

VeriChart DGPS Coverage Chart Generator

VERIPOS

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1. INTRODUCTION

VERIPOS VeriChart for Windows is a DGPS coverage chart report generator.

VeriChart produces high quality reports for the VERIPOS network of DGPS reference stations.

1.1 SOFTWARE VERSION

The information in this manual pertains to VeriChart version 1.6X (versions 1.60 through 1.69).

1.2 DISCLAIMER

Under no circumstances shall VERIPOS be liable for incidental or consequential damages or related expenses resulting from the use of the VeriChart software application, or arising from the information contained in this manual. The user must account for any consequences resulting from malfunction of the software.

The information in this manual is believed to be accurate at time of writing. However, as part of VERIPOS' commitment to continually improve its products, services and specifications, VERIPOS reserves the right to make changes at any time without notice.

VeriChart comes with no warranty and no support.

2. INSTALLATION

2.1 BACKGROUND

VeriChart requires third party software components to operate successfully. These are

1. The Generic Mapping Tools (GMT)
2. The netCDF library for Windows (required by GMT)
3. GNU Ghostscript

GMT is a collection of tools that allow users to manipulate geographical oriented data sets and produce PostScript® illustrations. GMT supports 25 common map projections and comes with support data such as coastlines, rivers, and political boundaries.

NetCDF (network Common Data Form) is an interface for array-oriented data access and a library that provides an implementation of the interface.

GNU Ghostscript is an interpreter for the Adobe® PostScript® language enabling Postscript® documents to be converted to many different formats.

Section 4.1 provides additional information regarding the relationship between VeriChart and GMT / Ghostscript.

Further information on third party components can be obtained via the links given in Section 5.

Distributions of GMT, the netCDF library and GNU Ghostscript are included on the VeriChart installation.

2.2 MINIMUM COMPUTER SYSTEM REQUIREMENTS

<i>Operating system</i>	Windows 95 OSR 2.5 Windows NT 4.0 + Service Pack 6 Windows 2000 + Service Pack 2 Windows XP Windows 7
<i>Free disk space</i>	200 Mb

2.3 SOFTWARE VERSION

VeriChart has been tested with the software components listed in Section 2.1 at the versions given below.

<i>Component</i>	<i>Version</i>
GMT	3.4.2
GNU Ghostscript	7.05
NetCDF library	3.4.0

Operation of VeriChart with software components at versions other than these has not been tested and cannot be guaranteed.

2.4 LICENSING

Each software component is distributed and installed under the terms of its own license agreement. The user must consent to the terms of the license prior to installation of the software component.

2.5 LIABILITY

VERIPOS disclaims any responsibility for or liability related to any of the software components listed in Section 2.1.

2.6 SOFTWARE INSTALLATION

2.6.1 Installation from CD

A bundled distribution of VeriChart incorporating third party components is included on the VeriChart CD as a self-installing setup file *VeriChart_setup_XXX.exe* where XXX is the version number of the application.

To install VeriChart simply run *VeriChart_setup_XXX.exe* and follow the on-screen instructions.

2.7 POST INSTALLATION PROCEDURES

Once the installation process is complete VeriChart needs to be configured before it can be used to produce reports. Post-installation configuration covers set-up of system paths and (optionally) user paths.

2.7.1 Starting VeriChart for the first time

A shortcut to VeriChart is set up as part of the installation process in the Start Menu under *Programs* → *VERIPOS*.

Select the shortcut to start VeriChart.

2.7.2 Configure system paths

Configuration of system paths is mandatory. The installation process provides a default system path configuration and this should not require alteration. Refer to section 4.5.1 for details.

2.7.3 Configure user paths

Configuration of user paths is optional and may be omitted. The installation process provides a default user path configuration. Refer to Section 4.5.2 for details.

2.7.4 Produce a sample coverage chart

When system and user paths are configured VeriChart is ready for use and can be tested by generating a report from one of the sample configurations provided. A step by step guide to producing a sample coverage chart is given in Section 3.1.

2.8 REMOVING SOFTWARE COMPONENTS

The VeriChart application and associated components can be uninstalled using the standard Windows Control Panel *Add/Remove Programs* mechanism.

3. CREATING COVERAGE CHARTS

3.1 GETTING STARTED

The easiest way to become familiar with producing VeriChart coverage chart reports is to use the sample configurations supplied with VeriChart. These configurations produce coverage charts of the main VERIPOS operating regions (Table 3-1).

Table 3-1 Sample VeriChart Configuration Files

<i>Configuration file</i>	<i>Coverage chart</i>
NWECS.vcc	North Sea and Eastern Atlantic
Africa.vcc	West & South West Africa
Canada.vcc	Nova Scotia & Newfoundland
Caspian.vcc	Caspian Sea
South America.vcc	Brazil & Venezuela
North America.vcc	Gulf of Mexico

The sample configuration files are located in the *Config* directory of the VeriChart installation.

Note

The sample configurations produce Adobe® Portable Document Format (PDF) format report files.

3.1.1 Load a sample configuration

To load, for example, the sample Caspian Sea configuration (Caspian.vcc) into VeriChart

1. From the menu, select *File - Open*.
2. Select the Caspian.vcc file using the File Open Dialog.

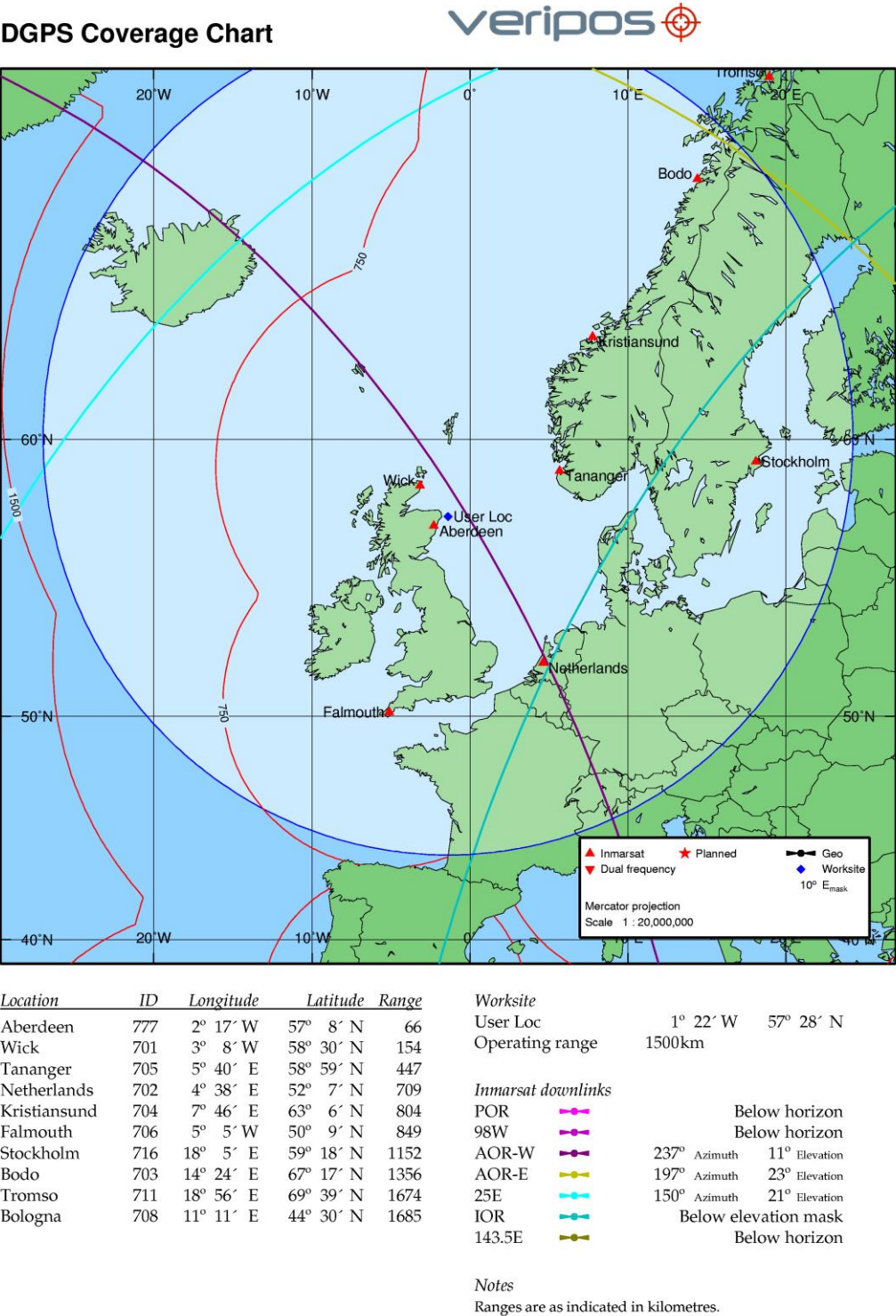
3.1.2 Generate the coverage chart report

To produce a report from the Caspian configuration loaded in 3.1.1

1. From the menu, select *Tools - Generate report*.
2. Wait for the report to be produced (the mouse cursor changes to an hourglass until the report is complete).
3. If the *View report* option [4.2.3.1] is selected then the report will be automatically displayed in a PDF document viewer.

Report files are by default written to the *Reports* directory of the VeriChart installation. The report produced should be similar to that shown in Figure 3-1.

Figure 3-1 North Sea Coverage Chart Report



3.2 SETTING PROJECTION DETAILS

The bounding region of a coverage chart map (the region of the globe displayed on the chart) is controlled by the selection of map projection and scale.

VeriChart supports several map projections (Table 3-2). **Table**

3-2 VeriChart map projections

<i>Projection</i>	<i>Type</i>
Mercator	Cylindrical
Miller	Cylindrical
Lambert conformal conic	Conic
Azimuthal equidistant	Azimuthal
Stereographic	Azimuthal

Projections are selected from the *Projection* pull-down list box. The map scale is selected from the *Scale* pull-down list box.

The central meridian (Longitude) and parallel (Latitude) together with the projection and scale define the region displayed in the coverage chart.

If a Lambert projection is selected then entry of two standard parallels is also required. The standard parallels are usually chosen at 1/6 and 5/6 of the latitude range of the map.

Choosing a projection is mostly a matter of personal preference. Some projections look better than others do at certain scales and global regions. As a general rule large-scale maps of equatorial & mid-latitude regions appear better using a cylindrical projection, regions closer to the poles a conic or azimuthal projection.

3.3 ADDING RANGE CONTOURS

A DGPS range contour is added to the coverage chart by entering a range value in one of the four *Contours* controls.

Entering a value of zero disables display of the contour.

Up to four contours can be displayed on the coverage chart.

3.4 ADDING A WORKSITE

To add a worksite location to the coverage chart select the *Display worksite* checkbox and supply a name and location (in degrees) for the worksite in the *Name* and *Location* edit controls.

A ring of constant range can be displayed centred on the worksite by selecting the *Range ring* checkbox and entering a value for the ring radius.

If a range ring has been selected and the *Spotlight* checkbox is also selected then the area within the range ring will be highlighted on the chart.

3.5 DISPLAYING SATELLITE FOOTPRINTS

The circles of visibility of the VERIPOS-I service downlink satellites are displayed on the coverage chart if the *Inmarsat footprints* checkbox is selected.

All points within each circle have an elevation angle to the respective satellite greater than or equal to the *Emask* setting.

3.6 DGPS STATION SELECTION

The inclusion of DGPS reference stations in a coverage chart report depends on the bounding region of the chart [3.2] and the station selection options.

VeriChart has three main reference station categories which can be included in the report in any combination.

- | | |
|---------------------|--|
| • Inmarsat stations | Stations forming the VERIPOS-I network |
| • HF stations | Stations forming the VERIPOS-HF network |
| • Planned stations | Locations under consideration for future network expansion |

Reference stations are included in the coverage chart by selecting the *Inmarsat*, *HF* or *Planned* Station options checkboxes.

3.7 CONTROLLING COVERAGE CHART APPEARANCE

The appearance of the coverage chart can be modified by these configuration options.

1. *Grid interval*
Sets the latitude and longitude gridline intervals.
2. *Station labels*
Stations displayed on the coverage map can be labelled by their location, RTCM ID or have no label.
3. *Label border*
This option places a border around each station label, which improves clarity in some situations.
4. *List order*
The reference station list [4.4.4] can be sorted by RTCM ID, station location (name) or by the range to the worksite (if selected).

3.8 PRODUCING A GLOBAL COVERAGE CHART

The global coverage chart option produces a report where the bounding region of the coverage chart map is global.

The report contains no station list [4.4.4] or worksite information [4.4.5]. To create a global report select the *Global coverage chart* checkbox.

The projection parameters for a global report are fixed other than the choice of a central meridian.

All other chart options are available for selection.

3.9 CONFIGURING THE OUTPUT FORMAT

VeriChart supports a number of document formats

- Adobe® PostScript® (PS)
- Adobe® Portable Document Format (PDF)
- JPEG file format (JPG)
- Portable Network Graphics (PNG)
- Tagged Image File Format (TIF)
- Windows bitmap (BMP)

The document format is selected by from the *Format* pull-down list box.

The resolution of the report file in dots per inch (dpi) is set by the value in the *Resolution* control. Resolutions up to 600 dpi are supported.

If JPEG output is selected then a JPEG Quality factor can be entered in the *Quality* control. A JPEG quality factor of 100 produces the best quality output (but with the least compression).

Finally the orientation of the document (portrait or landscape) is selected using the *Orientation* radio buttons.

Note that the native format of coverage chart documents is PostScript® and that the content is mostly vector data. Either PostScript® or Adobe® PDF is the most suitable format for the output document.

The BMP or TIFF raster formats are uncompressed and so the size of the document may be very large, up to 25Mb using a high resolution.

The PNG and JPEG raster formats use compression and will produce a reasonably sized document even at high resolution The PNG format provides better image quality but its use is not widespread.

Links to some downloadable document viewers are given in Section 5.3.

4. REFERENCE GUIDE

4.1 VERICHART DATA PROCESSING

This section describes the process of generating a coverage chart report and the relationship between VeriChart and third party software components.

VeriChart compiles a coverage chart from three data sources

1. A user configuration file (vcc document)
2. A station configuration file
3. DGPS range contour files

Information contained in the user configuration file controls the layout and content of the report. The station configuration file holds information on the VERIPOS DGPS network and the range contour files are the source of range contours in the coverage chart itself.

When a report is generated VeriChart produces a script of GMT commands, which is then executed to produce an intermediate report in Adobe® PostScript® format.

If the requested output format is something other than PostScript® then the intermediate report is processed by the GNU Ghostscript interpreter to produce a final report in the desired format.

4.2 MENU COMMANDS

This section describes the commands available using the VeriChart menu. Some commands can also be accessed using the toolbar or keyboard shortcuts.

4.2.1 File menu

4.2.1.1 New

<i>Toolbar button</i>		<i>Shortcut key</i>	Ctrl+N
-----------------------	---	---------------------	--------

Create a new VeriChart configuration.

4.2.1.2 Open...

<i>Toolbar button</i>		<i>Shortcut key</i>	Ctrl+O
-----------------------	---	---------------------	--------

Open an existing VeriChart configuration.

4.2.1.3 Save

<i>Toolbar button</i>		<i>Shortcut key</i>	Ctrl+S
-----------------------	---	---------------------	--------

Save the current VeriChart configuration.

4.2.1.4 Save As...

<i>Toolbar button</i>	None	<i>Shortcut key</i>	None
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Save the current VeriChart configuration under a different filename.

4.2.1.5 Exit

<i>Toolbar button</i>	None	<i>Shortcut key</i>	Alt+F4
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Quit VeriChart.

4.2.2 Tools menu

4.2.2.1 Generate report

<i>Toolbar button</i>		<i>Shortcut key</i>	Ctrl+R
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Create a coverage chart using the current configuration.

4.2.2.2 Generate contours

<i>Toolbar button</i>	None	<i>Shortcut key</i>	None
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Generate range contour files using active station configuration file [4.5.3].

4.2.2.3 Set system paths

<i>Toolbar button</i>	None	<i>Shortcut key</i>	None
-----------------------	------	---------------------	------

Set paths to GMT and Ghostscript applications [4.5.1].

4.2.2.4 Set user paths

<i>Toolbar button</i>	None	<i>Shortcut key</i>	None
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Set paths to user input and output directories. Set active station configuration file [4.5.2].

4.2.3 Options menu

4.2.3.1 View report

<i>Toolbar button</i>	None	<i>Shortcut key</i>	None
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If selected automatically launches document viewer after report is generated.

4.2.4 Help menu

4.2.4.1 User manual

<i>Toolbar button</i>	None	<i>Shortcut key</i>	None
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Display the VeriChart user manual.

4.2.4.2 About VeriChart...

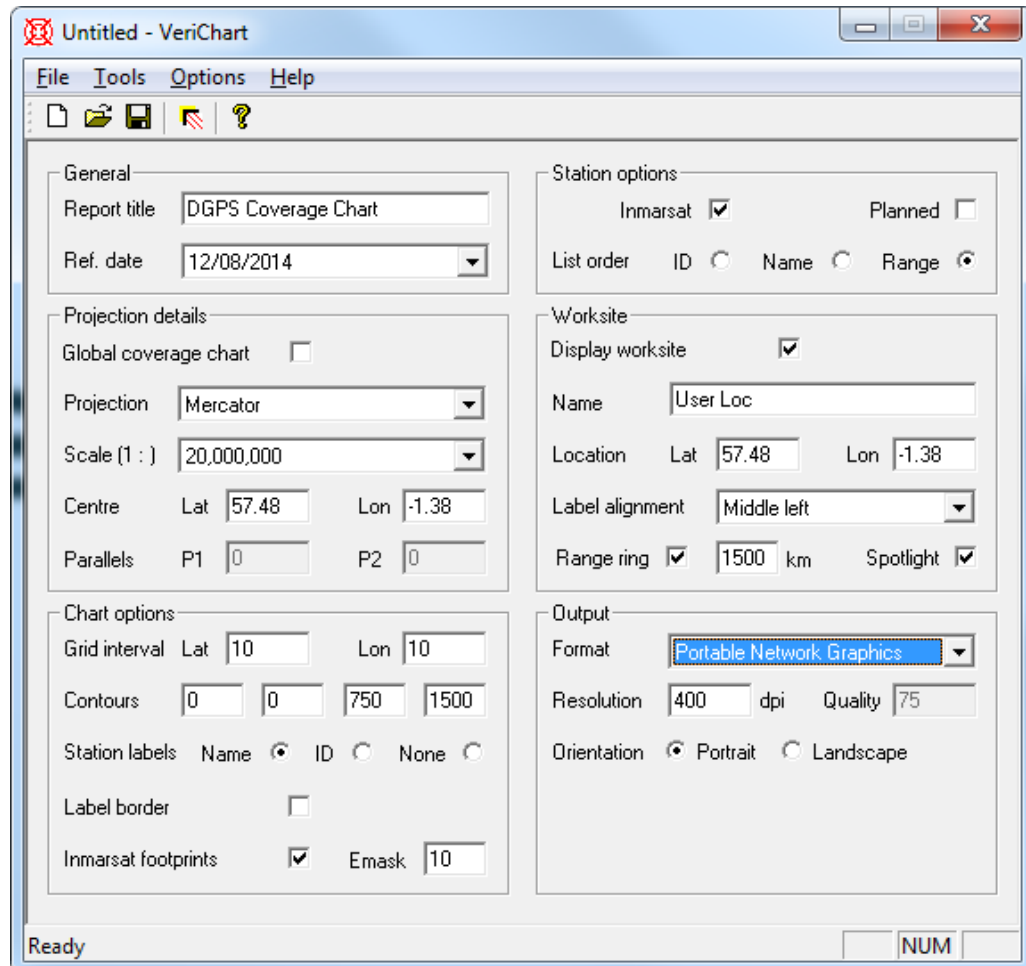
<i>Toolbar button</i>		<i>Shortcut key</i>	None
-----------------------	--	---------------------	------

Display program information, version number and copyright.

4.3 CHART CONFIGURATION PARAMETERS

This section provides a detailed description of coverage chart configuration parameters. Configuration parameters are set using the controls in the VeriChart application window (Figure 4-1).

Figure 4-1 VeriChart application window



4.3.1 General

Report Title	The title text printed on the coverage chart
Reference date	The date printed on the coverage chart

4.3.2 Projection details

Global coverage chart	Produces a global coverage chart if selected. All other items in this section are then disabled with the exception of the central meridian selection (Centre Lon).
Projection	Select from the pull down list of available map projections
Scale	Select from the pull down list of available chart scales
Centre (Lat / Lon)	The geodetic centre of the coverage chart. Input is in decimal degrees. The latitude range is constrained to +/- 80 degrees.
Parallels (Lat / Lon)	The standard parallels P1 and P2 for a Lambert projection. Input is in decimal degrees. The range is constrained to +/- 85 degrees. Both parallels must be on the same hemisphere (North or South).

4.3.3 Chart options

Grid interval	The interval in decimal degrees of displayed lines of latitude and longitude. Values between 1 and 30 degrees are accepted.
Contours	Specify up to four values for range contours from reference stations. Contour ranges specified in kilometres. Values up to 3000 km are accepted. Enter 0 to omit contours.
Station labels	Choose how to print station labels on the coverage chart. Select one of Name (Reference station name), ID (Station RTCM ID) or None.
Label border	Select to print a border around each station label. This can improve the clarity on some coverage charts.
Inmarsat footprints	Select to include Inmarsat satellite footprints on the coverage chart.
Emask	Sets the elevation mask, in degrees, of Inmarsat footprints.

4.3.4 Station options

Inmarsat	Select to include VERIPOS-I stations in the coverage chart.						
Planned	Select to include future / planned VERIPOS stations in the coverage chart.						
List order	Affects the ordering of the list of available reference stations displayed on the coverage chart. Choose from : <table border="0"> <tr> <td>ID</td><td>Sort by RTCM ID in ascending order</td></tr> <tr> <td>Name</td><td>Sort by station name in ascending order</td></tr> <tr> <td>Range</td><td>Sort by station name in ascending order [4.3.5]</td></tr> </table>	ID	Sort by RTCM ID in ascending order	Name	Sort by station name in ascending order	Range	Sort by station name in ascending order [4.3.5]
ID	Sort by RTCM ID in ascending order						
Name	Sort by station name in ascending order						
Range	Sort by station name in ascending order [4.3.5]						

4.3.5 Worksite

Display worksite	Select to display a worksite location on the coverage chart. If not selected then all other items in this section are disabled.
Name	The name of the worksite as it appears on the chart.
Location	The worksite location, in decimal degrees. The worksite latitude range is constrained to +/- 85 degrees.
Label alignment	Select from the pull down list of available alignment options. Modifying the label placement can improve the appearance of a coverage chart.
Range ring	Select to display a ring of constant range around the worksite.
(Range)	The radius of the worksite range ring in kilometres. Values between 10 and 3000 km are accepted.
Spotlight	Select to highlight the chart region within the worksite range ring.

4.3.6 Output

Format	Select from the pull down list of available document formats.
Resolution	Resolution of the document in dpi (dots per inch). Values between 72 and 600 dpi are accepted.
Quality	The JPEG quality factor. Applicable only to JPEG documents. Values between 10 and 100 (best quality) are accepted.
Orientation	Select the orientation of the coverage chart (portrait or landscape).

4.4 CHART REPORT FEATURES

This section describes the features available on a coverage chart report, illustrated by the sample report in Figure 4-2.

4.4.1 Report header

The report header displays the title of the report

4.4.2 Coverage map

The coverage map is the main feature of the report. It can display

- A high resolution coastline map of the selected region
- The location of VERIPOS reference stations
- Up to four DGPS range contours. Each contour is a line of constant range to the nearest reference station in the VERIPOS DGPS network
- The worksite location
- A ring of constant range from the worksite (which may be highlighted)
- Footprints of the VERIPOS-I service downlink satellites with a user selectable elevation mask

4.4.3 Map key

The map key provides a legend for the coverage map symbols. In addition it displays details of

- The map projection
- The scale of the map
- The elevation mask used in the generation of satellite footprints (if selected)

4.4.4 Reference station list

A list of VERIPOS DGPS reference stations located within the bounding region of the chart. Each entry details

- The location of the reference station
- The RTCM ID (Address)
- The geodetic co-ordinates of the station
- The range in kilometres from the station to the worksite (if selected)

A maximum of 18 stations can be displayed on a single report. If the chart region contains more than 18 stations then changing the station list sort order [4.3.4] may be considered to ensure that stations of interest are included in the list.

4.4.5 Worksite information

If a worksite is selected then the following details are provided on the report

- The worksite name
- The geodetic co-ordinates of the worksite
- The radius in kilometres of the worksite range ring (if selected)

4.4.6 Inmarsat downlink details

A list of Inmarsat geostationary satellites that provide current or future VERIPOS-I services. Each entry contains a coloured symbol matching the satellite footprint shown in the coverage map.

If a worksite is selected the direction (azimuth and elevation) from the worksite to each satellite is displayed.

4.4.7 Notes

A set of informational notes regarding the VERIPOS DGPS service.

4.4.8 Report footer

The report footer displays

- The reference date of the report
- The name and build ID of the station file used to generate the report
- The name of the chart configuration file used to generate the report

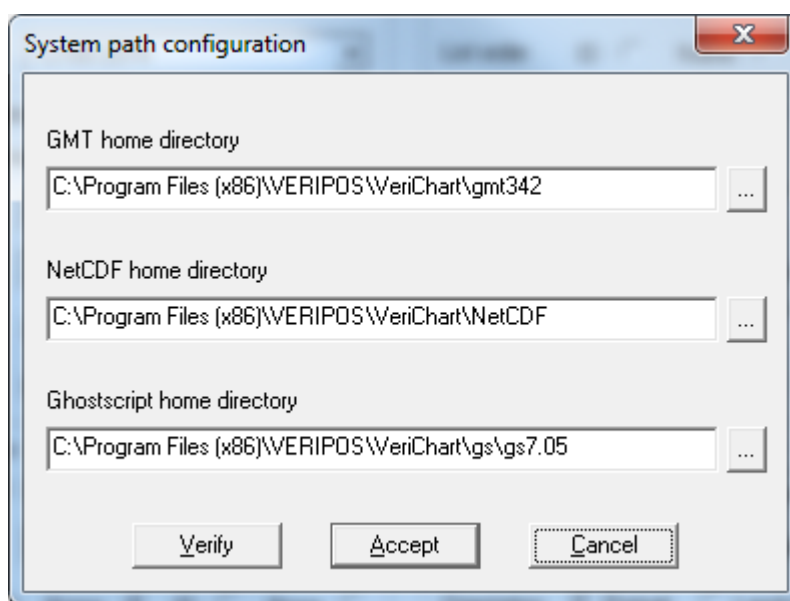
4.5 OPERATIONS

4.5.1 System path configuration

VeriChart access to third party software components is set through the *System path configuration* dialog.

To open the dialog (Figure 4-3) select *Tools* → *Set system paths* from the menu. **Figure 4-**

3 System path configuration dialog



The dialog displays the current settings for the paths to the home directories for GMT, netCDF & Ghostscript applications. The home directory in each case is the directory immediately above the Bin directory.

Figure 4-3 shows the path settings required after a typical installation of software components from the VeriChart CD.

Selecting the browse button to the right of the edit control displays a directory browse dialog that may be used to set the path.

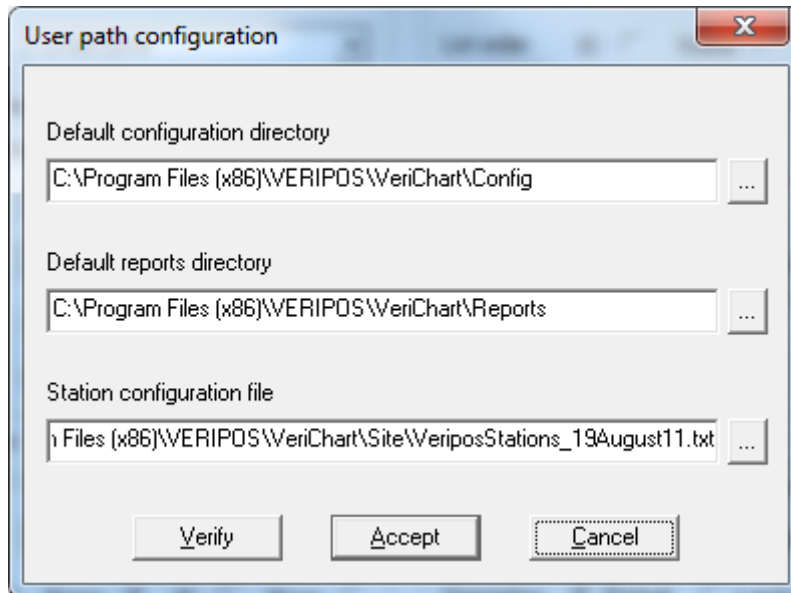
The actions of the buttons at the bottom of the dialog are as follows.

<i>Verify</i>	Check that the three paths are valid
<i>Accept</i>	Update the VeriChart configuration with these path values
<i>Cancel</i>	Cancel the operation and retain existing path settings

4.5.2 User path configuration

To open the user path configuration dialog (Figure 4-4) select *Tools* → *Set user paths* from the menu.

Figure 4-4 User paths dialog



The dialog allows the following settings to be modified

<i>Default configuration directory</i>	Directory for VeriChart configuration (.vcc) files
<i>Default reports directory</i>	Directory for VeriChart coverage charts
<i>Station configuration file</i>	VERIPDS DGPS reference station configuration file

Selecting the browse button to the right of the edit control displays a directory browse dialog that may be used to set the path.

The actions of the buttons at the bottom of the dialog are as follows.

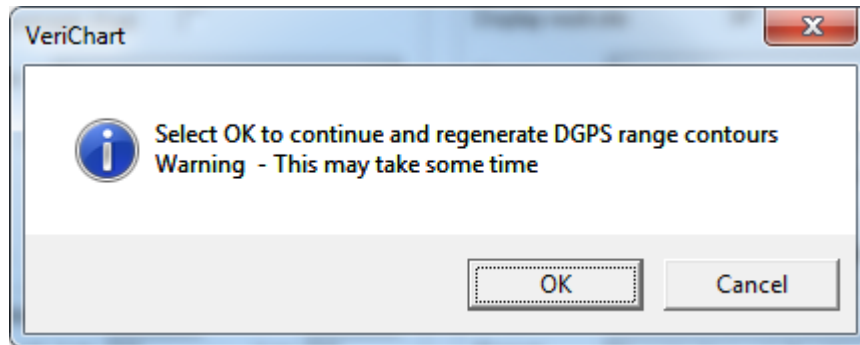
<i>Verify</i>	Check that the three paths are valid
<i>Accept</i>	Update the VeriChart configuration with these path values
<i>Cancel</i>	Cancel the operation and retain existing path settings

4.5.3 Contour generation

Range contour files are used in the generation of coverage chart contours. The files must be regenerated whenever the station configuration file [4.7] is modified or updated.

From the menu select *Tools* → *Generate contours*. A confirmation dialog is displayed (Figure 4-5).

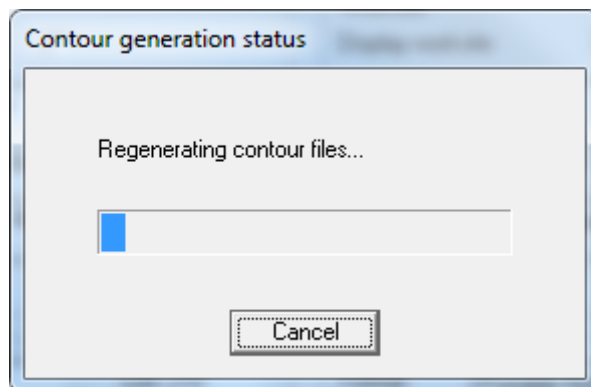
Figure 4-5 Contour confirmation dialog



Select *OK* to confirm contour generation

The contour generation status dialog is then displayed (Figure 4-6).

Figure 4-6 Contour generation status dialog



Contour file generation takes some time, typically 5 - 10 minutes. You may cancel the operation at any time but contour files will not be created until the process has run to completion.

4.6 ERROR MESSAGES

Error messages are displayed in pop-up dialogs when a fault condition arises in program execution.

Most error messages are self-explanatory and resolution is straightforward. Other

specific error messages are given below grouped by program operation.

Given the complexity of Windows systems the suggested resolution of each error can only be a *most probable* solution.

4.6.1 System and user path errors

System and user paths are checked prior to contour or report generation. Specific VeriChart, GMT, netCDF and Ghostscript files are tested to ensure that system and path settings are correct. If any files are not located then an error is reported.

The general form of the message is given below.

<i>Message</i>	File not found {Full path of file tested} Check { <i>Component name</i> } system / user path
<i>Explanation</i>	A file could not be found using the current system & user path settings
<i>Resolution</i>	Check system and user paths [4.5.1], [4.5.2]

4.6.2 Contour generation errors

Errors arising from the contour generation operation.

<i>Message</i>	Contouring failed. Failed to load station file
<i>Explanation</i>	The station configuration file could not be found or failed to load
<i>Resolution</i>	Check path to station configuration file [4.5.2]

<i>Message</i>	Contouring failed. Can't create range files
<i>Explanation</i>	Intermediate range data files could not be produced
<i>Resolution</i>	Check there is sufficient free disk space on the VeriChart installation drive. At least 50 Mb is required.

<i>Message</i>	Contouring failed. No room on disk
<i>Explanation</i>	Intermediate range data files could not be produced
<i>Resolution</i>	Check there is sufficient free disk space on the VeriChart installation drive. At least 50 Mb is required.

<i>Message</i>	Contouring failed. Installation process failure
<i>Explanation</i>	Timeout on range file installation (60 seconds)
<i>Resolution</i>	Check system paths to GMT and netCDF home directories [4.5.1] Close all other applications when running contour generator

<i>Message</i>	Contouring failed. Installation process could not be started
<i>Explanation</i>	Windows process could not be created. Probable cause - command processor cannot be located [command.com] (Windows 95) or cmd.exe]
<i>Resolution</i>	Close all other applications when running contour generator Check that command processor is present in the Windows system directory.

<i>Message</i>	Contouring failed. Installation process could not be started
<i>Explanation</i>	Windows process could not be created. Probable cause - command processor cannot be located [command.com] (Windows 95) or cmd.exe]
<i>Resolution</i>	Close all other applications when running contour generator Check that command processor is present in the Windows system directory.

4.6.3 Report generation errors

Errors arising from the report generation operation.

<i>Message</i>	Report is locked or in use. Aborted
<i>Explanation</i>	An attempt was made to overwrite an existing report that is currently in use by another application.
<i>Resolution</i>	Close the report and try again

<i>Message</i>	Output creation failed
<i>Explanation</i>	Windows process could not be created. Probable cause - command processor cannot be located [command.com] (Windows 95) or cmd.exe]
<i>Resolution</i>	Close all other applications when running contour generator Check that command processor is present in the Windows system directory.

<i>Message</i>	Report file was not created
<i>Explanation</i>	The <i>View report</i> option is selected [4.2.3.1] but the report document cannot be located after report generation is complete.
<i>Resolution</i>	Check that all user paths are valid [4.5.2]

<i>Message</i>	Failed to launch report viewer. Command failed with error code xx
<i>Explanation</i>	The <i>View report</i> option is selected [4.2.3.1] but a viewer cannot be located for the selected document format.
<i>Resolution</i>	Check file associations for the document format in Windows Explorer

4.7 REFERENCE STATION CONFIGURATION FILE

VeriChart retains VERIPOS network station information in an ASCII text file. The file contains two types of records

- Comment records Lines with a semicolon in the first column
- Station records Single line records in CSV format (Table 4-1)

The station record field data controls the location and appearance of the station in coverage chart reports.

Table 4-1 Reference station record format

Field	ID	Description
1	Station	Reference station RTCM ID
2	Name	Descriptive name (normally location) for the station
3	Type	Station type code. See Table 4-2
4	Active	[0 1]. Active stations have a value of 1 and are considered for inclusion when reports are generated
5	Alignment	Station label alignment code. See Table 4-3
6	ECEF_X	ECEF X co-ordinate of station position (metres)
7	ECEF_Y	ECEF Y co-ordinate of station position (metres)
8	ECEF_Z	ECEF Z co-ordinate of station position (metres)

Table 4-2 Station type codes

Type code	Description
0	VERIPOS-HF (HF) station
1	3 rd party HF station
2	VERIPOS-I (Inmarsat) single frequency station
3	Co-located HF & Inmarsat station
4	Planned reference station
5	Reserved
6	VERIPOS-I (Inmarsat) dual frequency station

Table 4-3 Station label alignment codes

Type code	Description
0	Bottom left
1	Bottom centre
2	Bottom right
3	Middle left
4	Middle centre
5	Middle right
6	Top left
7	Top centre
8	Top right

4.7.1 Notes

Co-located stations

In cases where two or more stations are co-located (e.g. an HF and Inmarsat station operate from the same site) a record is included for each station (marked inactive) and an additional record of station type 3 (co-located) added at the same position. This record is marked active. The purpose is to improve report presentation.

Build ID

Each time a report is generated an eight-character build ID is calculated for the station configuration file and displayed in the report footer [4.4.8]. If the configuration file is modified in any way then the build ID will change. This feature can be used to track the information used to compile the coverage chart report.

Contour generation

Contour files should be regenerated [4.5.3] after any modification of the station configuration file to ensure that range contours accurately reflect station location details.

5. CONTACT INFORMATION

VERIPOS CONTACT INFORMATION

All initial contacts regarding technical or support issues should be addressed to the VERIPOS Helpdesk.

Where appropriate the Helpdesk will refer issues to the regional operations and engineering teams.

VERIPOS Helpdesk Telephone: +44 (0) 1224 965900


VERIPOS Helpdesk E-mail: helpdesk@veripos.com

VERIPOS Online Support Site (VOSS): <http://help.veripos.com>

Note:

If shipping equipment back to VERIPOS, please contact the Helpdesk who will provide the current shipping address, according to your area of operations.

UK Veripos office address:

	Veripos House, 1B Farburn Terrace, Dyce, Aberdeen. AB21 7DT Scotland UK
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For other sites visit www.veripos.com

6. INTERNET LINKS

The links given in this section are correct at the time of writing.

6.1 WEBSITES

VERIPOS home page	www.veripos.com
GMT home page	http://gmt.soest.hawaii.edu
Ghostscript home page	www.cs.wisc.edu/~ghost
NetCDF home page	www.unidata.ucar.edu/packages/netcdf

6.2 DOWNLOAD SITES

GMT 3.4.2	ftp://gmt.soest.hawaii.edu/pub/gmt/
GNU Ghostscript 7.05	ftp://mirror.cs.wisc.edu/pub/mirrors/ghost/gnu/gs705/gs705w32.exe
NetCDF 3.4.0 WIN32 library	ftp://ftp.unidata.ucar.edu/pub/netcdf/contrib/win32/netcdf3.4.win32bin.zip

6.3 DOCUMENT VIEWERS

Adobe Acrobat Reader	www.adobe.com/products/acrobat/readermain.html
GSView PostScript viewer	www.cs.wisc.edu/~ghost/gsview

7. GLOSSARY

DGPS	Differential GPS
Ghostscript	A Postscript language interpreter
GMT	The Generic Mapping Tools
GPS	Global Positioning Systems
NetCDF	Network Common Data Form. An interface for array-orientated data access
RTCM	Shorthand for RTCM SC-104, the recognised standard for the format transmission of DGPS correction messages
VERIPOS-I	The VERIPOS satellite broadcast DGPS service
VERIPOS-HF	The VERIPOS HF DGPS service