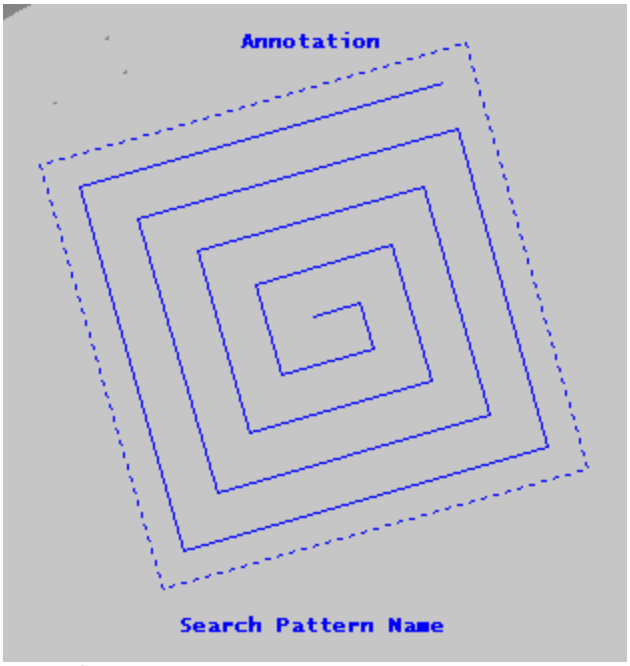
   a. To plot the annotation on the map, select Plot.

   b. In the Position field, enter the location in which to plot the annotation either by entering the data or by using the Crosshairs button (as described in Using the Crosshairs button).

      To set the position to its default value, click the Reset button. The default position is centered directly above the pattern. See Example of Plotted Search Pattern to see the default position.

   c. To select a color for the annotation, click the Color button and select a color. (See Selecting Colors for more details.)

Example of Plotted Search Pattern



4. In the Percent Complete box, select the plotting characteristics of the search completion. (See Calculating and plotting percent complete for instructions on calculating percent complete and for further information on plotting.)

a. To plot the percent complete on the map, select Plot.

b. In the LineStyle field, select the line style for outlining the search area that has been covered by the search. The field defaults to Solid.

c. To select a color for the fill pattern, click the Fill Color button and select a color. (See Selecting Colors for more details.)

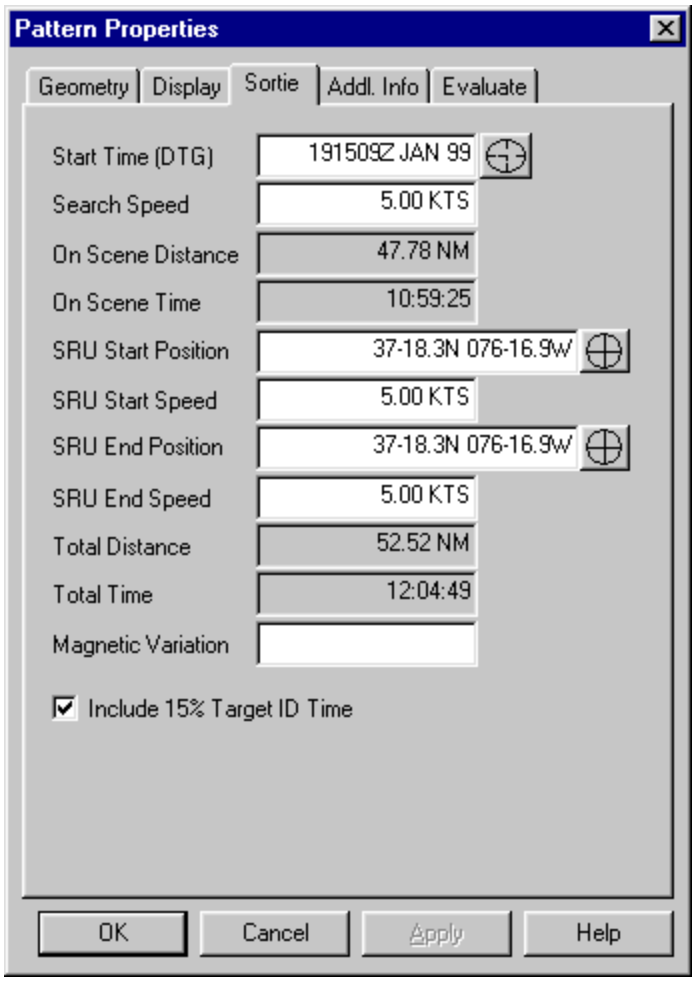
d. To apply a fill pattern, select a pattern from the Fill Type drop-down box. The field defaults to Transparent.

e. In the Width field, enter the width of the search legs. The default value is the track spacing as entered in the Geometry field. (Note that sector searches do not have track spacing; this field's default value for sector searches is 1/4 of the radius.) To reset the track spacing to the default value at any time, click Default.

5. Select the Sortie tab and proceed to Sortie.

Sortie

Pattern Properties Window, Sortie tab



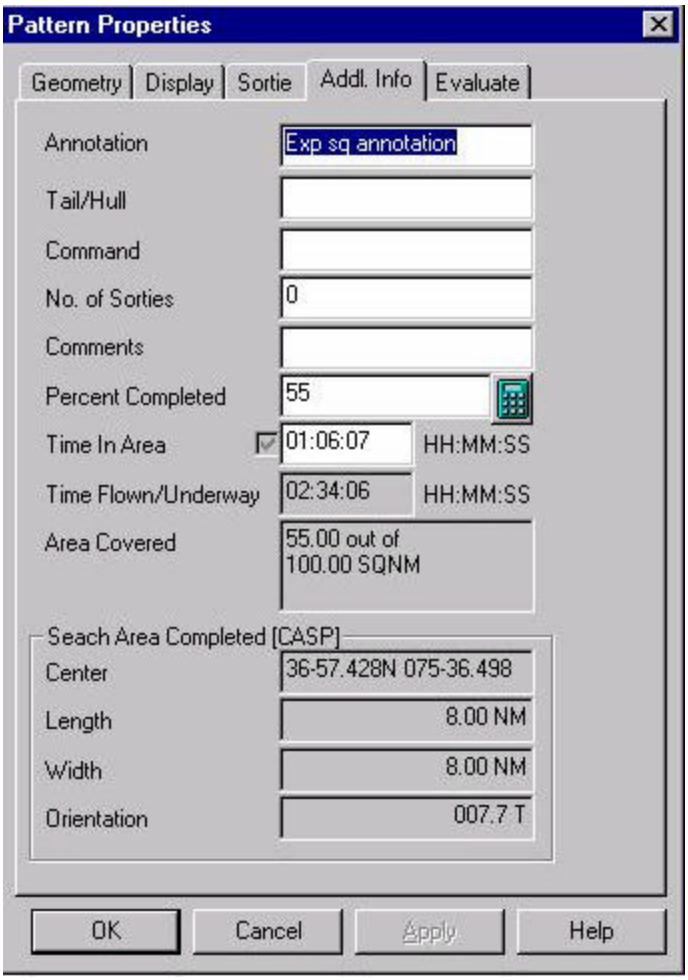
1. In the Start Time (DTG) field, enter the start date-time of the search pattern either by entering its numerical values or by using the Crosshairs button (as described in Using the Crosshairs button).
2. In the Search Speed field, enter the speed of the search vessel.

   The On Scene Distance and On Scene Time fields are automatically computed according to the Search Speed field and the Geometry tab.
3. In the SRU Start Position, specify the starting point (transit leg) either by entering its numerical values or by using the Crosshairs button (as described in Using the Crosshairs button).
4. In the SRU Start Speed field, enter the speed for the start transit leg. This field defaults to the Search Speed but can be changed manually.
5. In the SRU End Position field, specify the ending point (transit leg) either by entering its numerical values or by using the Crosshairs button (as described in Using the Crosshairs button).
6. In the SRU End Speed field, enter the speed for the end transit leg. This field defaults to the Search Speed but can be changed manually.

   The Total Distance and Total Time fields are automatically computed according to the Speed fields and the Geometry tab.
7. In the Magnetic Variation field, enter the degrees and direction of the magnetic variation (e.g., 5.2E, 3.1W). This field is included in the Pattern Summary window.
8. To account for extra time to identify the target, select the Include 15% Target ID Time. This field affects the Time fields and the Pattern Summary window.
9. Select the Addl. Info tab and proceed to Addl. Info.

Addl. Info

Pattern Properties Window, Addl. Info tab



1. In the Annotation field, enter any text that you would like to plot on the map with the pattern. (See Display for instructions on how to plot this information.)

2. You may enter additional information in the Tail/Hull, Command, No. of Sorties, and Comments fields. These fields are not mandatory and do not affect the search pattern.

3. In the Percent Completed field, enter the percentage of search completed. To use the calculator to determine the percentage, click the Calculator button (). (See Calculating and plotting percent complete for instructions on calculating percent complete.)

   The remaining fields display information based on that percentage, as follows:

   - The Time in Area field displays the number of hours that the search vessel has been in the search area. No check in the checkbox indicates that the data was entered manually into this field. A check in the checkbox indicates that the time in area is automatically calculated from sortie data and percent completed. Any manual entry in this field will cause the field to remain in manual mode. To return to automatic mode, clear the field and hit the Tab key or click in any other field.

- The Time Flown/Underway field displays the number of hours in flight, from the start position. Time Flown/Underway includes the total transit time (if any) as well as Time in Area. This field includes both the start leg and the end leg of the sortie.
- The Area Covered field displays the amount of area in the search pattern that has been searched.
- The Search Area Completed (CASP) displays the search area data based on completed search area up to the last leg of the search. This calculated search can be imported into the CASP search area.

To plot the percent completed information on the C2PC map, use the Display tab.

4. Select the Evaluate tab and proceed to Evaluate.

Evaluate

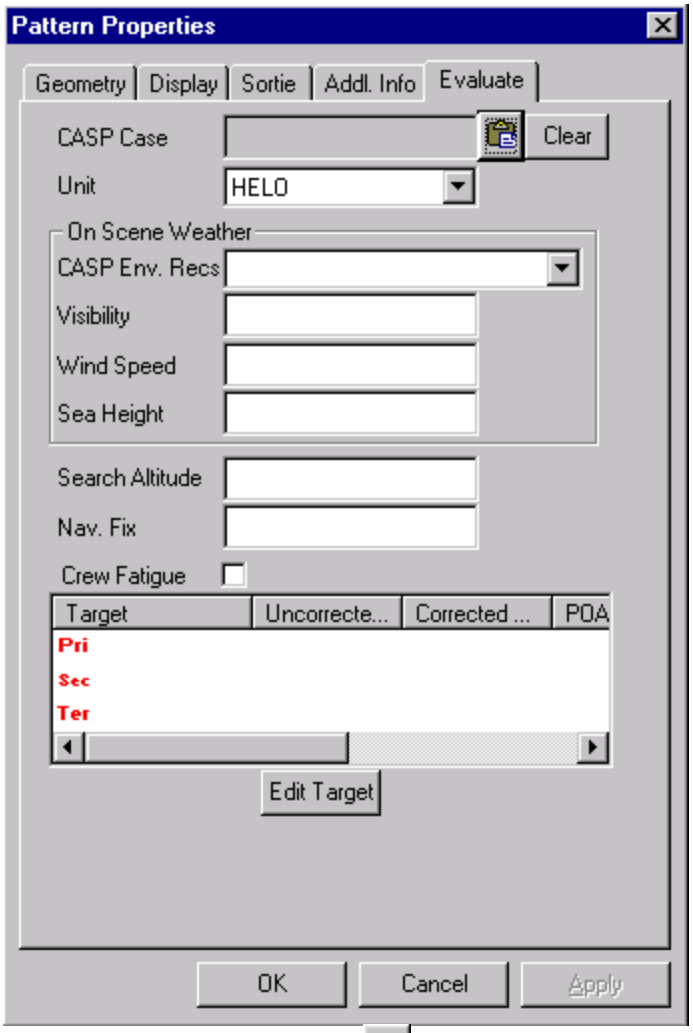
The data from the Evaluate tab is primarily used to evaluate a search pattern against a CASP probability map to achieve the best probability of success (POS). The Evaluate tab can be used without a CASP probability map if the data is known. Evaluate is typically used only for an expanding square, a parallel, or a creeping line pattern.
You may place the data from a CASP case in the Evaluate tab using one of the following methods:

- Copy a CASP case and paste it in the Evaluate tab.
- Drag and drop a CASP case into the Evaluate tab.

To copy and paste a CASP case into a search pattern

1. In the tree directory, select the CASP case you wish to use.
2. On the standard toolbar, click Copy ( ). You can also select Copy Data to Clipboard from the context menu of the CASP case.
3. Open the Pattern Properties window for the search pattern.
4. Open the Evaluate tab.

Pattern Properties Window, Evaluate tab



5. Next to the CASP Case field, click Paste ( ).

   The information from the CASP case is added to the search pattern.

6. Fill out the rest of the Evaluation tab as described in To complete the Evaluation tab.

To drag and drop a CASP case into a search pattern

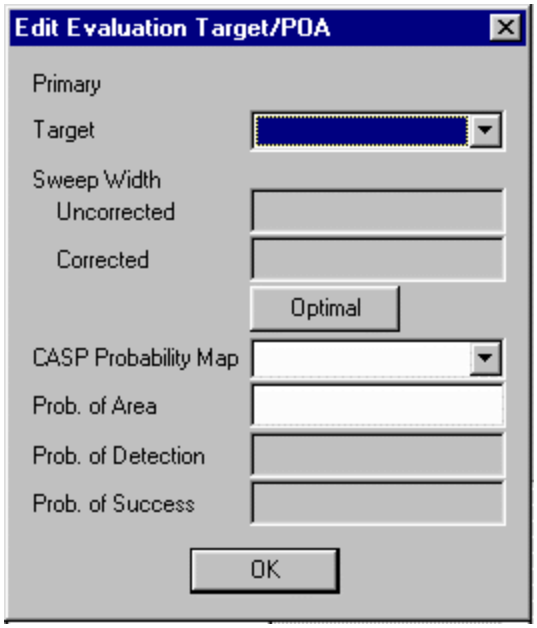
1. Open the Pattern Properties window for the search pattern.
2. Open the Evaluate tab.
3. Open a second SAR Tools window (see To edit an existing Search Plan).
4. In the second SAR Tools window, open the other SAR plan. You could also open a second instance of the same SAR plan.
5. Drag the CASP case from the second SAR Tools window into the Evaluate tab of the Pattern Properties window in the first SAR Tools window.
6. Fill out the rest of the Evaluation tab as described in To complete the Evaluation tab.

To complete the Evaluation tab

1. In the Unit field, select the search vessel from the list of available selections.
2. In the CASP Env. Recs field, select the desired CASP environmental record from the list of available selections. The remaining fields in the On-Scene Weather box reflect the appropriate values for you selection.

   If you do not have a CASP environmental record available, you can also enter the data manually.
3. In the Search Altitude, enter the altitude of the search vessel.
4. In the Nav. Fix field, enter the navigational fix error for the search vessel.
5. To add extra search time to allow for exhaustion, select the Crew Fatigue checkbox.
6. Select primary, secondary, and tertiary targets for searching.
   a. Select Pri, Sec, or Ter and click Edit Target, or double-click Pri, Sec, or Ter. The Edit Evaluation Target/POA window appears.

Edit Evaluation Target/POA Window



   b. In the Target field, select the SAR target from the list of available targets. If a CASP file has been selected (in the CASP Case field), only the targets available in the CASP case are listed. Otherwise, all target types are listed.
   c. To compute the optimal altitude (i.e., the search altitude with the best sweep width) click Optimal. This function is typically done only for the primary target.

      The Uncorrected and Corrected Sweep Width fields automatically reflect the optimal computation.
   d. In the CASP Probability Map field, select a probability map form the list of available maps.

The Prob. of Area field automatically reflects the probability map and the geometry of the pattern. This field can also be entered manually if a CASP case file is not being used.

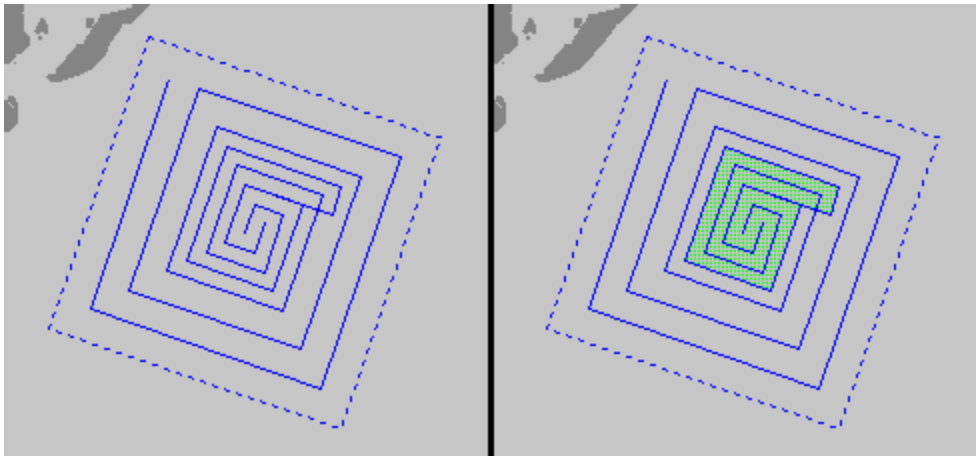
The Prob. of Detection and the Prob. of Success fields automatically reflect all the data from this window.

e. Click OK. The Edit Evaluation Target/POA window closes, returning you to the Evaluate window. In the Evaluate window, the Prob. of Area/Prob. of Detection/Prob. of Success values can be viewed in the Target list box, and they change as the search pattern is changed on the map or Geometry tab.

Calculating and plotting percent complete

In the Pattern Properties window, the Addl. Info tab enables you to specify how much of the search pattern has been completed. The Display tab enables you to plot the completed legs on the C2PC map. The area covered is outlined and you can also fill the area to clarify the area.

Plotting Percent Complete



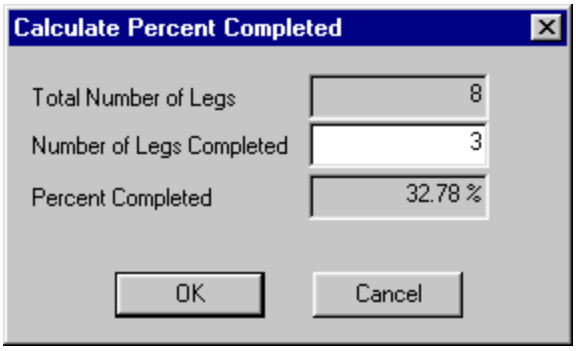
In the Plotting Percent Complete figure above, both patterns have the same completion percentage. The left pattern has the completed area outlined only (using a solid line). The right pattern has the completed area both outlined (using a solid line) and filled (using transparent fill type).

To calculate the percent completed

1. In the Pattern Properties window, open the Addl. Info tab.

2. Next to the Percent Complete field, click the Calculator button (). The Calculate Percent Completed window appears.

Calculate Percent Complete Window



The Total Number of Legs field contains the total number of legs contained in the search pattern.

3. In the Number of Legs Completed field, enter the number of legs in the search that have been covered by the SRU. Note that this number must be an integer; you cannot specify partial legs (for example, you can enter 2 or 3, but not 2.5).

   The Percent Completed field reflects the ratio of completed legs to total legs.

4. Click OK.

   In the Addl. Info tab, the Percent Completed field reflects the Percent Completed field in the Calculate Percent Complete window.

   The Hours In Area, Hours Flown, and Area Covered all reflect the Percent Completed field, as described in Addl. Info.

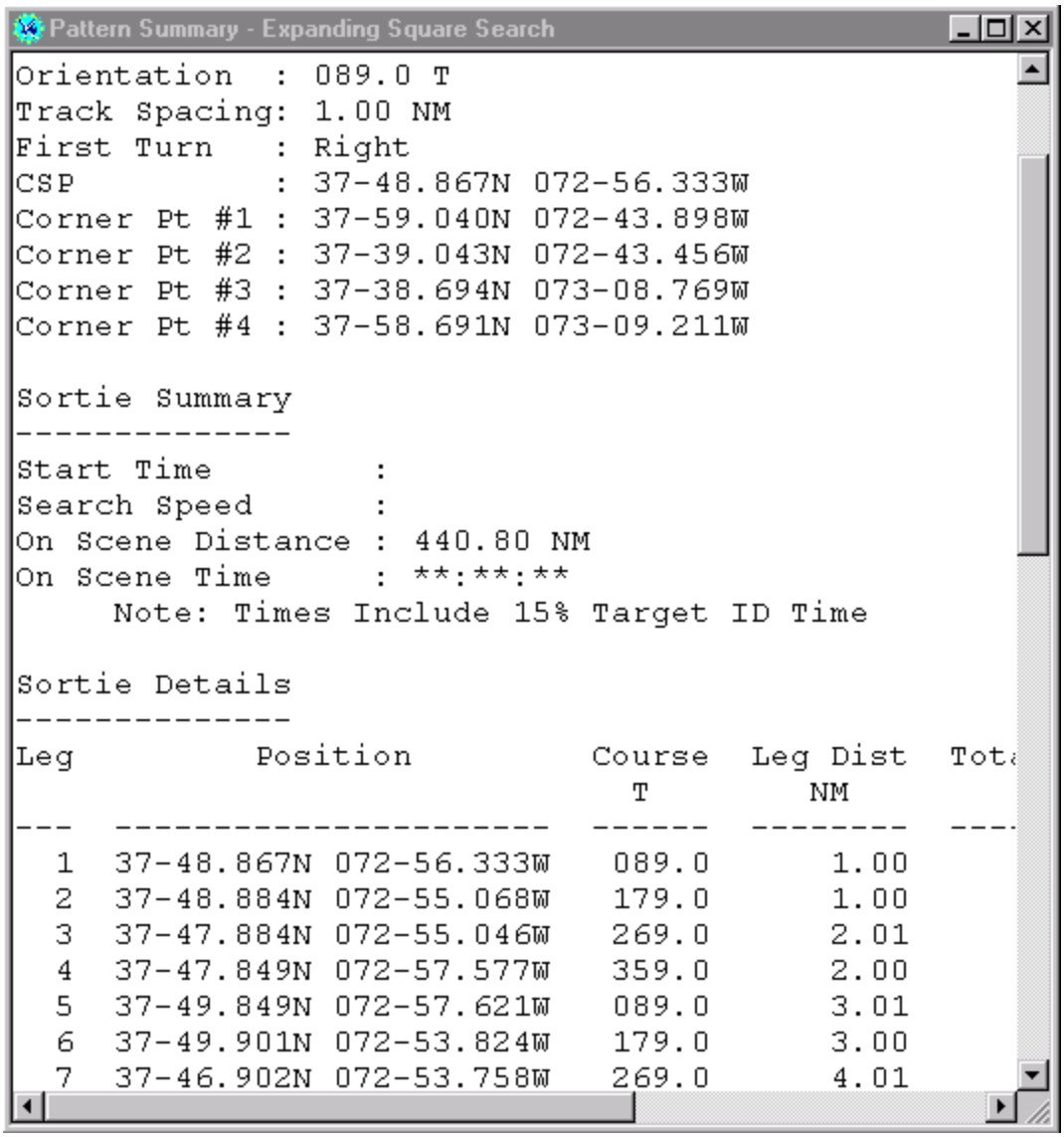
Pattern Summary

The Pattern Summary window contains textual information on the selected search pattern. This window may be accessed in two ways:

- Select a search pattern and choose Edit > Patterns > Summary.
- Select a search pattern. From its context menu, select Summary.

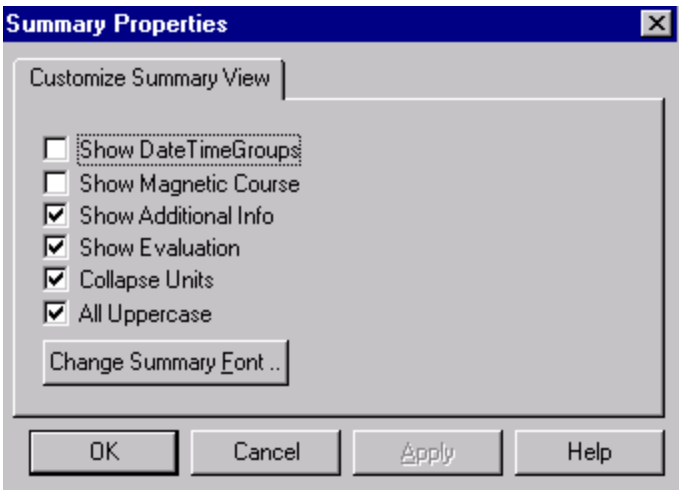
The Pattern Summary window appears.

Pattern Summary Window



The window includes information taken from the Geometry, Sortie, Addl. Info, and Evaluate tabs of the Pattern Properties window.The range of view provided via the horizontal scroll bar displays all text whenever Summary Properties are added, modified, or deleted. See Using Textual Windows for instructions on saving and printing this information.
Also available is the Summary Properties window, which controls what information is shown in the Pattern Summary window. Click (at the left in the Pattern Summary window title bar) and select Properties from the menu. The Summary Properties window appears.

Summary Properties Window



The Summary Properties window contains the following controls.

Show DateTime Groups checkbox

Select this checkbox to display the Date-Time Groups in the summary table.

Show Magnetic Course checkbox

Select this checkbox to display the Magnetic Course in the summary table.

Show Additional Info checkbox

Select this checkbox to display information entered in the Addl. Info tab of the Pattern Properties window in the summary table.

Show Evaluation checkbox

Select this checkbox to display information entered in the Evaluation tab of the Pattern Properties window in the summary table.

Collapse Units checkbox

Select this checkbox to display the units at the head of the table rather than within the table.

All Uppercase

Select this checkbox to display the information in all uppercase letters.

Change Summary Font button

Click this button to change the font in the Pattern Summary window. Only those fonts available for your system appear.

OK button

Click this button to close the Summary Properties window and apply the changes to the Pattern Summary window.

Cancel button

Click this button to close the Summary Properties window without applying the changes to the Pattern Summary window.

Apply button

This button is unavailable.

Help button

This button would open Help, but it is not yet implemented.

Duplicating Search Patterns

When you duplicate a search pattern, you may offset the duplicate from the original. You may place the duplicate pattern away from the original in a direction you choose and at a distance you choose.

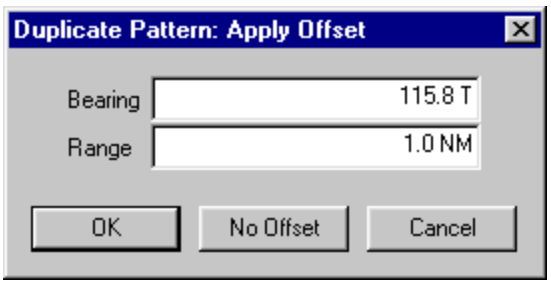
The duplicate search pattern always maintains the original SRU start and end positions (on the Sortie tab of the Pattern Properties window).

Information on the Geometry, Sortie, and Addl. Info tabs of the Pattern Properties window is automatically updated for the duplicate pattern. However, the Evaluate tab is not automatically updated. To update the information (such as the probability map) for the Evaluate tab, open the Pattern Properties window and select the Evaluate tab; activating the tab is all that is necessary to update the information.

To duplicate a search pattern with an offset

1. In the tree directory, select the search pattern you wish to duplicate.
2. Use one of these two methods to duplicate the pattern:
   - From the Edit menu, select Patterns > Duplicate.
   - Right-click the pattern. From the context menu, select Duplicate.
3. The Duplicate Pattern: Apply Offset window appears.

Duplicate Pattern: Apply Offset Window



4. In the Bearing field, enter the direction for the offset. The bearing's default value is based on the pattern type (see Duplicate Pattern Offset Defaults).
5. In the Range field, enter the distance for the offset.The range's default value is based on the pattern type (see Duplicate Pattern Offset Defaults).
6. Click OK to duplicate the search pattern with the offset you selected.

To duplicate a pattern without an offset

1. In the tree directory, select the search pattern you wish to duplicate.

2. Use one of these two methods to duplicate the pattern:
   - From the Edit menu, select Patterns > Duplicate.
   - Right-click the pattern. From the context menu, select Duplicate.
3. The Duplicate Pattern: Apply Offset window appears.
4. Click No Offset.

   The window closes and the duplicate search pattern appears on the C2PC map directly on top of the original search pattern.

Duplicate Pattern Offset Defaults

Pattern	**Offset**
Expanding Square	No Offset
Sector	No Offset
Parallel	**Direction:** Along the minor axis
	Distance: Half the track spacing.
Creeping Line	**Direction:** Along the major axis.
	Distance: Half the track spacing.
Track Line	No Offset

Web Applications

Information on Web Applications is divided into the following sections:

- AMVER website
- SLDMB website

AMVER website

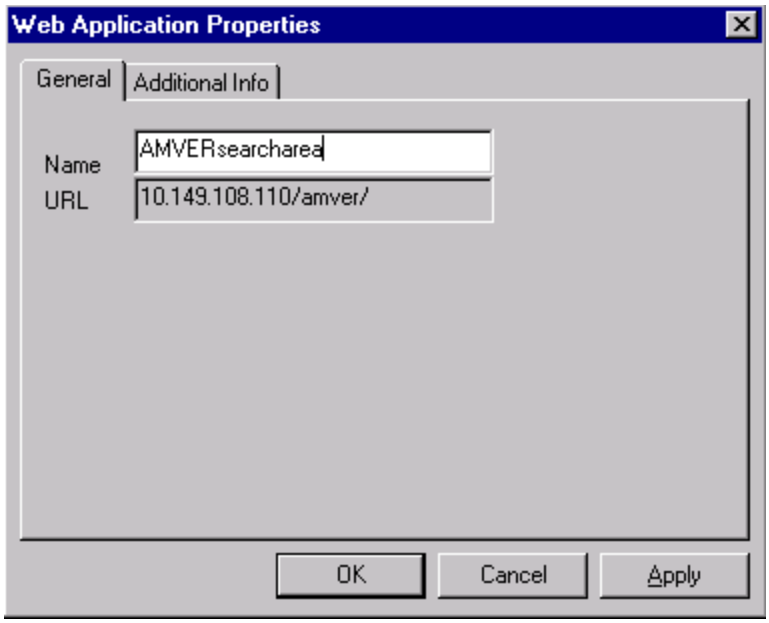
The AMVER option enables you to send a .mgc file with search area information to the AMVER internet website. They will process this information and send a results file back containing ship information within the specified search area. This information can then be plotted on the C2PC map.

To access the AMVER internet website:

1. Access the AMVER internet website using *one* of these methods:
   - From the Edit menu, choose Web Applications > New > AMVER.
   - From the context menu for Web Applications in the Window Area, choose New > AMVER.
   - Click the AMVER button ( ) in the Objects toolbar

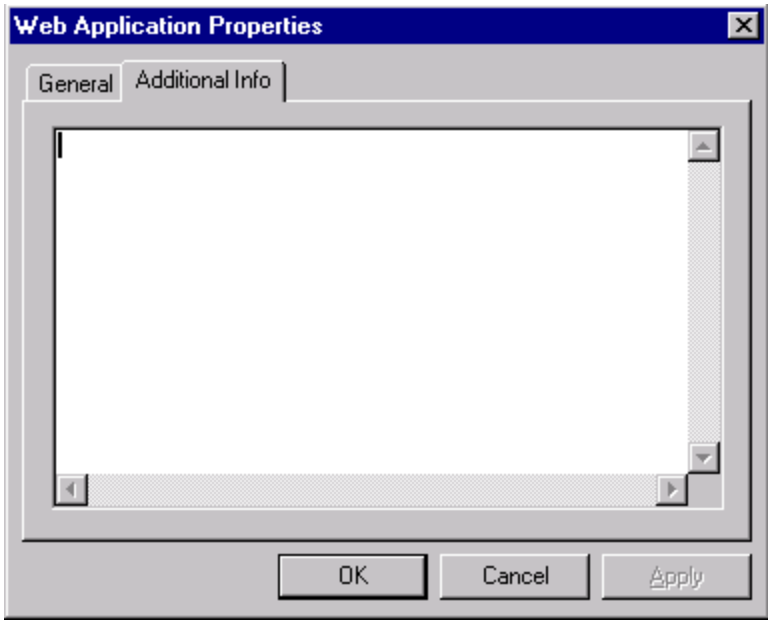
   The Web Applications Properties window displays. It contains two tabs: General and Additional Info.

Web Applications Properties, General page



The General tab contains the name of the AMVER search area and the URL for the AMVER internet website. See How do I modify Web Application settings? for instructions on how to change the URL.

Web Applications Properties, Additional Info Page



The Additional Info tab contains information about the AMVER item. This information is optional.

2. Select a Magic file by performing one of the following:

- From the context menu for Web Applications in the Window Area, select the previously entered AMVER item. Click the right mouse button and choose Associate > Search Area. The Select Search Area Magic File window is displayed.

  Find the desired magic file that contains the search area information.
- Drag a range ring or range rectangle to the Web Applications directory.
- Copy a range ring or range rectangle and paste it in the Web Applications directory.

3. From the context menu for Web Applications in the Window Area, select the previously entered AMVER item. Click the right mouse button and choose Connect. The Browser is launched and the connection is made to the AMVER internet website.
4. From the Browser, select the magic file. AMVER will process the information and ask the user to specify a file in which to save the returned information.
5. When the file has been saved, it will be added beneath Web Applications on the context menu.

For complete instructions see How do I access the AMVER web application?

SLDMB website

The SLDMB option enables you to send a .mgc file with search area information to the SLDMB internet website. They will process this information and send a results file back

containing plotted locations of Self Locating Datum Marker Buoys within the specified search area. This information can then be plotted on the C2PC map.

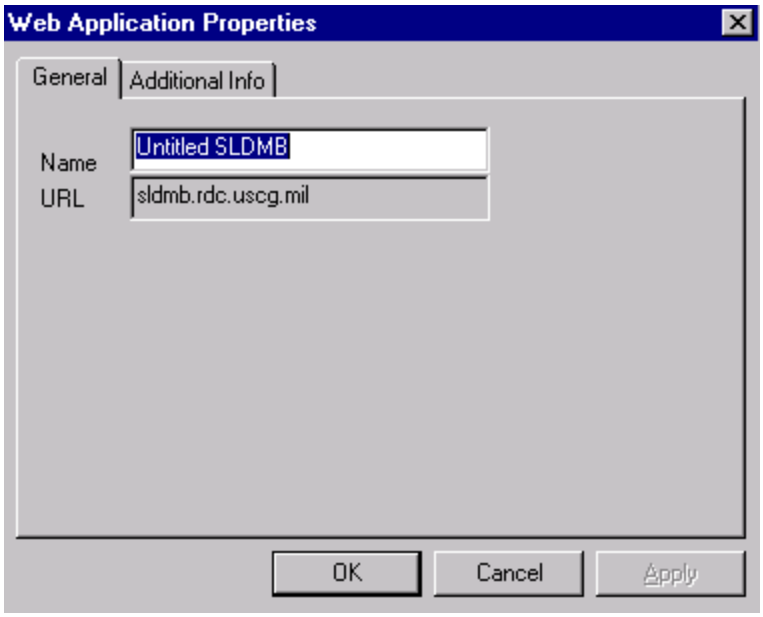
To access the SLDMB internet website:

1. Access the SLDMB internet website using *one* of these methods:

   - From the Edit menu, choose Web Applications > New > SLDMB.
   - From the context menu for Web Applications in the Window Area, choose New > SLDMB.
   - Click the SLDMB button ( ) in the Objects toolbar.

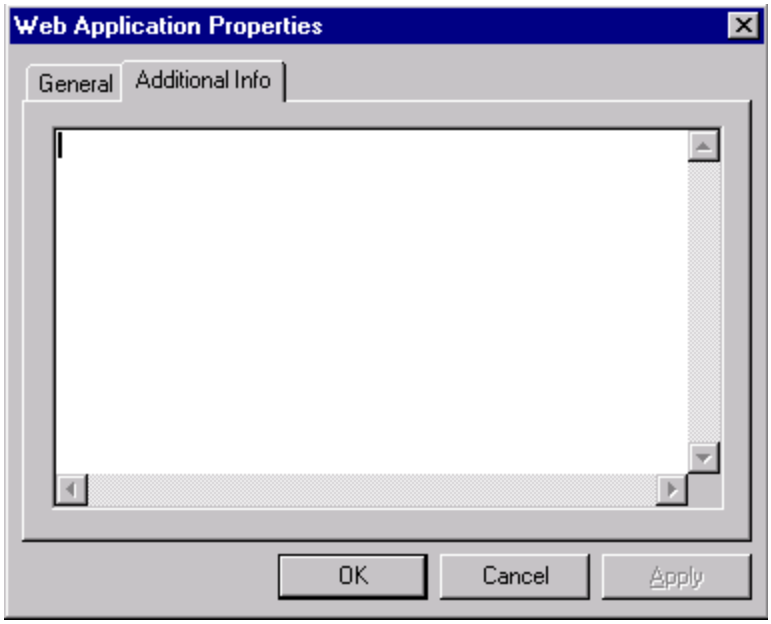
   The Web Applications Properties window displays. It contains two tabs: General and Additional Info.

Web Applications Properties, General page



The General tab contains the name of the SLDMB search area and the URL for the SLDMB internet website. See How do I modify Web Application settings? for instructions on how to change the URL.

Web Applications Properties, Additional Info Page



The Additional Info tab contains information about the SLDMB item. This information is optional.

2. Select a Magic file by performing one of the following:

- From the context menu for Web Applications in the Window Area, select the previously entered SLDMB item. Click the right mouse button and choose Associate > Search Area. The Select Search Area Magic File window is displayed.

  Find the desired magic file that contains the search area information.
- Drag a range ring or range rectangle to the Web Applications directory.
- Copy a range ring or range rectangle and paste it in the Web Applications directory.

3. From the context menu for Web Applications in the Window Area, select the previously entered SLDMB item. Click the right mouse button and choose Connect. The Browser is launched and the connection is made to the SLDMB internet website.
4. From the Browser, select the magic file. SLDMB will process the information and ask the user to specify a file in which to save the returned information.
5. When the file has been saved, it will be added beneath Web Applications on the context menu.

For complete instructions see How do I access the SLDMB web application?

Software User's Guide for USCG SAR Tools

Index

Numerics

1 155
4-legged monster 147

A

Additional Info tab
    Flare Sighting Properties window 42
Addl. Info page
    Pattern Properties window 207
AMS
    area worksheet, description 99
    datum worksheet, description 89
    description 88
    displaying case on C2PC map 178
    effort worksheet, description 108
    subsequent search 90
    summary
        printing 51
        viewing 51
    sweep width table 111
AMS Case Properties window 144
    Customize Map View page 144
    Customize Summary View page 146
AMS Case Summary window 149
AMS Options window 147
AMS toolbar 169
AMS worksheets 88
    AMS 88
    area 99
        page 1 99
        page 2 101
        page 3 104
        page 4 107
    common controls 88
    datum 89
        page 1 90
        page 2 93
        page 3 96
        page 4 98
    effort 108
        excess resource planning page 116
        page 1 110
        page 2 114
AOR overlay, displaying 64
application window 152
area of responsibility 64

Area Worksheet (Dead Reckoning Error) window 106
Area Worksheet (Navigational Fix Error) window 105
Area Worksheet (Page 1) window 99
Area Worksheet (Page 2), Minimax window 102
Area Worksheet (Page 2), Non-minimax window 103
Area Worksheet (Page 2) window 101
Area Worksheet (Page 3) window 104
Area Worksheet (Page 4) window 107
Automated Manual Solution (AMS), description 88

B

bearing/range 22
BSB chart 57

C

C2PC map, connecting to 178
C2PC Options Window 60
C2PC Tides and Currents window 53
CASP 220
    description 220
    displaying case on C2PC map 178
    login 251
    tree view 220
CASP toolbar 169
changing user data directory 176
Chart page
    Datum Worksheet (Tidal Current) window 133
Choose Directory window 177
circular search area, creating 192
color map 188
colors 187
    creating custom 188
    selecting 187
Color Window 187
computer aided search planning (CASP), description 220
context menus, description 183
courses 65
Creeping Line Pattern Properties window
    Geometry tab 201
creeping line search pattern. see search pattern, creeping line
currents 189
    displaying on C2PC map 53
    removing from C2PC map 55
Custom Colors Window 188
Customize Map View page
    AMS Case Properties window 144
Customize Summary View page
    AMS Case Properties window 146
Cycle Factor/Speeds page
    Datum Worksheet (Tidal Current) window 134
Cycle Times page 130
    Datum Worksheet (Tidal Current) window 130
        automatic entry 132
        manual entry 131

D

Datum W'sheet (Aerospace Drift) window 91
Datum Worksheet (Other Current) window 140
Datum Worksheet (Page 1) window 90
Datum Worksheet (Page 2) window 93
Datum Worksheet (Page 3) window 96
Datum Worksheet (Page 4) window 98
Datum Worksheet (Tidal Current) window 124
    Chart page 133
    Cycle Factor/Speeds page 134
    Cycle Times page
        automatic entry 132
        manual entry 131
    Ebb Cycle Factors page 136
    Flood Cycle Factors page 135
    Incident/Times page 125
    Station/Velocity page
        automatic entry 129
        manual entry 128
    Vectors page 137
Datum Worksheet (Wind Current) window 138
Datum Workwheet (Observed Source) Window 122
decision matrix 147
default folder, viewing and changing 168
direction/distance 22
Display page
    Quick Icon Properties window 26
    Search Area Properties window 192
Display tab
    Flare Sighting Properties window 42
    Pattern Properties window 203
distance (range/bearing) 22
Drift Wizard, Compute Datum window 241
Drift Wizard, Login window 242
Drift Wizard, Target Select window 240
duplicate pattern
    applying offset 215
duplicate pattern. see search pattern, duplicating
Duplicate Pattern: Apply Offset window 215

E

Ebb Cycle Factors page
    Datum Worksheet (Tidal Current) window 136
Edit Case Data window 222
Edit Common Location Data window 226
Edit Environment Record window 237
Edit Evaluation Target/POA Window 211
Edit Position Data window 227
Edit Search Area Data window 233
Edit Search Plan Lebel Window 179
Edit Situation Data window 223
Edit Situation Specific Location Data window 224
Edit SRU window 248
Edit Target Characteristics window 235
Edit Target Data window 228
Effort W'sheet (Sweep Width - SRU#x) 111
effort worksheet
    using for search pattern 18

Effort Worksheet (Excess Resource Planning) window 116
Effort Worksheet (Page 1) window 110
Effort Worksheet (Page 2) window 114
Evaluate tab
    Pattern Properties window 209
Expanding Square Pattern Properties window
    Geometry tab 198
expanding square search pattern. see search pattern, expanding square

F

figures 61
    converting to overlay 62
    editing 63
    moving 63
    placing 61
    removing 63
file sharing 178
flare
    summary window 218
flares 217
    calculations 217
    description 217
    editing 43
    plotting 38
Flare Sighting Properties window 38
    Additional Info tab 42
    Display tab 42
    Flare tab 40
    Reporting Source tab 39
Flare Summary window 218
Flare tab
    Flare Sighting Properties window 40
Flood Cycle Factors page
    Datum Worksheet (Tidal Current) window 135
four-legged monster 147

G

Geometry page
    Quick Icon Properties window 25
Geometry tab
    Creeping Line Pattern Properties window 201
    Expanding Square Pattern Properties window 198
    Parallel Pattern Properties window 200
    Search Area properties window 191
    Sector Pattern Properties window 199
    Track Line Pattern Properties window 202
graphics, adding to overlays 64
grid lines 56

H

help, how to use 3
Hi Site overlay, displaying 64
hi-sites 81
How do I...
    access sweep width tables? 46

add text and graphics to an overlay? 64
associate a search pattern with an AMS case? 18
change a search pattern's color? 20
change C2PC map colors? 57
convert an icon to an overlay? 62
create and save an overlay file? 65
draw a search pattern? 16
edit a flare sighting? 43
edit an AMS worksheet? 49
edit an icon? 63
edit a SAR plan? 14
import previous search information into a successive AMS worksheet? 51
manually edit a search pattern? 19
move an icon? 63
open a new AMS worksheet? 48
open a new SAR plan? 14
place an icon on the map? 61
plot a flare sighting? 22, 24, 38, 43
plot an icon using SAR Tools? 24, 28, 31, 33, 35, 37
plot a PIM track? 65
remove an icon? 63
remove tides and currents data from the C2PC map? 55
save a SAR plan? 15
set precision standards and units of measure? 59
switch from a vector chart to a BSB chart? 57
take a range and bearing? 23
turn on an AOR or Hi Site overlay? 64
use C2PC map features? 56
use sweep width tables with the AMS Effort Worksheet? 48
use Tides and Currents? 52
view and print an AMS summary? 51
view and print a search pattern summary? 22
view data for tides and currents for the next 24 hours? 54
hue 189
hue/saturation/luminosity 189

I

icons 61
C2PC 61
converting to overlay 62
editing 63
moving 63
placing 61
removing 63
SAR Tools 24, 28, 31, 33, 35, 37
Incident/Times page
Datum Worksheet (Tidal Current) window 125
itineraries 65

L

Leeway (Average Surface Winds - Maximum) window 142
Leeway (Time Uncertainty) window 143
Leeway Worksheet window 119, 141
Login window 251
luminosity, color 189

M

main window view 152
map colors, setting 57
map features 56
menus
    AMS 162
    CASP 163
    edit 155, 155
    file 154
    help 168
    tools 168
    view 161
merging search plans 154

N

naming a search plan 175
nautical chart 57

O

objects toolbar 169
Open (Icon) Window 62
Options window 177
overlays 65
    adding graphics 64
    adding text 64
    creating 65
    illustration 81
    saving 65

P

Parallel Pattern Properties window
    Geometry tab 200
parallel search pattern. see search pattern, parallel
paths 65
Pattern Properties window 196
    Addl. Info page 207
    Display tab 203
    Evaluate tab 209
    Sortie tab 205
patterns,search 194
Pattern Summary window 213
PIM tracks 65
political boundaries 56
pop-up menus, description 183
position and intended movement (PIM) 65
precision standards, setting 59

Q

quick entry, description 186
Quick Icon Properties window
    Display page 26
quick icons 61
    C2PC 61
        converting to overlay 62

editing 63
moving 63
placing 61
removing 63
SAR Tools 24, 28, 31, 33, 35, 37
Quick Icons Properties window
Geometry page 25
quick point
converting to overlay 62
editing 63
moving 63
placing 61
removing 63
Quick Point Dialog 61
quick start
C2PC 55
SAR Tools 12

R

Range/Bearing Properties window 23
range and bearing lines 22
rectangular search area, creating 192
red/green/blue 189
Replication Data Window, Optimal Search Data page 249
Replication Data Window, Probability Map page 245
Replication Data Window, Replication Data page 246
Replication Data Window, SRU Data page 247
Reporting Source tab
Flare Sighting Properties window 39
RGB 189
right pop-up menus, description 183
rivers 56
routes 65

S

SAR plan, see also search plan 152
SAR tools, purpose 1
SAR Tools window 152
saturation, color 189
Saving a New Search Plan window 175
search area 191
creating circular 192
creating rectangular 192
definition 191
editing 191
properties 191
Search Area Properties window
Display page 192
Geometry tab 191
search pattern 194
adding 16
copying 215
offset 215
offset defaults 216
creeping line
description 195
editing manually 19
description 195

displaying on C2PC map 178
duplicating 215
offset 215
offset defaults 216
editing manually 19
expanding square
description 195
editing manually 19
from effort worksheet 18
orientation, changing 19
parallel
description 195
editing manually 19
resizing 19
rotation, changing 19
sector
description 195
editing manually 19
summary
printing 22
viewing 22
summary window 213
track line
description 196
search plan 152
AMS toolbar 172
CASP toolbar 172
changing user data directory 176
displaying on C2PC map 178
editing 175
name 175
objects toolbar 170
opening multiple files 153
opening new 174
saving 175
sharing files 178
standard toolbar 169
status bar 173
tree directory 152
tree directory, displaying empty folders 152
view menu 161
window name 153
Search Planning Decision Matrix window 148
search plan window 152
AMS menu 162
CASP menu 163
edit menu 155
file menu 154
help menu 168
tools menu 168
Sector Pattern Properties window
Geometry tab 199
sector search pattern. see search pattern, sector
shapes 61
converting to overlay 62
editing 63

moving 63
placing 61
removing 63
Sortie tab
Pattern Properties window 205
standard toolbar 169
Station/Velocity page
automatic entry, Datum Worksheet (Tidal Current) window 129
manual entry, Datum Worksheet (Tidal Current) window 128
status bar 169
Status Board window 244
subsequent search 90
summary
AMS
printing 51
viewing 51
search pattern
printing 22
viewing 22
Summary Properties window 214
Summary Properties window (flare) 219
sweep width table
AMS 111
Sweep Width Tables window 47
symbols 61
converting to overlay 62
editing 63
moving 63
placing 61
removing 63

T

text, adding to overlays 64
text windows, operations in 183
tides 189
displaying on C2PC map 53
removing from C2PC map 55
Tides&Currents software 189
toolbars 169
AMS 169
CASP 169
objects 169
standard 169, 169
status bar 169
Track Line Pattern Properties window
Geometry tab 202
tracklines 65
track line search pattern. see search pattern, track line
tracks 65
tree directory 152
tree directory, diplaying empty folders 152
tutorials 67
C2PC 67
SAR Tools 67

U

units of measure, setting 59
user data directory

changing 176

V

vector chart 57
Vectors page
Datum Worksheet (Tidal Current) window 137
videos, viewing 5

W

Wind Crnt (Comp's Req'd - Min/Max) window 138
Wind Current Computations (Min. #1) window 139
window fields, description 183

Appendix B: DESCRIPTIONS OF LEEWAY DRIFT OBJECTS

Overview

The following is a condensed and edited section of the U.S. Coast Guard Research and Development Center, LEEWAY DIVERGENCE study, Appendix B. Appendix B provides descriptive information for each of the classes of leeway drift objects.

For each description, the target characteristics are summarized and pictures are provided where available. These target descriptions are in no way meant to be all-inclusive. They are intended to assist a search planner in target identification. Proper identification will make the application of more specific leeway values possible. Some categories in Table 2 do not require further explanation and therefore descriptions/pictures are not included. The SAR planner should also be reminded that any classification system will have overlap between some categories. In these cases, a decision must be made about the most probable situation.

PIW – Persons in the water including persons without any floatation, and those with a throwable cushion, with a PFD, in an anti-exposure suit and in survival/immersion suits.

Vertical – generally requires a conscious and active PIW to maintain this position. PIWs wearing either a sport/work vest, anti-exposure suit, or float coat or having no flotation must actively maintain a vertical position in the water or become victims in the horizontal position.
Sitting – the classic fetal position with legs drawn up and arms huddled across the PFD. This is the preferred position a conscious or unconscious person assumes, especially in cold water, when wearing offshore lifejackets, horse-collar lifejackets, or inflatable vests. A conscious PIW hanging onto a throwable device will also assume the sitting position until he become unconscious at which time he become a victim.
Horizontal –Three separate configurations place the PIW in a horizontal position. A conscious or unconscious PIW wearing a survival suit will float flat on his back. A PIW in scuba gear, with an inflated buoyancy vest, will float in a semi-reclined position. The classic floating position of a victim is floating face down in the water.

Maritime Survival Crafts – Includes life rafts, life boats, and life capsules. It does not include dinghies or inflatable boats that may be carried for the same purpose.

Maritime Life Rafts – If there is any question about what type of life raft a vessel may carry, a phone call to life raft repair and repackaging facilities close to the homeport of the distressed vessel may provide ballast, canopy, size, and drogue information.
Shallow Ballast – consists of a series of fabric pockets generally 4 inches in diameter and less than six inches in depth
Deep Ballast – consist of large fabric bags, from 3-7 on the raft, that are at least 1'x 2' x 2'.
Other Maritime Survival Craft
life capsule – fully enclosed crafts commonly used on large merchant and military vessels.
Aviation Life Rafts – Fall basically into two groups, life rafts and slide rafts. Aviation life rafts are similar to marine life rafts, but are usually made from lighter materials.
evacuation/slide – Slide rafts are specifically designed devices intended to ease evacuation from an aircraft. They mount to door frames or near wing emergency exits and are cut loose from the airframe once fully loaded.

Person- Powered Craft – Includes all forms of rowed or paddled boats including rowboats, inflatable boats without motors, canoes, kayaks, surfboards and windsurfers.

Mono-hull Sailing Vessel – It is assumed that all targets in this category are adrift; therefore sails are down or missing and the crew is unable to maneuver the vessel at all. A class of small to medium sized sailing vessels generally less than 20 ft and never more than 30 ft in length. They are typically designed for a single purpose such as racing or day sailing. Although this type of boat can have an outboard engine when day sailing, they will almost never have inboard engines.
Full Keel – small to medium sized sailboats whose keel runs the full length or nearly the full length of the hull. While the forward portion of the keel is modified or eliminated on some full keel sailboats, the keel on all full keel sailboats extends aft to the rudder. This is an old hull design and is not commonly used in new hull construction due to the relatively slow sailing speeds of this hull design.
Fin Keel – small to medium sized sailboats with permanent keel skegs that do not extend aft to the rudder.

Skiffs – open boats less than 20 ft long that use an outboard motor as the primary source of propulsion. Some have characteristics identical to rowed boats with the exception that an outboard motor has been attached to the stern. This group includes, but is not limited to, tenders for larger vessels, bass boats, hunting boats, Jon boats, and a large category of utility boats. Skiffs are usually found on lakes and rivers, but are also common in the calm waters of many bays and rivers that provide access to the open ocean.

Sport Boats – Includes pleasure craft from 15 to 28 feet long with beam widths from roughly 6 to 9 feet. They include metal, fiberglass, and wood vessels with a V, modified-V, or deep-V hull form. Sport boats can be outfitted with inboard, outboard, or I/O propulsion. This category includes side console (closed bow and bow riders) and cuddy cabin boats.

Sport Fisher – Include pleasure and commercial craft form 17 to approximately 100 feet long with beam widths up to 24 feet. The majority are between 30 and 50 feet long, with beam widths between 10 and 15 feet. This class includes both semi-displacement and planing hull forms that can be outfitted with inboard, outboard, or I/O propulsion. This category includes boats with simple center console or walk-round cabin. Convertibles are sport fishers with a walk around cabin and flying bridge. Convertibles designed for offshore fishing may also have a spotting tower. Many convertibles provide extended cruising capabilities similar to sport cruisers, but their after deck design provides a larger open area to work fishing gear. Some of these vessels can also be found in the cruiser or motor yacht categories.

Commercial Fishing Vessels – Include vessels from 45 to 100 feet long designed for fishing or shell fishing in coastal and ocean waters. They include side and stern trawling rigs, long liners, bottom dragging rigs, and purse seiners. Pole fishers are simply modified use of a sport fisher or sport cruiser and should be treated as such. Commercial fishers can be working alone, as paired vessels, or can be the mother ship to a group of smaller fishing skiffs. These vessels have different design features based on their purpose, but all have some form of deck house and an open area from which nets can lines are worked. A deck winch and boom system is commonly used to handle nets or lines.

Coastal Freighter – Include a wide range of commercial shipping platforms up to 100 feet in length. These vessels transfer cargo from one port to another, and shipping agents can provide estimated voyage schedules. Coastal freighters include vessels with a deckhouse on the forecastle, a midships deckhouse (common to cargo vessels), and an aft deckhouse (common to tankers and container ships). Leeway of these vessels will of course not only vary with respect to deckhouse location; it will also be greatly effected by loading, amount, and type of cargo.

Boating Debris – any debris that can be expected from a boat that is sinking and/or breaking up. It may include paper or plastic containers, bedding or clothing, and a variety of fragmented boat sections.
Fishing debris – debris typical to a fishing vessel such as lifejacket, life ring, fishing float balls, a fishing box lid, or wooden boards
Bait/wharf box – commercially available 1.1 X1.5 meter plastic box used by commercial fisherman for holding ice and/or fish. Although not its intended use could also serve as a floatation/life raft by persons in distress.
lightly loaded – approximately 200 lbs (simulation of one person)
full loaded – approximately 800 lbs (simulation of four persons)

Immigration Vessel – refer to particular types of vessels typically employed in the business of illegally transporting alien persons to U.S. ports. This ranges from small coastal vessels to sailing vessels to homemade rafts and inner tubes. The districts along the southern U.S. coast and Caribbean territories are most likely to encounter these leeway targets.

For most of the classes, the descriptive information includes:

- Representative illustrations
- A description of the class including class characteristics and the specific values that define the class characteristics.
- Rescue equipment that may become leeway drift targets
- References for class descriptions
- Leeway drift study references and notes

Table B - 1. Cross-Reference of Leeway Drift Objects

Class Of Leeway Drift Objects	Appendix B Subsection
Boating PIW	B1
Maritime Survival Craft	B2
Person-Powered Craft	B3
Sailing Vessels	B4
Full Keel One-design Sailboat	B4.1
Fin Keel One-design Sailboat	B4.2
Dagger/Centerboard One-design Sailboat	B4.3
Bare Bottom One-design Sailboat	B4.4
Sport Catamaran	B4.5
Sport Trimaran	B4.6
Full Keel Cruising Sailboat	B4.7
Fin Keel Cruising Sailboat	B4.8
Water Ballast Trailer Sailboat	B4.9
Cruising Catamaran	B4.10
Cruising Trimaran	B4.11
Power Vessels	B5
Hovercraft	B5.1
Inflatable Boats	B5.2
Skiffs	B5.3
Personal Water Craft	B5.4
Sport Boats	B5.5
Sport Fishers	B5.6
Sport Cruisers	B5.7
Commercial Fishers	B5.8
Coastal Freighters	B5.9
Boating Debris	B6
Aviation PIW	B7
Aviation Survival Craft	B8
Aviation Debris	B9
Combat SAR Aviation PIW	B10
Combat SAR Aviation Survival Craft	B11
Combat SAR Aviation Debris	B12
Combat SAR Maritime PIW	B13
Combat SAR Maritime Survival Craft	B14
Combat SAR Maritime Power Vessels	B15
Combat SAR Maritime Debris	B16
Law Enforcement Drift Objects	B17
Drug Flotsam	B17.1
Drug Vessels	B17.2
Immigration Vessels	B17.3

Class Of Leeway Drift Objects	Appendix B Subsection
Marine Safety Drift Objects	B18
Surface Slicks	B18.1
Hazards to Navigation	B18.2
Military Drift Objects	B19

B1Boating PIW

Type I Reversible Horse-Collar PFD

Type I Non-reversible Off-shore Lifejacket

Type II Reversible Horse-collar PFDs

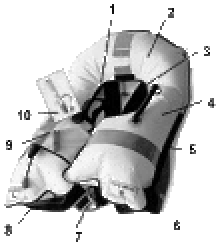
Type III Sport Vest

Type III Float Coat

Type IV Life-Ring

Type IV Seat Cushion

Type V Anti-exposure Suit



Type V Inflatable Vest

Immersion Suit

Description Boating PIW are persons in the water from a maritime source. The class of Boating PIW includes:

a) persons without any floatation,
b) persons with a throwable cushion,
c) persons with a PFD,
d) persons in an anti-exposure suit,
e) persons in a survival/immersion suit
f) and persons in Scuba gear.

Position

The primary drift class characteristic is position. Position may be:

- vertical,
- sitting, or
- horizontal.

The vertical position generally requires dynamic maintenance by a conscious and active PIW. The PIW will either be slightly inclined backwards or forwards. A forward inclined PIW is actively swimming towards a goal. A backward inclined PIW is maintaining orientation to the waves.

The sitting position is the classic fetal position with legs drawn up and arms huddled across the PFD. This is the preferred position a person assumes in cold water. The natural orientation of a sitting PIW is to face away from the oncoming waves.

The horizontal position requires floatation around the legs for a survivor. Victims floating face down will be in a nearly horizontal position with arms and legs dangling from the PFD.

State of PIW

PIW may be in any of three states:

a. conscious,
b. unconscious, or
c. victims.

Conscious PIW's play an active role in maintaining their position relative to the water surface and wave/wind direction.

Unconscious PIW's are passive, usually from hypothermia, and "frozen" into a position. They cannot hang onto a throwable device.

Victims are deceased PIW's.

PFD Style

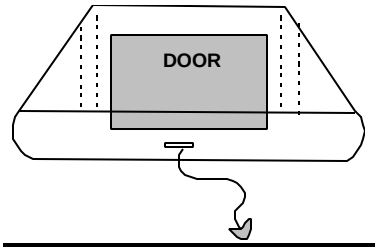
Federal performance requirements specify six PFD types (see table B-2). Nine basic styles or designs of PFD's have been developed in response to these requirements:

Type I reversible horse-collar PFD
Type I non-reversible offshore lifejacket
Type II reversible horse-collar PFD
Type III sport vest
Type III float coat
Type IV throwable life-rings and seat cushions
Type V work vests and anti-exposure coveralls, including wet suits and dry suits
Type V inflatable vests and suspender style PFD's.
Survival/immersion suits. (Note: A conscious or unconscious PIW in a survival suit will float horizontally on his back with his head into the waves.)

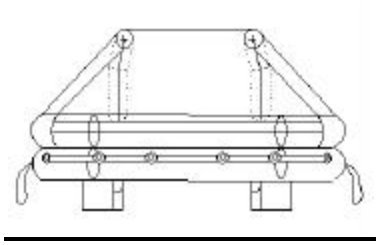
Table B –2. Personal Floatation Device Type Requirements

Type	Buoyancy			Use
	Adult	Child	Infant	
I	22 lbs.	11 lbs.	N/A	Offshore
II	15.5 lbs.	11 lbs.	7 lbs.	Near Shore/Inland
III	15.5 lbs.	11 lbs.	7 lbs.	Sport Vests, Float Coats
IV				Throwable device
V	Only to be used according to instructions on the label			Work Vest, Deck Suits
Hybrid V	Required to provide equivalent buoyancy to the PFD it replaces			Inflatable PFD

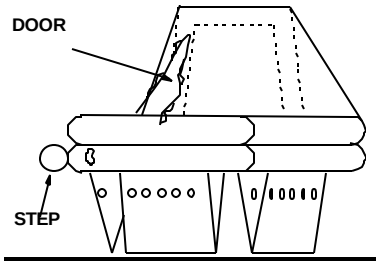
B2Maritime Survival Craft



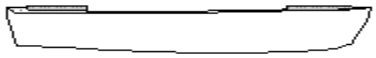
No Ballast Life Raft



Shallow Pocket Ballast



Deep Pocket Ballast



Life Boat

Life Capsule

Description

The Class of Maritime Survival Craft includes:
1) life rafts,
2) life boats, and
3) life capsules.

Dinghies and inflatable boats are not included in this class (see section B3).

Life rafts on commercial vessels in US waters must be USCG approved. Most commercial European and open ocean sailing competitions require compliance with SOLAS regulation. Questions about the features of the maritime survival craft carried on a vessel may sometimes be answered by calling a life raft repair and repackaging facility close to the homeport of the distressed vessel.

Ballast

The primary drift class characteristic is ballast. Ballast may be:

- no ballast,
- shallow pocket ballast,
- deep ballast,
- swamped, or
- capsized.

Shallow pocket ballast systems consist of a series of fabric pockets generally 4 inches in diameter and less than 6 inches in depth. Deep pocket systems consist of large fabric bags, from 3 to 7 on the raft, that are 1+ feet wide-by 2+ feet long-by 2+ feet deep. Torroidal ballast systems consist of a ring of deep pockets, sometimes connected to form a doughnut around the outside of the raft. The Givens pocket is a single deep pocket that is larger than the raft itself.

Presence/Absence of a Canopy

The secondary drift class characteristic is the presence or absence of a canopy.

Drogue Modifiers

Most manufacturers supply automatically deploying drogues, also called sea anchors, with new life raft purchases.

Lifeboats are open boats from 15 to 25 feet in length, with or without an engine. (Note: Because this class of drift objects is often able to move some distance before it runs out of gas or its occupants become tired of rowing or give up trying to sail the boat, caution should be used when applying leeway drift equations.)

Life capsules are fully enclosed craft commonly used on large merchant and military vessels.

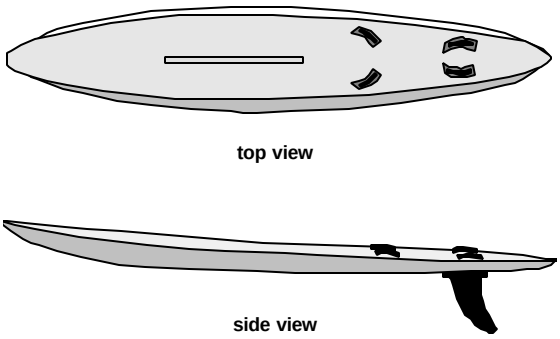
B3Person-Powered Craft

Row Boat

Sea Kayak

Canoe

Surf Board



Wind-surf board

Description

The class of personal powered boats includes all forms or rowed and paddled boats, such as rowboats, inflatable boats without motors, canoes, kayaks, surfboards, and windsurfers. Because there are many variations of shape, material, draft, etc. within this class and because pertinent leeway drift data are sparse, generalizations about this class have been made.

Leeway

The primary drift characteristic of this class is the above-water shape of the vessel. These vessels all have a relatively shallow draft and the above-water shape dominates the leeway drift ratio.

The secondary drift characteristic of this class is ballast. It is not uncommon for a sea kayak or a canoe to have a sea anchor on-board to permit the crew to rest. Likewise, it is not uncommon for vessel flotation to be lost, causing the vessel to flood and float partially submerged.
Rescue Equipment That May Become Drift Targets

Rescue Equipment

Rescue equipment typically includes PFD's and throwable flotation devices in U.S. waters. This equipment may not be carried, especially in overseas locations.

B4Sailing Vessels

Overview

Sections B4.1 through B4.11 describe sailing vessels. These are all craft that generally employ sails as the primary form of propulsion. Motor sailers are included in this section. (Note: Vessels over 100 feet in length are not included in these subsections because they may have significantly different drift ratios and are assumed to have sufficient resources on-board to radio for help in all but the most extreme conditions. When these vessels are unable to handle the conditions, their rescue gear becomes the leeway drift targets. Windsurfers are also not included (see section B3).

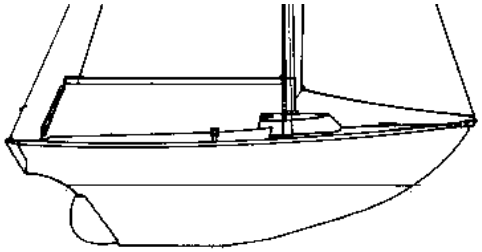
Two main groupings of sailboats exist:
One-design sailboats are typically small to medium mono-hull and multi-hull sailboats that are used for day sailing, protected water racing, and occasional overnighting. These boats are generally less than 20 feet long and have no inboard engine.
Coastal/ocean sailboats are medium to large mono-hull and multi-hull sailboats that are used for cruising and open water racing. These 19 to 45 feet long sailboats usually have a cabin.

Both groups contain boats with differing hull shapes, the primary drift characteristic. (Note: Any classification system will overlap between the classes. Under these conditions, a decision must be made about the most probable class to use. For example, a 24-foot full keel cruising sailboat with light loading may drift similar to a one-design sailboat with a full keel and a cabin.)

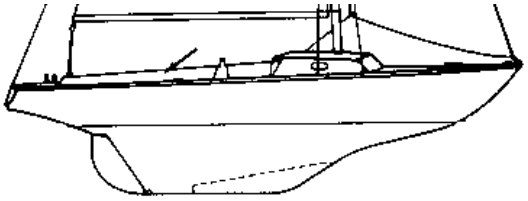
When drifting, it is assumed that the sails are down or missing, and the crew is unable to maneuver the vessel.

Many sailboats used for coastal or offshore sailing carry either drogues or sea anchors.

B4.1Full Keel One-design Sailboat



Open Cockpit



Cabin

Description

Full keel one-design sailboats are small to medium size sailing vessels. They are typically designed for a single purpose such as racing or day sailing, but they may be used for different purposes than those for which they were designed. Although they can employ an outboard engine when day sailing, they almost never have inboard engines.

Full keel one-design sailboats have a keel that runs the full length or nearly the full length of the hull. While the forward portion of the keel may be modified or eliminated on some full keel sailboats, the keel always extends aft to the rudder. Full keel is an older hull design. Although it provides good interior volume, this design produces slower sailing speed than other designs, and is not commonly used in new hull construction. Deep and shoal keel versions are uncommon.

Full keel one-design sailboats are typically small enough to be trailer sailers and have a sufficiently small draft that a smaller tender is not needed.

Open Cockpit or Cabin

The primary variable force on leeway drift is the above-water structural windage. The freeboard style and the presence/absence of a cabin structure describes the above-water structural portion. Few of these vessels have canvas shelters or drogue devices onboard.

Above-water Mast

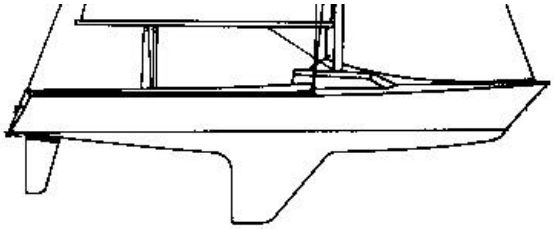
The secondary variable force on leeway drift is the above-water mast portion. The presence/absence of the vessel's mast is the major modifier in windage.

Rescue Equipemnt

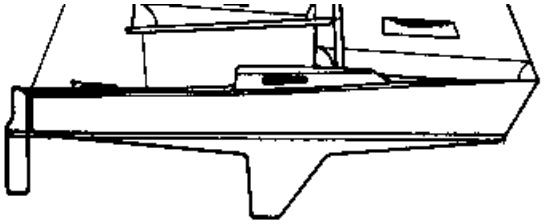
Rescue Equipment That May Become Drift Targets for Section B.4

Rescue equipment found onboard is usually limited to PFD's and throwable flotation devices.

B4.2Fin Keel One-design Sailboat



Open Cockpit



Cabin

Description

Fin keel one-design sailboats are small to medium size sailing vessels. They are typically designed for a single purpose such as racing or day sailing, but they may be used for different purposes than those for which they were designed. Although they can employ an outboard engine when day sailing, they almost never have inboard engines.

Fin keel one-design sailboats have permanent keel skegs that do not extend aft to the rudder. Although different boats will have differently shaped skegs, the drift difference between low aspect and full spade skegs is believed to be minimal, permitting all permanent keel skeg boats to be classified together.

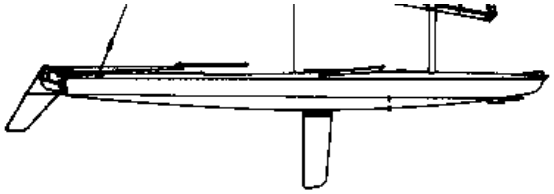
Open Cockpit or Cabin

The primary variable force on leeway drift is the above-water structural windage. The freeboard style and the presence/absence of a cabin structure describes the above-water structural portion. Few of these vessels have canvas shelters or drogue devices onboard.

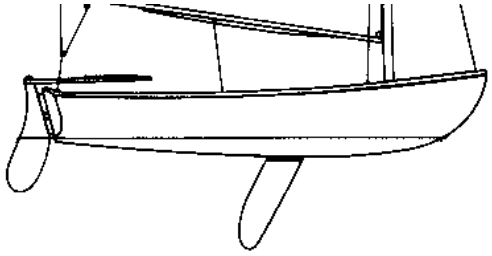
Above Water Mast

The secondary variable force on leeway drift is the above-water mast portion. The presence/absence of the vessel's mast is the major modifier in windage.

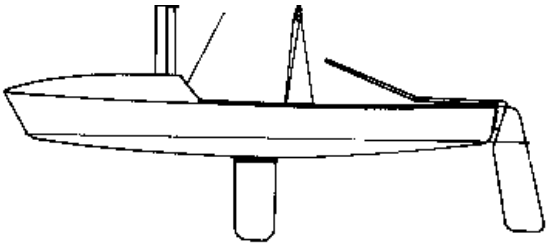
B4.3Dagger/Centerboard One-design Sailboat



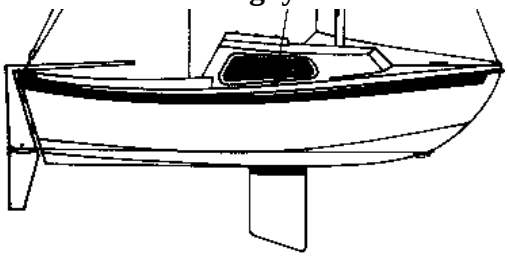
Board Boat



Dinghy



Open Cockpit



Cabin Sailboat

Description Dagger/centerboard one-design sailboats form a class of small to medium size sailing vessels. They are typically designed for a single purpose such as racing or day sailing, but they may be used for different purposes than those for which they were designed. Although they can employ an outboard engine when day sailing, they almost never have inboard engines.

Dagger/centerboard one-design sailboats have a retractable dagger or a centerboard to reduce windward leeway. Although different boats will have differently shaped boards, the drift differences are believed to be minimal, permitting all dagger/centerboard boats to be classified together. It is possible that the board may be stuck in a ‘up’ position, causing the boat to drift as a bare bottom drift object (see section 4.4).

Since the draft of these vessels is sufficiently shallow, deep and shoal keel versions are uncommon.

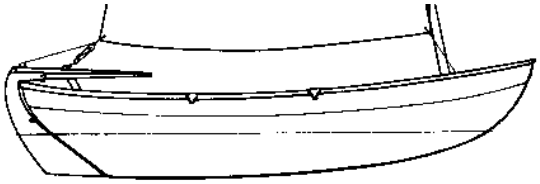
Above Water Structure

The primary variable force on leeway drift is the above-water structural windage. The freeboard style and the presence/absence of a cabin structure describes the above-water structural portion. Few of these vessels have canvas shelters or drogue devices onboard. (Note: Because some of these boats are self-bailing, swamped or capsized drift will be less likely. If the occupants tire or cannot right the boat, capsized drift will occur.)

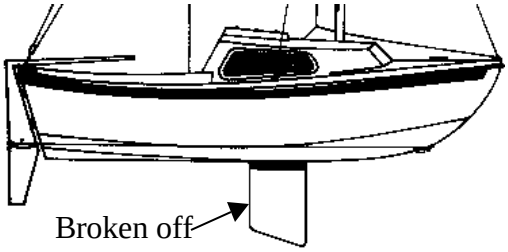
Above Water Mast

The secondary variable force on leeway drift is the above-water mast portion. The presence/absence of the vessel's mast is the major modifier in windage.

B4.4Bare Bottom One-design Sailboat



Open Cockpit



Cabin

Description

Bare Bottom one-design sailboats form a class of small to medium size sailing vessels. They are typically designed for a single purpose such as racing or day sailing, but they may be used for different purposes than those for which they were designed. Although they can employ an outboard engine when day sailing, they almost never have inboard engines.

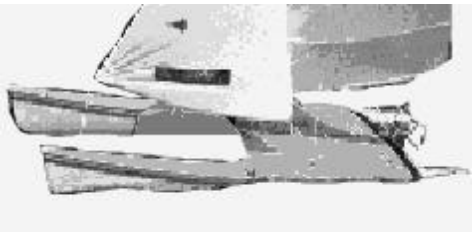
Bare bottom one-design sailboats do not have appendages to the hull that improve windward sailing by reducing leeway. The majority of boats in this class are dinghies and small board boats. Although different boats will have differently shaped hulls, the drift differences are believed to be minimal, permitting all bare bottom boats to be classified together. A dagger/centerboard sailboat that has its board stuck in a ‘up’ position is considered a bare bottom drift object.

Structure

The primary variable force on leeway drift is the above-water structural windage. The freeboard style (board or dinghy) and the presence/absence of a cabin structure describes the above-water structural portion. Few of these vessels have canvas shelters or drogue devices onboard. (Note: Some boats are self-bailing, making swamped or capsized drift less likely. In situations where the boats do capsize, because of their small size, they may usually be righted and may simply remain swamped. Tired or inexperienced occupants may not be able to right a capsized boat and capsized drift will occur.)

The secondary variable force on leeway drift is the above-water mast portion. The presence/absence of the vessel’s mast is the major modifier in windage.

B4.5Sport Catamaran



Sport Catamaran

Description

Sport catamarans are generally less than 25 feet long and do not have any cabin feature. They consist of two hull sections joined above the water by a cockpit or bridge section. Most sport catamarans have trampoline netting that permits the crew to maneuver between hull sections. Most of these boats have canoe hulls, that is, they have neither dagger/centerboard nor keel skeg features.

Because sport catamarans have closed hulls without cabin or hull openings, they cannot be swamped. They can, however, be easily capsized, and pitchpoling is considered a hazard. Although hull shapes vary from manufacturer to manufacturer, the differences are not sufficient to substantially change the drift rate.

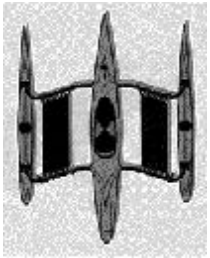
Upright or Capsized

Upright or Capsized

The primary force on leeway drift is whether the boat is upright or capsized.

The secondary force on leeway drift is the above-water windage portion that is dominated by freeboard. The presence/absence of the vessel's mast will modify windage.

B4.6Sport Trimaran



Sport Trimaran

Description

Sport trimarans are generally less than 27 feet long and do not have any cabin feature. They consist of a main hull section in the center and smaller hull sections on the sides. Rigid arms commonly join these three hull sections fore and aft with trampoline netting that permits the crew to maneuver between hull sections. Most of these boats have canoe hulls, that is, they have neither dagger/centerboard nor keel skeg features.

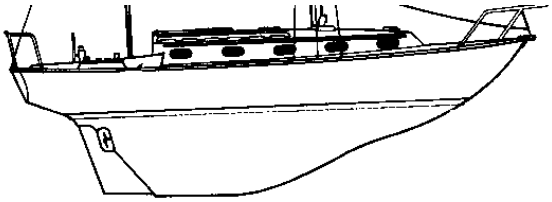
Because sport catamarans have closed boats without cabin or hull openings, they cannot be swamped. They can, however, be easily capsized, and pitchpoling is considered a hazard. Although hull shapes vary from manufacturer to manufacturer, the differences are not sufficient to substantially change the drift rate.

Upright or Capsized

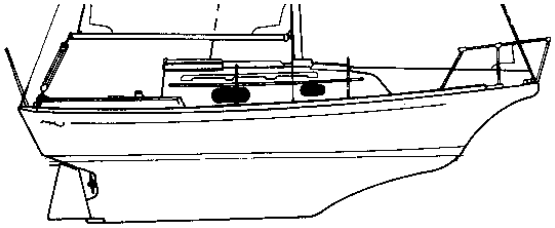
The primary force on leeway drift is whether the boat is upright or capsized.

The secondary force on leeway drift is the above-water windage portion that is dominated by freeboard. The presence/absence of the vessel's mast will modify windage.

B4.7Full Keel Cruising Sailboat



Deep Draft



Shoal Draft

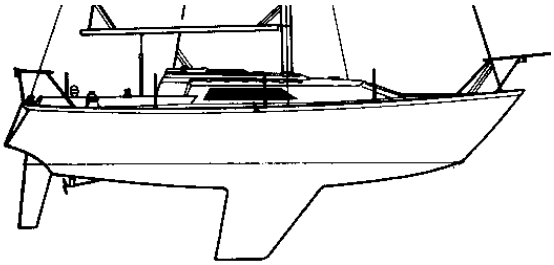
Description Full keel cruising sailboats are medium to large size (greater than 19 feet in length) cabin sailboats. They may have a canvas surround for cockpit protection. The keel runs the full length or nearly the full length of the hull. Some full keel boats have the forward portion of the keel modified or eliminated, but the keel on all of them extends aft to the rudder. The differences between deep draft and shoal draft full keels are primarily due to the shape of the hull section. Rounder bottoms with lighter displacement produce shallower drafts, while sharper hull entries with heavier displacement produce deeper drafts. Full keel is an older hull design. Although it provides good interior volume, this design produces slower sailing speed than other designs, and is not commonly used in new hull construction. Because little underwater leeway drag is added when full keel cruising sailboats are outfitted with an engine, full keel motor sailers are not classified separately in the taxonomy tables.

Leeway The primary force on leeway drift is the underwater drag portion.

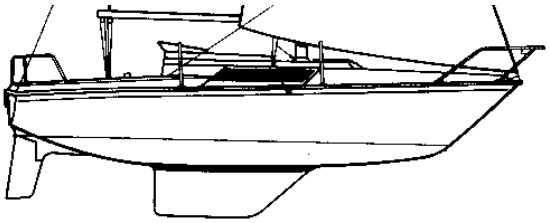
The secondary force on leeway drift is the above-water windage portion. The freeboard style and the presence of a cabin structure dominate the above-water windage portion. The presence/absence of the vessel's mast is the primary modifier of windage. The addition of canvas cockpit covers and the deployment of a drogue/sea anchor also modify windage.

Rescue Equipment That May Rescue equipment found onboard is usually limited to PFD's and throwable flotation devices. Full keel cruising sailboats generally have some form of tender that can be used for transport ashore while anchored. While many of these tenders are small rowboats or sailboats, inflatable boats are also common. The tender may be used as a life boat in an emergency.

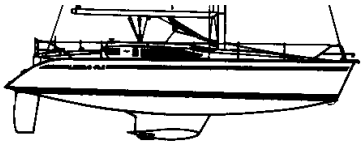
B4.8Fin Keel Cruising Sailboat



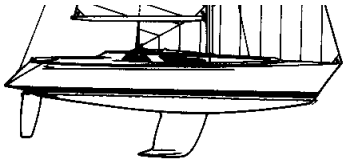
Deep Draft Fin Keel



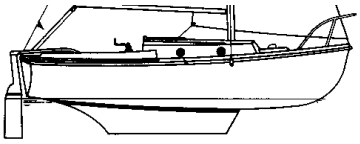
Shoal Draft Fin Keel



Shoal Draft Bulb Keel



Shoal Draft Wing Keel



Shoal Draft
Low Aspect Ratio Keel

Description Fin keel cruising sailboats are medium to large size (greater than 19 feet in length). Racing hulls are narrow, but the majority is a compromise between narrow racing fin hulls and wide full keel internal volume. They almost always have some low cabin superstructure amidships and a helm cockpit aft.

Deep fin keel sailboats are often associated with racing. They have narrow hull cross sections and long deep straight narrow fin keel skegs. Shoal keel sailboats compromise some of the windward sailing advantage of the deep fin keel for a shallower draft and therefore have the ability to sail in more places. The shoal draft keel skeg is modified to increase the weight at the tip. These modifications can be winglets, bulbs, or a longer, low aspect keel shape. All are designed to provide a righting moment equivalent to that of a deep fin keel.

Racing sailers are not outfitted with engines, but racer-cruiser sailboats may have an outboard or inboard engine in the after portion of the hull. When an inboard engine is employed, a skeg fin is added to the underside of the hull to protect the propeller.

Leeway

The primary force on leeway drift is the underwater drag portion.

The secondary force on leeway drift is the above-water windage portion. The freeboard style and the presence of a cabin structure dominate the above-water windage portion. The presence/absence of the vessel's mast is the primary modifier of windage. The presence/absence of engines and the deployment of a drogue/sea anchor also modifies windage.

Rescue Equipment That May Become Drift

Rescue equipment found onboard is usually limited to PFD's and throwable flotation devices. Fin keel cruising sailboats generally have some form of tender that can be used for transport ashore while anchored.

B4.9Water Ballast Trailer Sailboat

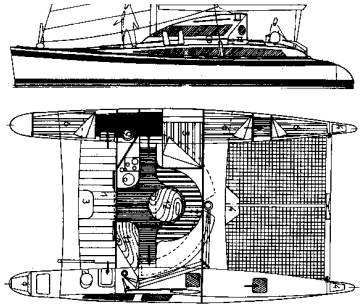
Water Ballast Trailer Sailboat

Description Water Ballast Trailer Sailboats are sailboats that are small and light enough to be moved by a boat trailer behind a car. A water ballast system is used so that the sailboat's weight can be reduced for trailering while maintaining the heavy stability necessay for safe sailing. After launching, the transom valve is opened and a tank in the bottom of the hull is gravity filled with sea water. The valve is then closed, trapping the water. The ballast makes the boat stable and self righting.

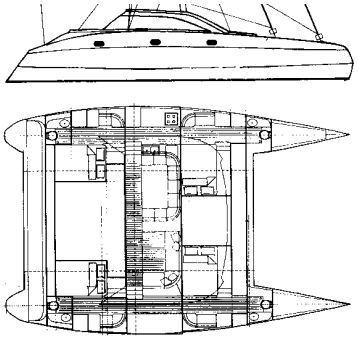
Leeway The primary force on leeway drift is the position (up/down) of the centerboard or the presence of a winged keel.

The secondary force on leeway drift is whether or not the sailbot has been demasted.

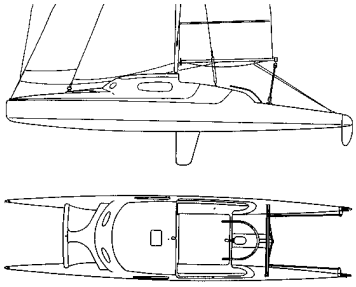
B4.10Cruising Catamaran



Racing Hull



Canoe Hull



Dagger Centerboard

Description

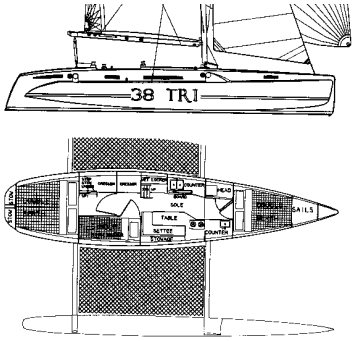
Cruising catamarans are greater than 24 feet long and have some form of berthing or living accommodations. A bridge deck that often provides additional cabin space joins the two hull sections. The widths and full forms vary widely in this class and there are many manufacturers/builders. Because of their size and the possibility of powered propulsion, the hull shape significantly changes the leeway drift. Racing catamarans use narrow hull forms with sharp entry into the water, but cruising catamarans typically compromise speed for wider hull designs and some form of motorized propulsion. The basic hull shapes are canoe hulls without keel skegs, a low-aspect integral skeg keel, and a dagger/centerboard configuration.

Leeway

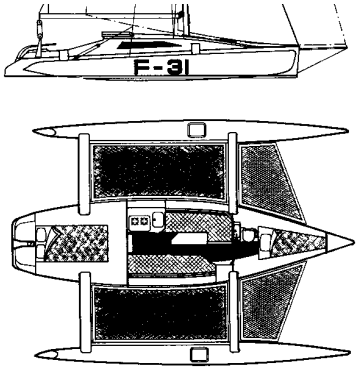
The primary force on leeway drift is the underwater drag portion.

The secondary force on leeway drift is the above-water windage portion. Freeboard and the cabin structure, assumed to be present on these vessels, dominate the above-water windage portion. The presence/absence of the vessel's mast is the primary modifier of windage. The presence/absence of engines and the deployment of a drogue/sea anchor also modify windage.

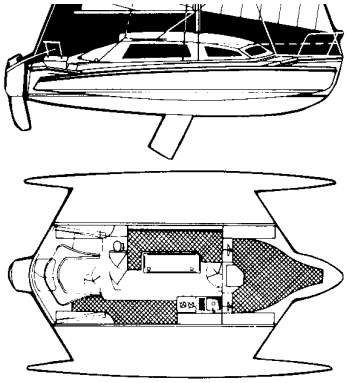
B4.11Cruising Trimaran



Racing Hull



Bare Hull/Skeg Fin



Dagger Centerboard

Description Cruising trimarans are greater than 24 feet long and have some form of berthing or living accommodations. Three hull sections, joined by connecting arms that often support trampoline nets to facilitate crew movement onboard, form the cruising trimarans. Although the widths and hull forms vary widely in this class and there are many manufacturers/builders, the general form is a larger hull section in the middle with matching smaller hull sections abeam. Because of their size and the possibility of powered propulsion, the hull shape significantly changes the leeway drift. Racing trimarans use narrow hull forms with sharp entry into the water, but cruising trimarans typically compromise speed for wider hull designs and some form of motorized propulsion. The basic hull shapes are a low aspect keel skeg and a dagger/centerboard configuration.

Leeway The primary force on leeway drift is the underwater drag portion.

The secondary force on leeway drift is the above-water windage portion. Freeboard and the cabin structure, assumed to be present on these vessels, dominate the above-water windage portion. The presence/absence of the vessel's mast is the primary modifier of windage. The presence/absence of engines and the deployment of a drogue/sea anchor also modify windage.

Rescue Equipment That May Become Drift Targets

Rescue equipment found onboard includes PFD's and throwable flotation devices. Cruising trimarans generally have some form of tender that can be used for transport ashore while anchored.

B5Power Vessels

Overview

Sections B5.1 through B5.9 deal with power vessels. Power vessels include all craft that generally use engines as their primary form of propulsion. These vessels include, but are not limited to, 'mega' yachts, large commercial fishers, most merchant vessels, and cruise ships. (Note: Vessels over 100 feet in length are not included in these subsections because they may have significantly different drift ratios and are assumed to be a source of marine survival craft and not a leeway target themselves. Pontoon boats, house boats, and competition water ski boats are also not included because they are primarily fresh water craft .)

(Note: Any classification system will overlap between the classes. Under these conditions, a decision must be made about the most probable class to use. For example, a 34 convertible could be classified as either a family cruiser or a sport fisher depending on the operator's intended purpose.)

It is assumed that all powered vessels are adrift. Therefore, either the vessel is without fuel or the engine/propeller systems are inoperable and the crew is unable to maneuver the vessel. Most powerboats do not carry drogues or sea anchors; however, these devices cannot be discounted when dealing with larger cruisers or commercial fishing vessels since they are sometimes employed for extended offshore operations.

B5.1 Hovercraft

Hovercraft

Description

Military forces or commercial ferry services use the majority of Hovercraft. Hovercrafts used for personal enjoyment are rare, but as the technology becomes more readily available, these craft may enjoy more popularity. Hovercrafts operate on a cushion of air enclosed in a rubber/fabric skirt. Air pumps or large fans provide the lift and directional control.

Leeway

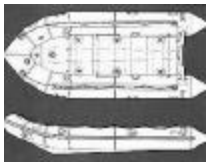
When not active, these craft, regardless of function, rest on the flattened skirt and the above-water portion of the craft is the primary variable force on leeway drift. For craft in distress in the marine environment, the lack of ballast may result in an unstable condition leading to swamping or capsizing. As Hovercraft become more popular, a finer definition of drift variation will be warranted.

Rescue Equipment That May Become Drift

Rescue equipment found onboard is typically limited to personal flotation devices and throwable flotation devices. Commercial transport vessels also carry life rafts.

B5.2Inflatable Boats

V-Hull



Inflatable Keel

Flat Bottom

Description

Powered inflatable boats do not include inflatable boats that are incapable of supporting an engine. These are found under the category 'Person-Powered Craft' (see section B3).

All inflatable boats have inflatable tubes that form the sides of the boat. The tubes meet at the bow, but most do not meet at the stern. The transom is typically a wooden or fiberglass panel capable of supporting an outboard engine. Hulls can be either rigid (typically fiberglass) or flexible (rubber or fabric). Many flexible hulls have plank decking that provides an operator with firm footing and increases the structural strength of the boat. The underwater portion of fabric hulls can either be flat or have an inflatable keel. For most inflatable boats the flat fabric bottom is 2-3 inches higher than the bottom of the tubes. Although this provides a better planing ride, the differences for leeway drift are negligible.

Leeway

The primary variable force on leeway drift is the hull shape or style. The hull styles are V-hull, inflatable keel, and flat bottoms.

For rigid hull inflatable boats, weight distribution differences between inboard and outboard engines significantly effect the leeway drift.

Rescue Equipment That May Become Drift Targets

Rescue equipment found onboard is typically limited to personal flotation devices and throwable flotation devices.

B5.3Skiffs

Flat Bottom Skiff

V-Hull Skiff

Description

Skiffs are open boats less than 20 feet long that use an outboard motor as the primary source of propulsion. Some have characteristics identical to rowed boats with the exception that an outboard motor has been attached to the stern. This group includes but is not limited to, tenders for larger vessels, bass boats, hunting boats, Jon boats, and a large category of utility boats. Skiffs are usually found in lakes and rivers, but are also common in the calm waters of many bays and rivers that provide access to larger bays and eventually, open ocean.

Some skiffs are self-bailing and therefore, a swamped condition may be unlikely. Many skiffs are used for fishing, and an experienced boater may use a bait bucket or tackle box as a form of drogue to stabilize the ride and slow the drift rate when in trouble.

Leeway

The primary variable force on leeway drift is the below-water hull portion. The hull styles are V-hull and flat bottoms.

The secondary forces on leeway drift are the above-water hull and canvas structures. The hull styles are V-hull and flat bottoms. Because skiffs are low boats, the above-water modifier is the presence or absence of canvas tops or shelters.

Rescue Equipment That May Become Drift

Rescue equipment found onboard is typically limited to personal flotation devices and throwable flotation devices.

B5.4Personal Water Craft

Jet Ski

Description

Personal Water Craft (PWC), originally known as jet skis, are one-to-four person water craft in which the operator is seated, as on a motorcycle, or stands. PWC are controlled by motorcycle-style handgrips. The PWC offer positive buoyancy when not in operation and tend to float in an upright position in moderate-to-calm water. Hull designs include race, concave, multi-chine, and full or modified V. Draft is minimal and the above-waterline section varies by model type.

The authors could not locate any references that would indicate that the leeway drift of these craft has been studied. The minor differences in hull shape are insufficient to result in discernible drift rates.

Leeway

Style (seated or standing) has the primary effect on drift rate.

The deadweight (roughly associated with person capacity) has the secondary effect on drift rate.

Rescue Equipment That May Become Drift Targets

Rescue equipment is typically limited to personal flotation devices, which are generally worn. Since PWC operate with safety keys, it is unlikely that the PWC would run away from a spilled operator. It is likely that an operator could remain with his PWC until fatigue overcame him.

B5.5Sport Boats

Bow Rider

Closed Bow

Cuddy Cabin

High Performance

Description The large category of sport boats includes pleasure craft from 15 to 28 feet long with beam widths from roughly 6 to 9 feet. It includes metal, fiberglass, and wood vessels with V, modified-V, or deep-V hull forms. Sport boats can be outfitted with inboard, outboard, or I/O propulsion. This category includes side console (closed bow and bow riders) and cuddy cabin boats. Sport boats may be used for short live aboard excursions but are not outfitted for extended cruising.

Leeway The primary force on leeway drift is the above-water windage portion. Typical modifiers are canvas bow and cockpit covers. Few sport boats will have drogue devices onboard.

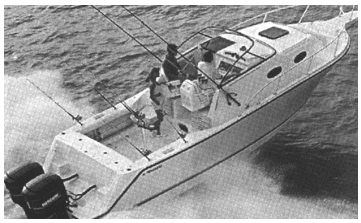
The secondary force on leeway drift is the underwater drag portion. The typical modifier for outboard models is whether or not the engine is left in the water or raised out of the water.

Rescue Equipment That May Become Drift Targets

Rescue equipment found onboard is usually limited to personal flotation devices and throwable flotation devices. General practice does not include wearing the PFD during normal operations and the accessibility of PFDs cannot be guaranteed.

B5.6Sport Fishers

Center Console



Walk Around Cuddy

Convertible

Description

Sport fishers include pleasure and commercial craft from 17 to approximately 100 feet long with beam widths up to 24 feet. The majority are between 30 to 50 feet long with beam widths between 10 and 15 feet. Vessels over 100 feet long are not included in this class. Instead, they are considered sources of leeway targets. This class includes both semi-displacement and planing hull forms that can be outfitted with inboard, outboard, or I/O propulsion. This category includes boats with a simple center console or walk-round cabin. Convertibles are sport fishers with a walk around cabin and a flying bridge. Convertibles designed for offshore fishing may also have a spotting tower. Many convertibles provide extended cruising capabilities similar to sport cruisers, but their after deck design provides a larger open area to work fishing gear. Some of these vessels can also be found in the family cruiser or motor yacht categories.

Leeway

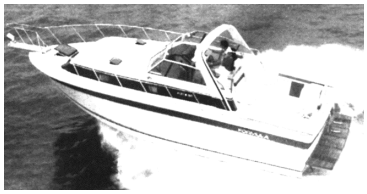
The primary force on leeway drift is the above-water windage portion. Typical modifiers are canvas cockpit covers. Few sport cruisers have drogue devices onboard.

The secondary force on leeway drift is the underwater drag portion. The typical modifier for outboard models is whether the engine is left in the water or raised out of the water.

Rescue Equipment That May Become Drift Targets

Rescue equipment found onboard is usually limited to personal flotation devices and one throwable flotation device. General practice, however, does not include wearing the PFD during normal operations and the accessibility of PFDs cannot be guaranteed. Some sport cruisers are outfitted with a life raft, inflatable, skiff, or a PWC.

B5.7Sport Cruisers



Express Cruiser

Family Cruiser

Dory Cruiser

Motor Yacht

High Performance

Description Sport cruisers include pleasure and commercial craft from 24 to approximately 100 feet long with beam widths up to 18 feet. Vessels over 100 feet long are not included in this class. Instead, they are considered sources of leeway targets. The majority of sport cruisers are constructed of fiberglass and wood; however, some metal cruisers are available. This class includes both displacement and planing hull forms that can be outfitted with inboard, outboard, or I/O propulsion. This category includes boats with and without an extended superstructure. Sport cruisers can support extended live-aboard excursions.

Express cruisers are an open-style design without a fly bridge or a hardtop, while family cruisers have a flybridge or hardtop.

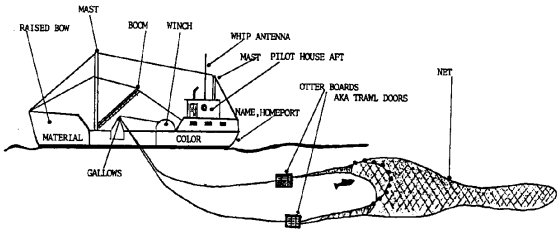
Leeway The primary force on leeway drift is the above-water windage portion. Typical modifiers are canvas cockpit covers. Few sport cruisers have drogue devices onboard.

The secondary force on leeway drift is the underwater drag portion. The typical modifier in outboard models is whether the engine is left in the water or raised out of the water.

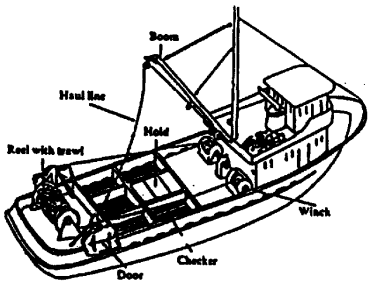
Rescue Equipment That May Become Drift Targets

Rescue equipment found onboard is usually limited to personal flotation devices and one throwable flotation device. General practice, however, does not include wearing the PFD during normal operations and the accessibility of PFDs cannot be guaranteed. Some sport cruisers are outfitted with a life raft, inflatable, skiff, or a PWC.

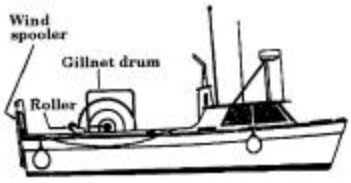
B5.8Commercial Fishers



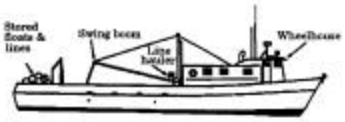
Side Trawler



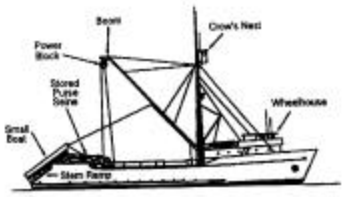
Stern Trawler



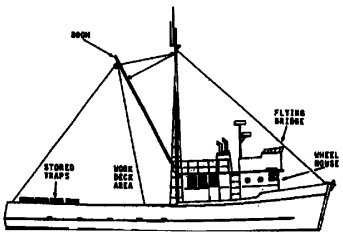
Gillnetter



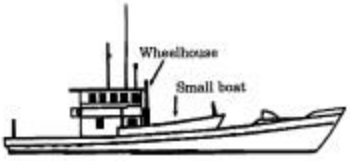
Longliner



Purse Seiner

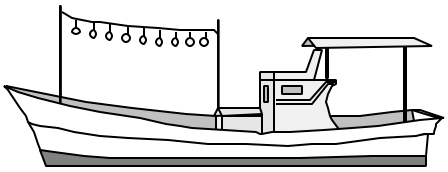


Trap Boat

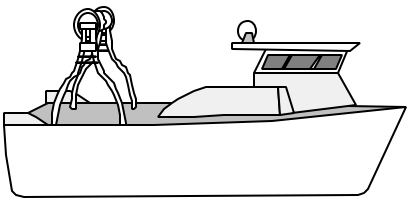


Sampan

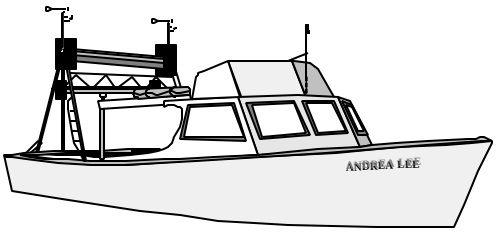
Lobster Boat



12.5-m Korean Fishing



Fishing Vessel with rear-reel for net fishing



F/V with rear-reel for

Description

Commercial fishing vessels include vessels from 45 to 100 feet long designed for fishing or shell fishing in coastal and ocean waters. Vessels over 100 feet long are not included in this class. Instead, they are considered sources of leeway targets. Commercial fishers include side and stern trawling rigs, long liners, bottom dragging rigs, and purse seiners. Pole fishers are simply a modified use of sport fishers or sport cruisers, and leeway information is found in those categories. Commercial fishers can be working alone, as paired vessels, or as the mother ship to a group of smaller fishing skiffs. These vessels have different design features based on their purpose, but all have some form of deck house and an open area from which nets and lines are worked.

A deck winch and boom system is commonly used to handle nets or lines.

Many of these vessels, particularly those of U.S. Asian and European registry, have substantial electronics capabilities that may include radar, LORAN/GPS, and radios. While these capabilities do not affect leeway drift, they can be used to provide position information in an emergency.

These are displacement vessels whose hulls are designed for carrying their target fishing species and little variation occurs within a category.

Leeway

The primary variable on the leeway drift ratio is described by the design of the above-water structural design. Many mid-size commercial fishers will have drogue devices onboard.

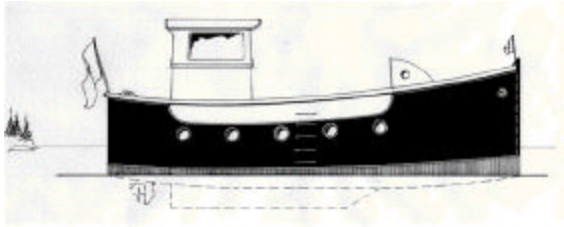
The secondary force on leeway drift is the above-water structural rig placement that varies with this class.

Rescue Equipment That May Become Drift Targets

Rescue equipment found onboard will include personal flotation devices and throwable flotation devices. The general practice does not include wearing the PFD during normal operations and the accessibility of PFDs cannot be guaranteed. Many commercial fishers carry 4-6-person life raft(s). Many also carry a sea anchor to permit them to remain on the fishing grounds and to rest during heavy weather.

B5.9Coastal Freighters

Coastal Freighter with Mid Deckhouse



Coastal Freighter with Aft Deckhouse

Description

Coastal Freighters include a wide range of commercial shipping platforms up to 100 feet in length. Vessels over 100 feet long are not included in this class. Instead, they are considered sources of leeway targets. Coastal Freighters transfer cargo from one port to another. Shipping agents can provide estimated voyage schedules. Coastal freighters include vessels with a deckhouse on the forecastle (as with Great Lakes vessels), amidships, and most commonly, aft.

Leeway

The primary force on leeway drift is the location of the deckhouse.

The secondary force on leeway drift is the relative loading with cargo.

Rescue Equipment That May Become Drift Targets

For vessels involved in onboard will include personal flotation devices, throwable flotation devices, and depending on length, 4-6 or 8-10-person life raft(s). General practice does not include wearing PFDs during normal operations and the accessibility of PFDs cannot be guaranteed.

B6Boating Debris

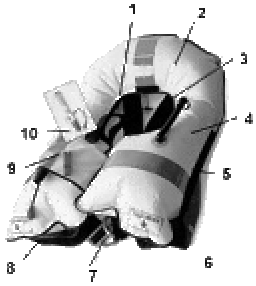
Overview

Boating debris is any debris that can be expected from a boat that is sinking and/or breaking up. It may include paper, plastic containers, bedding, clothing, and a variety of fragmented boat sections.

Survivors of a sinking or breaking up boat can be expected to attempt to remain with floating debris or to use it for flotation. One or more survivors can use large floating objects such as bait or wharf boxes as “survival craft”.

B7Aviation PIW

Type V Anti-exposure Suit



Type V Inflatable Vest

Type IV Seat Cushion

Description

Aviation PIW involves person in the water targets generated from any aviation source. It includes persons without any flotation, with a seat cushion, and with a PFD. Due to space and weight requirements, most of the personnel flotation devices are inflatable suspenders, hybrid type V PFDs with flotation equivalent to a Type I (offshore) PFD (see Table B-2). In the event that a passenger airliner evacuates in the water, most passengers will be limited to seat cushion flotation. Conscious PIWs with a seat cushion float in the seated position similar to PIW with a Type II PFD. These taxonomy categories reflect the orientation of the PIW, and therefore the surface area affected by wind and water

Leeway

The primary drift class characteristic is position. Position may be:

vertical,
sitting, or
horizontal.

The vertical position generally requires dynamic maintenance by a conscious and active PIW. The PIW will either be slightly inclined backwards or forwards. A forward inclined PIW is actively swimming towards a goal. A backward inclined PIW is maintaining orientation to the waves.

The sitting position is the classic fetal position with legs drawn up and arms huddled across the PFD. This is the preferred position a person assumes in cold water. The natural orientation of a sitting PIW is to face away from the oncoming waves.

The horizontal position requires floatation around the legs for a survivor. Victims floating face down will be in a nearly horizontal position with arms and legs dangling from the PFD.

PIW may be in any of three states:
conscious,
unconscious, or
victims.

Conscious PIW's play an active role in maintaining their position relative to the water surface and wave/wind direction.

Unconscious PIW's are passive, usually from hypothermia, and "frozen" into a position. They cannot hang onto a throwable device.

Victims are deceased PIW's.

There are three basic styles or designs of PFDs in use for civilian aircraft:
Seat cushions are used as PFD for aircraft passengers.
Aviation passenger life vest are similar to Type hybrid V PFDs which include the inflatable vests and suspenders style of PFDs.
Some pilots may wear anti-exposure suits .

B8Aviation Survival Craft

Aviation Life Raft

Aviation Slide Raft

Description

Aviation survival craft are limited to life rafts. Aviation life rafts fall into two groups, life rafts and slide rafts. Aviation life rafts are similar to marine life rafts, but are usually made from lighter materials. In some cases, manufacturers use the same rafts and only package them differently. Slide rafts are specifically designed devices intended to ease evacuation from an aircraft. They mount to door frames or near wing emergency exits and are cut loose from the airframe once fully loaded. On commercial flights, life rafts and slide rafts must meet prescribed Federal Aviation Administration technical standards.

Leeway

The primary drift class characteristic is ballast. Ballast may be:

no ballast,
shallow pocket ballast,
deep ballast,
swamped, or
capsized.

Shallow pocket ballast systems consist of a series of fabric pockets generally 4 inches in diameter and less than 6 inches in depth. Deep pocket systems consist of large fabric bags, from 3 to 7 on the raft, that are 1+ feet wide by 2+ feet long by 2+ feet deep. Torroidal systems consist of a ring of deep pockets, sometimes connected to form a doughnut around the outside of the raft.

Drogue Modifiers

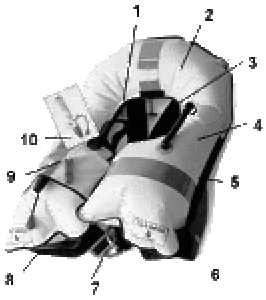
Most manufacturers supply automatically deploying drogues, also called sea anchors, with new life raft purchases.

B9Aviation Debris

Description Aviation debris is any debris from an aircraft making water landing, whether it breaks up on impact or sinks after the water landing. It includes paper articles, textiles and insulation, seats, luggage, life vests, slide ramps or slide rafts, and fragmented plane sections. Many sections of an aircraft are made with a honeycomb core structure because it provides strength at a lower weight than solid construction. The fragmented plane sections are those made of this honeycomb construction which includes cabin paneling, doors, galley stowage, access panels and wing leading edge, flaps, and ailerons.

B10Combat SAR Aviation PIW

Type V Anti-exposure Suit



Type V Inflatable Vest

Survival suit

Description

Although safety standards may vary slightly from service to service, it is reasonable to assume that aircraft personnel will be wearing a hybrid Type V PFD onboard helicopters and small airplanes. These PFDs can be a flight vest or working harness, but the flotation device is worn. Flotation devices are readily available onboard larger aircraft, but are not donned until needed.

All aviation PFDs rely on inflatable air bladders for buoyancy. In the event that the bladders rupture, service training includes the practice of using the uniform for additional flotation.

Leeway

The primary drift class characteristic is position. Position may be:

vertical,
sitting, or
horizontal.

The vertical position generally requires dynamic maintenance by a conscious and active PIW. The PIW will either be slightly inclined backwards or forwards. A forward inclined PIW is actively swimming towards a goal. A backward inclined PIW is maintaining orientation to the waves.

The sitting position is the classic fetal position with legs drawn up and arms huddled across the PFD. This is the preferred position a person assumes in cold water. The natural orientation of a sitting PIW is to face away from the oncoming waves.

The horizontal position requires floatation around the legs for a survivor. Victims floating face down will be in a nearly horizontal position with arms and legs dangling from the PFD.
State of PIW

PIW may be in any of three states:
conscious,
unconscious, or
victims.

Conscious PIW's play an active role in maintaining their position relative to the water surface and wave/wind direction.

Unconscious PIW's are passive, usually from hypothermia, and "frozen" into a position. They cannot hang onto a throwable device.

Victims are deceased PIW's.

PFD Style

There are three basic styles or designs of PFDs carried onboard military aircraft. Brief descriptions and examples of the three styles are listed below.
Anti-exposure suits are worn by military aircrews and rescue swimmers. Anti-exposure suits include wet suits and dry suits. Rescue swimmers will also be equipped with a one-person life raft.
Military aircrew PFD are high floatation variations of the Type hybrid V PFDs which include the inflatable vests and suspenders style of PFDs.
Survival suits, also called immersions suits, are carried on board some military aircraft. Conscious and unconscious PIW in survival suits float horizontally on their backs with their heads into the waves.

B11Combat SAR Aviation Survival Craft

Aviation Life Raft

Description

Combat SAR Aviation survival craft are limited to life rafts. The majority of combat SAR aviation life rafts are similar to those found in general aviation. The major differences are in the gear carried aboard the raft. The gear onboard will be specific to each service's requirements and function.

Leeway

The primary drift class characteristic is ballast. Ballast may be:

no ballast,
shallow pocket ballast,
deep ballast,
swamped, or
capsized.

Shallow pocket ballast systems consist of a series of fabric pockets generally 4 inches in diameter and less than 6 inches in depth. Deep pocket systems consist of large fabric bags, from 3 to 7 on the raft, that are 1+ feet wide by 2+ feet long by 2+ feet deep. Torroidal systems consist of a ring of deep pockets, sometimes connected to form a doughnut around the outside of the raft.

Drogue Modifiers

Most manufacturers supply automatically deploying drogues, also called sea anchors, with new life raft purchases.

B12Combat SAR Aviation Debris

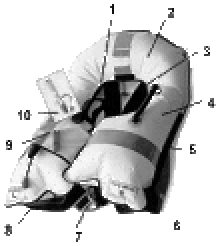
Description Aviation debris is any debris from an aircraft making water landing, whether it breaks up on impact or sinks after the water landing. It includes paper articles, textiles and insulation, seats, luggage, live vests, slide ramps or slide rafts, and fragmented plane sections. Many sections of an aircraft are made with a honeycomb core structure because it provides strength at a lower weight than solid construction. The fragmented plane sections are those made of this honeycomb construction and include cabin paneling, doors, galley stowage, access panels and wing leading edge, flaps, and ailerons. The amount and probability of finding aviation debris in a combat aircraft water landing is lower than that expected from a logistics flight because of the size and different materials used for harsher flight conditions expected of combat missions.

B13Combat SAR Maritime PIW

Type V Anti-exposure Suit

Work Vest

Type III Float Coat



Type V Inflatable Vest

Survival Suit

Type I Non-reversible Offshore Vest

Type IV Seat Cushion

Type IV Life Ring

Description Crews can be expected to wear personal flotation devices onboard many of the smaller military vessels (up to 80 feet long). These PFDs are usually working vests. Working vests are used for work details onboard larger vessels, but will be replaced by Type I (offshore) flotation devices in the event of a sinking or scheduled special operations such as general quarters, underway replenishment, flight operations and practice drills.

Leeway

The primary drift class characteristic is position. Position may be:
vertical,
sitting, or
horizontal.

The vertical position generally requires dynamic maintenance by a conscious and active PIW. The PIW will either be slightly inclined backwards or forwards. A forward inclined PIW is actively swimming towards a goal. A backward inclined PIW is maintaining orientation to the waves.

The sitting position is the classic fetal position with legs drawn up and arms huddled across the PFD. This is the preferred position a person assumes in cold water. The natural orientation of a sitting PIW is to face away from the oncoming waves.

The horizontal position requires floatation around the legs for a survivor. Victims floating face down will be in a nearly horizontal position with arms and legs dangling from the PFD.

State of PIW

PIW may be in any of three states:
conscious,
unconscious, or
victims.

Conscious PIW's play an active role in maintaining their position relative to the water surface and wave/wind direction.

Unconscious PIW's are passive, usually from hypothermia, and "frozen" into a position. They cannot hang onto a throwable device.

Victims are deceased PIW's.

PFD Style

There are eight basic styles or designs of PFDs carried onboard military vessels

Anti-exposure suits may be worn by military vessel crews. Anti-exposure suits also include wet suits and dry suits.

Work vests,

And float coats may also be worn.

Where solid filled PFDs would be to restrictive to personnel aboard military surface vessels during operations, high floatation variations of the Type hybrid V PFDs which include the inflatable vests style PFDs may be used.

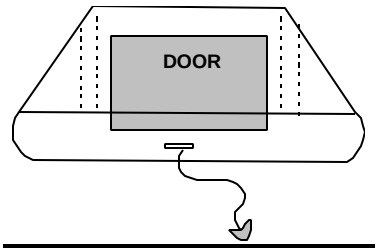
Survival suits, also called immersions suits, are carried on board some military vessels. Conscious and unconscious PIW in survival suits float horizontally on their backs with their heads into the waves.

The military has a specific version of the offshore lifejacket for its use.

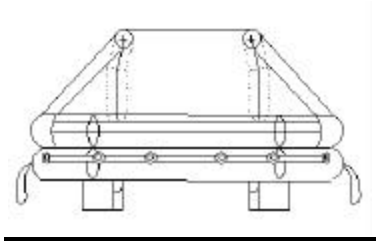
Type IV PFDs are throwable devices that include life-rings and seat cushions.

Military personnel are trained to use their pants as auxiliary floatation by knotting the ends of the pant legs and swinging the pants overhead capturing air inside the pants. The use of the uniform as floatation places the PIW in the vertical position.

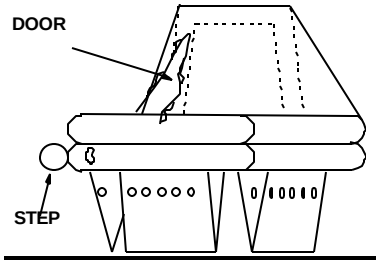
B14Combat SAR Maritime Survival Craft



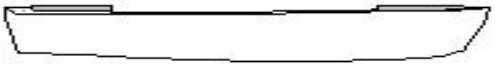
No Ballast Life Raft



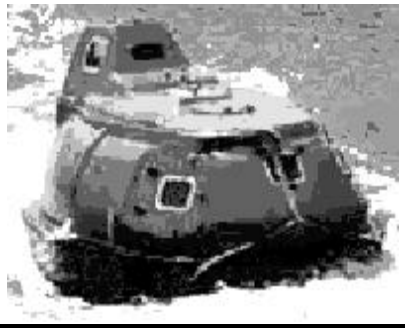
Shallow Pocket Ballast



Deep Pocket Ballast



Life Boat



Life Capsule

Description Combat SAR maritime survival craft are similar to those found in general marine use. The major differences are in the gear carried aboard the survival craft. The gear onboard will be specific to each service's requirements and function.

Life capsules are fully enclosed craft commonly used on large vessels. Motor lifeboats are open boats from 15 to 25 feet in length with an inboard engine. Many military vessels will carry one motor lifeboat and one rigid hull inflatable. Caution must be used applying leeway drift equations for these targets since they are often able to move some distance before running out of gas or before people become tired from paddling the boat.

Leeway

The primary drift class characteristic is ballast. Ballast may be:

- no ballast,
- shallow pocket ballast,
- deep ballast,
- swamped, or
- capsized.

Shallow pocket ballast systems consist of a series of fabric pockets generally 4 inches in diameter and less than 6 inches in depth. Deep pocket systems consist of large fabric bags, from 3 to 7 on the raft, that are 1+ feet wide by 2+ feet long by 2+ feet deep. Torroidal systems consist of a ring of deep pockets, sometimes connected to form a doughnut around the outside of the raft. The Givens pocket is a single deep pocket that is larger than the raft itself.

Drogue Modifiers

Most manufacturers supply automatically deploying drogues, also called sea anchors, with new life raft purchases.

B15Combat SAR Maritime Power Vessels

Description

This category is left undefined. The author believes the military services should be allowed to determine which of their small vessels or boats do not fit a commercial category and should be included as an entry in this section. This may include small boats, amphibious vehicles, and submersibles.

B16Combat SAR Maritime Debris

Description Boating debris is any debris that can be expected from a boat sinking and/or breaking up. It can include paper, plastic containers, bedding, clothing, and a variety of fragmented boat hull sections. Survivors of a sinking or breaking up boat can be expected to attempt to remain with floating debris or to use it for flotation.

B17 Law Enforcement drift objects

Introduction

Law Enforcement Drift Objects are described in three subsections:

- Drug Flotsam
- Drug Vessels
- Immigration Vessels

B17.1 Drug Flotsam

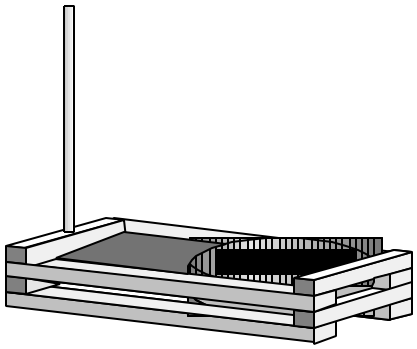
Description Drug flotsam refers to miscellaneous drug related items the Coast Guard has found drifting at sea. The interest in leeway drift of these objects relates to possible attempts to identify where they may have come from. These targets include bales of contraband, plastic bags filled or protecting contents, and other small containers often found.

B17.2 Drug Vessels

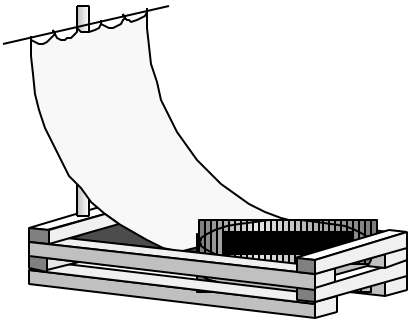
Description

Drug vessels refers to particular types of vessels typically employed in the business of transporting illegal substances to U.S. ports. The districts along the southern U.S. coast and Caribbean territories are most likely to encounter these leeway targets. Operations centers in these areas are best suited to identifying particular types of these leeway targets. Determining leeway drift for these may be coupled with similar efforts for other leeway target types and may result in similar if not the same leeway information.

B17.3 Immigration Vessels



Cuban Refugee Raft without



Cuban Refugee Raft with sail

Description Immigration vessels refer to particular types of vessels typically employed in the business of illegally transporting alien persons to U.S. ports. They range from small coastal vessels to sailing vessels, homemade rafts, and inner tubes. The districts along the southern U.S. coast and Caribbean territories are most likely to encounter these leeway targets. Operations centers in these areas are best suited to identifying particular types of these leeway targets. Determining leeway drift for these may be coupled with similar efforts for other leeway target types and may result in similar if not the same leeway information.

B18Marine safety drift objects

Description Marine Safety Drift Objects are described in two subsections:

1. Surface Slicks
2. Hazards to Navigation

B18.1 Surface Slicks

Description Surface slicks include man-made as well as naturally occurring slicks that may pose danger to the marine environment. Slicks include oil spills and discharges, sewage slicks and waste, and medical waste. The drift of some surface slicks has already been studied and the Coast Guard may identify the resulting models and choose those that best apply and are available for use. Report of the Workshop (1995) provides an overview of the present state of modeling oil spills.

B18.2 Hazards to Navigation

Description Hazards to navigation include man made as well as naturally occurring objects that may pose danger to the marine environment or boats and vessels at sea. These include icebergs, ice growlers, dead whales, trees or logs, a lost cargo container, and so forth. Marko, Fissel and Miller (1988) present a summary of iceberg models used in applications off the eastern coast of Canada. Their report includes an extensive list of references.

B22Military Drift Objects

Description Military drift objects refers to non-SAR objects that may be lost as part of military exercises. They fall into two major groups of (ordinance or non-ordinance) based the expected importance of recovering. Ordinance may include mines that have broken free of their tethers or post exercise torpedoes or missiles. Non-SAR may include target balloons and other non-ordinance items. These classes should be developed based on the needs of the services that operate over the water.