WeatherMonitor User Guide

Short User's Guide

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Contents

Abbreviations

AC	Alternating current
CAA	Civil Aviation Authority (UK)
DC	Direct current
DP	Dynamic positioning
EMS	Environmental monitoring system
ESD	Electrostatic discharge
GPS	Global positioning system
HMS	Helideck monitoring system
IPC	Industrial personal computer
LAN	Local area network
MRU	Motion reference unit
MSI	Motion severity index
MSL	Mean sea level
NM	Nautical mile
PC	Personal computer
PSI	Power supply interface
QFE	Barometric pressure (Q) at field elevation (i.e. at helideck level)
QNH	Barometric pressure (Q) at nautical height (i.e. at mean sea level)
UTC	Universal coordinated time
CAA	Civil Aviation Authority
HCA	Helideck Certification Agency

1. Executive Summary

The purpose of this document is to give a general overview of the Fugro WeatherMonitor software and troubleshooting to help in identifying software and hardware problems. If the information provided in this document does not provide the solution to a problem with the system, it will at least guide the trouble-shooter to gathering the information required for correspondence with Fugro personnel to provide the best support remotely and assess if a visit is required.

2. Introduction

Fugro WeatherMonitor is a software application developed and maintained by Fugro. It is a real-time data acquisition and display software which allows metocean data from sensors to be captured and displayed in a user-friendly manner. This Fugro WeatherMonitor HMS is the primary tool for viewing the safe operational limits on the Helideck, controlling, and configuring its data displays.

The primary method of presenting the data is using web displays, these can be viewed using a web browser either on the main server or any other browser able to access the server over the local area network (LAN). If the system has a Fugro Weather subscription, the same data displays can also be viewed on the internet.

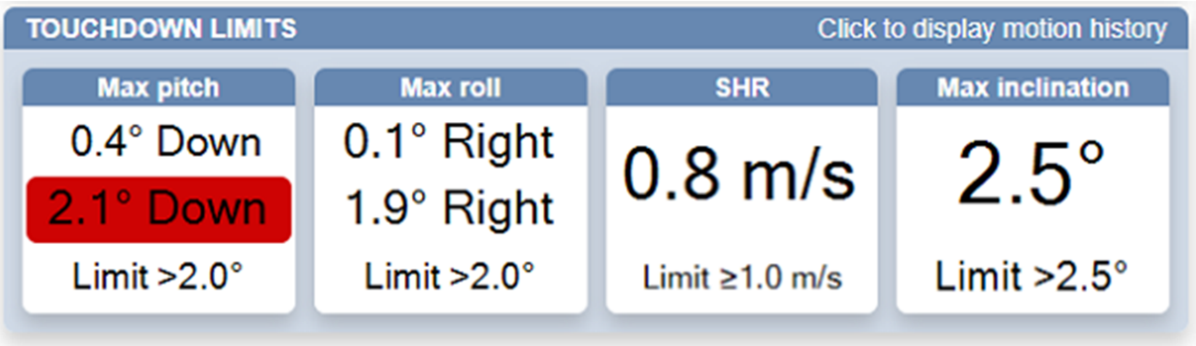


Figure 2.1: Example display of data point

Data displays are configurable, but the default format is to display 1-minute averages. Displays are organised into separate web pages displaying individual data types, which are configurable depending on requirements. However, there are sections of the pages which cannot be changed as these are specifically defined in the various standard. Historical data can be viewed in a graph format for data up to 28 days old.

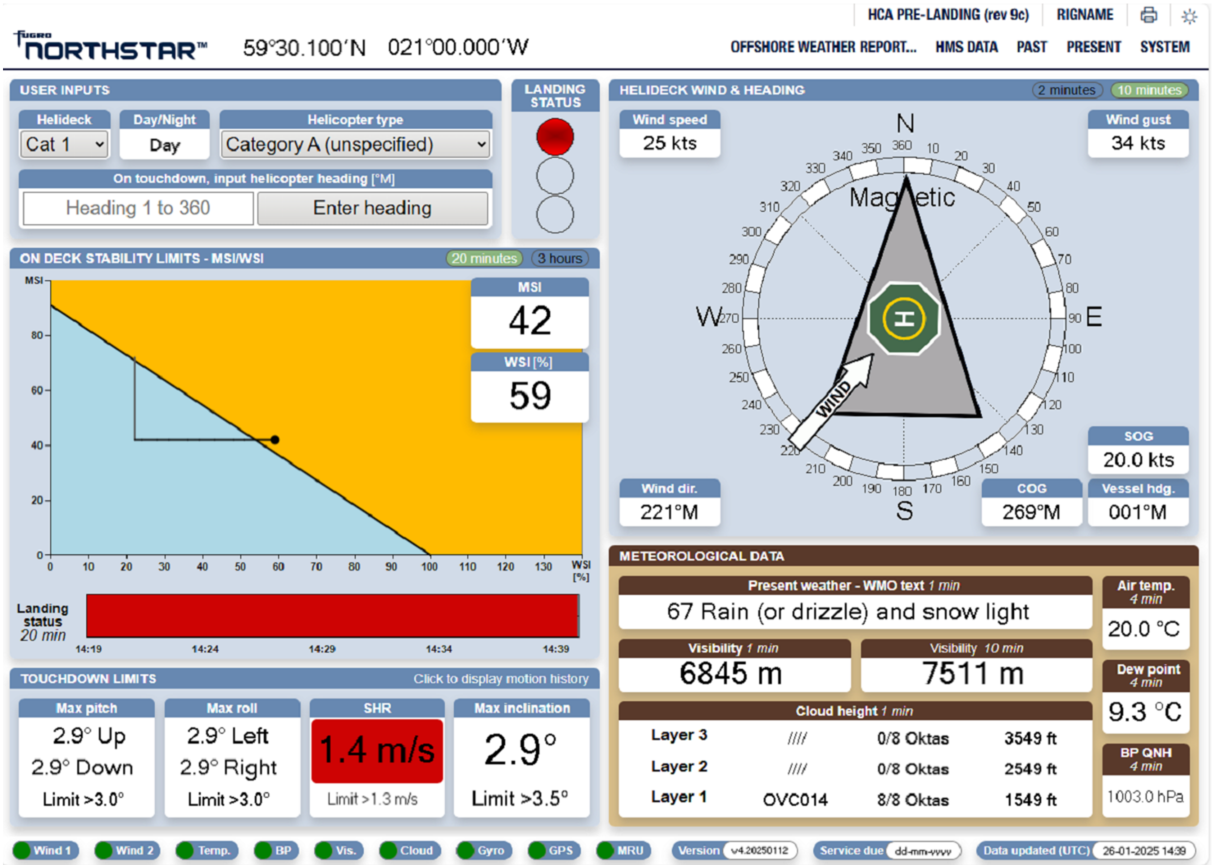


Figure 2.2: Example web page display

All data from the system are permanently stored on the server's hard drive, where they can be extracted using the data extraction tool and viewed in a .csv format. For more information on data extraction, see Section 5.7.

3. Metocean Data

Most metocean systems will have some or all the sensors listed in Table 3.1. Examples of the data provided are also listed.

Table 3.1: Typical sensor types for metocean systems

Sensor type	Data provided
Temperature and humidity sensor	Temperature, relative humidity, dew point
Pressure sensor (dual capsule)	Barometric pressure: ■ At sensor height ■ At helideck height ■ At mean sea level (MSL)
Wind sensor	Wind speed, wind direction, wind gust Wind data presented on both pre-landing and on deck displays must be relative wind (not corrected for the motion of the vessel through the water). All wind data must be scaled to a height 10m above helideck for HCA compliant displays. New motion and wind parameters: wind severity index (WSI), and relative wind direction (RWD);
Cloud height sensor	Cloud height at 3 bases
Visibility sensor, with or without present weather	Horizontal visibility, present weather
Motion sensor	Significant heave rate, pitch, roll, heave period, New motion parameter motion severity index (MSI)
Current sensor, single depth, or profiler	Current speed and direction, either at single depths or profile
Sea temperature sensor	Sea temperature
Gyrocompass	Vessel heading
GPS	Vessel position

Serial/TCPIP/UDP/ Analogue data are transmitted from all these sensors to the server. The server reads the data strings of each sensor, processes them, and performs QA checks before displaying the data value on the system.

4. WeatherMonitor – General Operation

4.1 Start-up

The WeatherMonitor sever is configured to automatically log in to the main account and start both WeatherMonitor and the main browser used for viewing data displays. Once the sever has booted up and logged in, WeatherMonitor will start after a 60 second delay. Once WeatherMonitor has started, there will be an additional delay of at least 30 minutes before the data are fully displayed and the system is able to provide the status of the Helideck Landing Limits (HLL).

By default, the browser will open to the HMS Pre-landing display.

4.2 Navigating Webpages

Individual data points in WeatherMonitor are grouped into pages, which can be navigated through using the navigation bar at the top of the page. To select a different page, hover over the categories on the navigation bar and select the required page from the drop-down list.

Default categories include:

HMS Data.

These pages contain detailed data required for helicopter pilots pre landing/Departure on the vessel or platform’s helideck, they require manual input listed below.

Pre-landing display (HMS 9C)

This page will be displayed before there is a helicopter on deck and requires the operator to input: helideck category, helicopter type, and if it is day/night. The helideck operator must enter the magnetic heading of the helicopter at touchdown as relayed by the pilot.

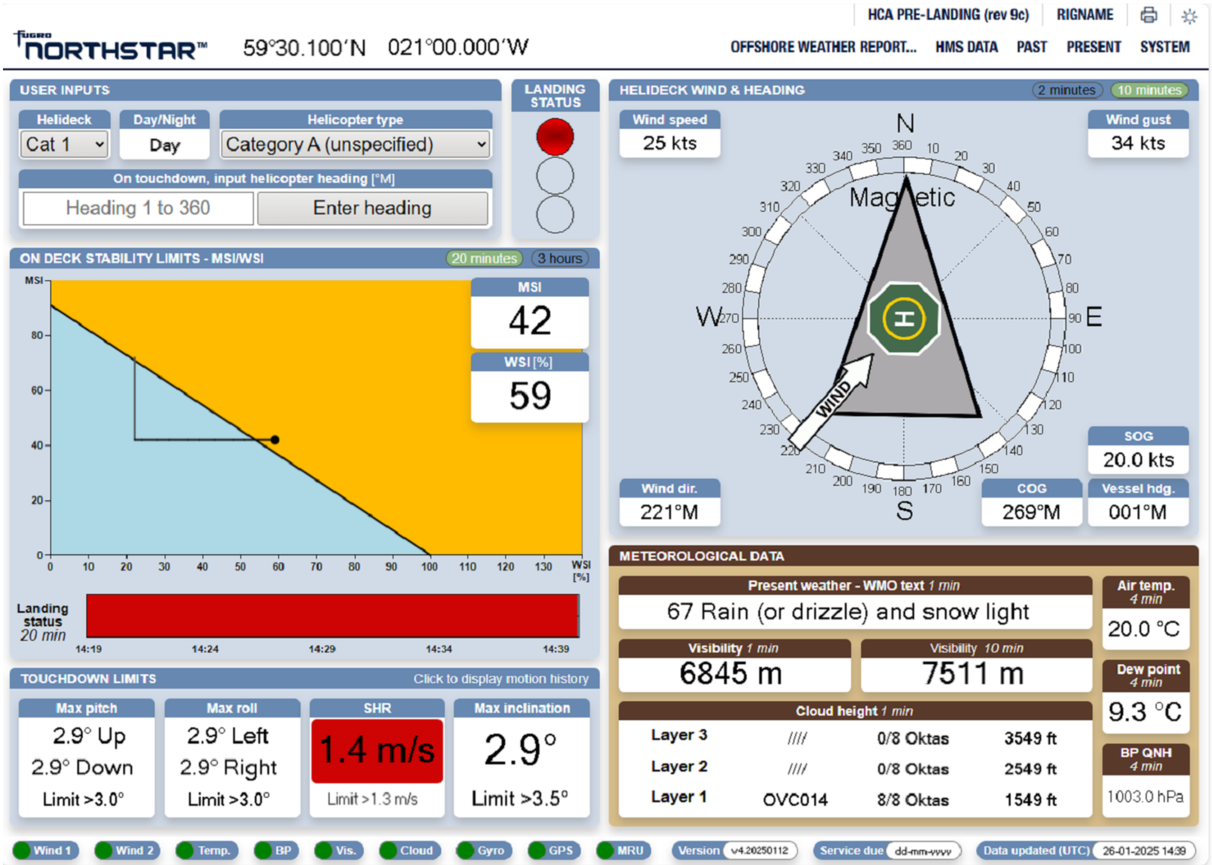


Figure 4.1: HMS Standard 9C Pre Landing Page

On-deck display

This page will be shown once the helicopter has landed and shows the helideck's wind and heading and the relative orientation of the landed helicopter. The helicopter heading can be corrected if required.

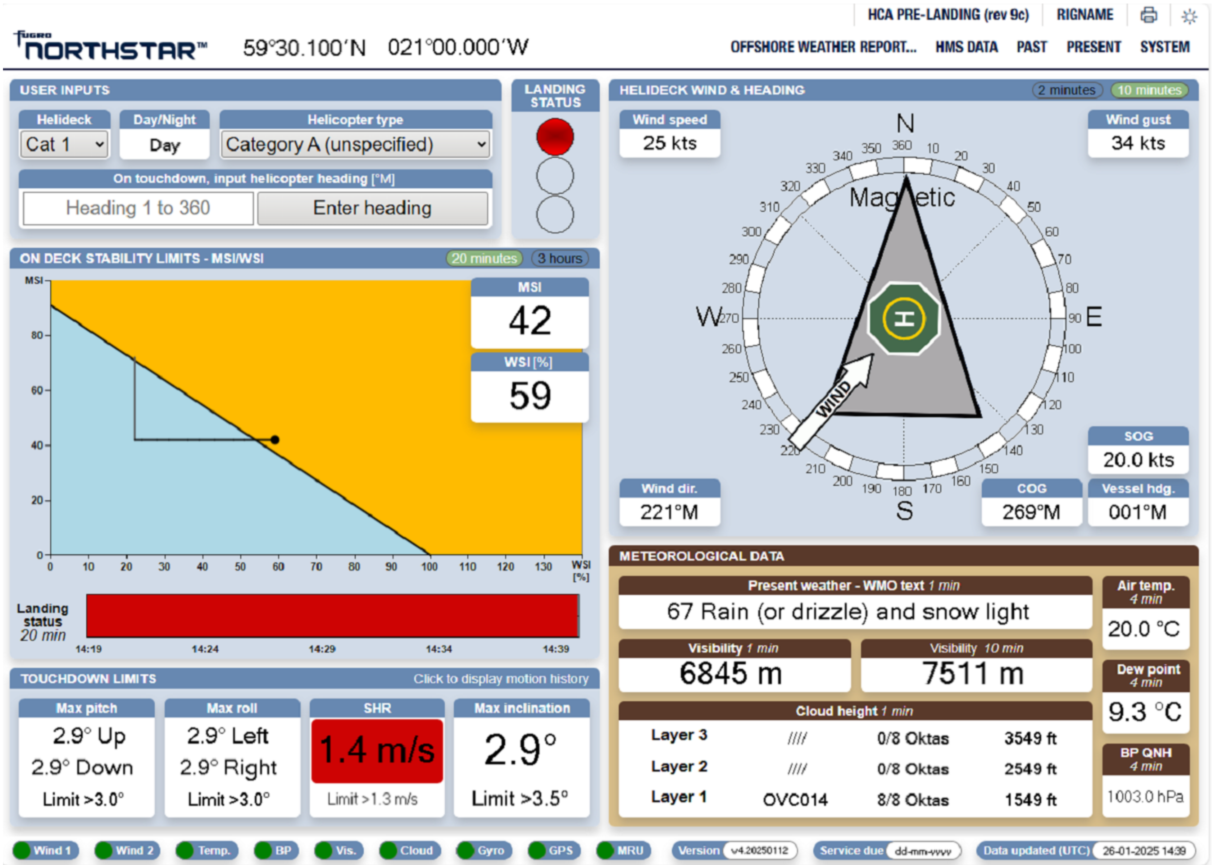


Figure 4.2: HMS Standard 9C On-Deck Page

Norwegian Rev 9.2 Display Page

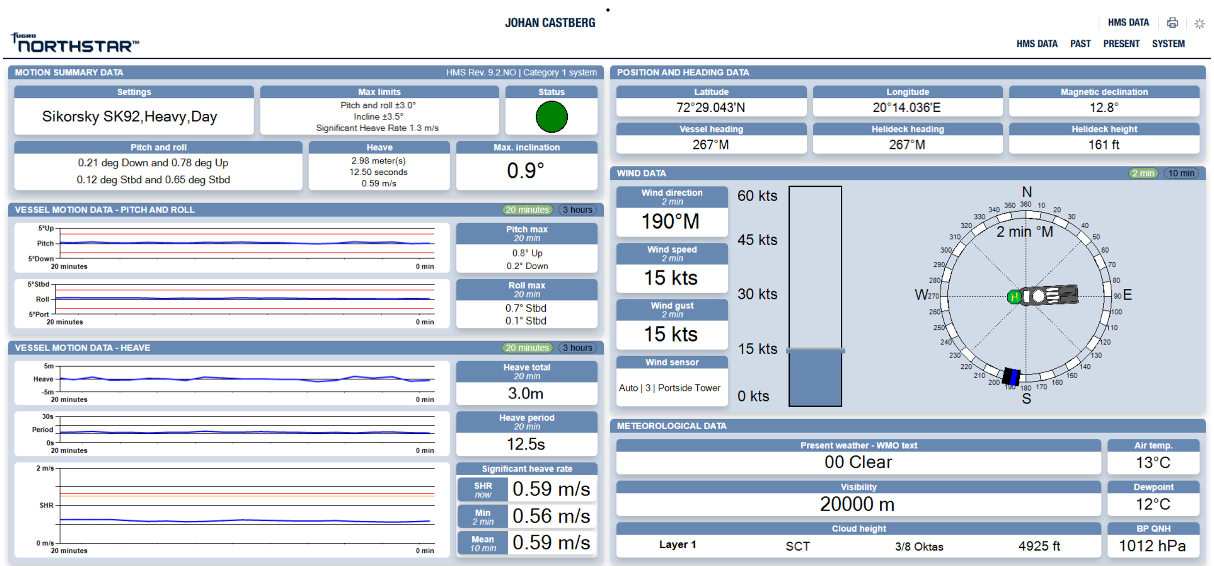


Figure 4.3: Norwegian Rev 9.2 HMS Page

Past

These pages include graphical displays of metocean conditions, allowing historical data and trends to be viewed for time periods between two hours and 28 days (672 hours).

Present

These pages display live data from metocean instruments, displayed either as numeric values or using custom images. The numeric displays can also be set up to change colour at certain data thresholds.

Planning

If the vessel or platform receives forecasts from Fugro's weather forecasting department, WeatherMonitor can display custom forecasting information on these pages. Limits can be set within these forecasts to facilitate safe working when undergoing certain operations, e.g. lifting operations, boat transfers or offloading operations.

4.3 WeatherMonitor Administration Tools

While most of the functionality of WeatherMonitor is accessed through the web displays, configuring the displays, extracting data and other functions can be performed using the Administration Tools program.

WeatherMonitor Administration Tools is the main user interface for configuring and running the Weather Monitor software.

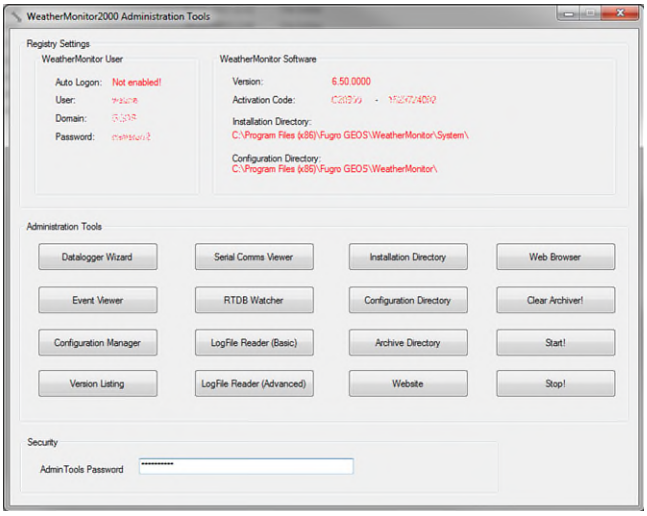
To open Administration Tools click on the 'Spanner' icon.

Figure 4.4: WeatherMonitor AdminTools icon

This icon is located either on the desktop or in the quick launch section of the task bar. It is also possible to directly navigate to Administration Tools via the All Programs menu – Fugro GEOS – Weather Monitor – Administration Tools.

After clicking on the icon, the Weather Monitor Administration Tools interface will open. Several of the buttons will be greyed out. The available buttons allow basic use of the Administration Tools software such as accessing general installation and configuration files and starting the browser.

To access the higher-level functions of Administration Tools, a password is needed. The AdminTools Password is **Fugro GEOS** (case sensitive). Once this is entered all buttons will be available in the Administration Tools software.



4.4 Stopping Weather Monitor

To stop Weather Monitor, open the Administration Tools display and type the AdminTools password. (see Section 4.3). Click on the "**Stop!**" button to stop the software.

4.5 Starting Weather Monitor

To start Weather Monitor, open the Administration Tools display and type the AdminTools Password (Section 5.3). Click on the "**Start!**" button to start the Weather Monitor software.

A dialog box will open. Click Start again.

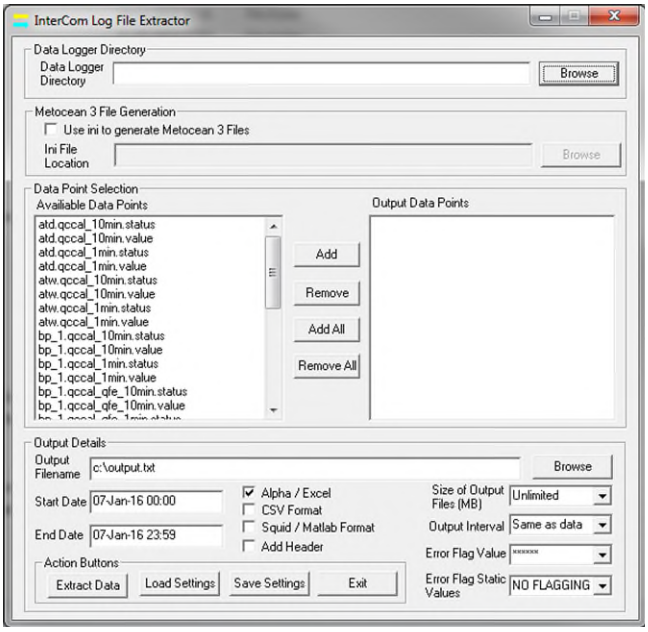
This will bring up an enter password dialog box. Enter the password and click OK to start the Weather Monitor software. The generic password for most platforms is "oceanor" (all lowercase). If different the password can be found on the main Administration Tools display under the section Weather Monitor User – Password.

4.6 Extracting Data

Data can be extracted from the system to perform further analysis or to troubleshoot sensor failures.

Data are stored in binary on the computer; these binary files need to be converted into usable files before the data can be processed.

To extract data, open Administration Tools (Section 5.3) and click on **LogFile Reader (Advanced)**.



Click on the “Browse” button in the top right hand of the Log File Extractor window. Navigate to the Logger Directory, usually stored on the D:\ drive. Once the Datalogger folder is open the available data points will appear in the left hand of the window. Add the required data points to be extracted to the right-hand side of the window.

Once the data points have been selected, change the Output Filename (using the .txt file extension) to an appropriate name or use the Browse button to navigate to a suitable folder.

Enter the Start Date and End Date of the period that you would like to extract data for; be sure to follow the correct date and time format: DD-MMM-YY HH:MM (e.g. 09-May-08 23:59). The Alpha/Excel format for the output file type is already selected; this outputs the file as comma separated values that can be converted to be used in Microsoft Excel. It is useful to select the Add Header check box; this adds the data point title to the top of the list of values.

It is not required to change any other settings, unless told to do so by Fugro.

Click the “Extract Data” button to extract the data; this may take several seconds to complete depending on how much data is being extracted.

Once extracted, open the text file to ensure that the data has been extracted correctly. Once the data have been verified, zip the extracted data files and send to Fugro northstar.support@fugro.com. It may be beneficial to password protect the zip folder as this allows the data to be sent via firewalls easier (remember to send the password in the accompanying email).

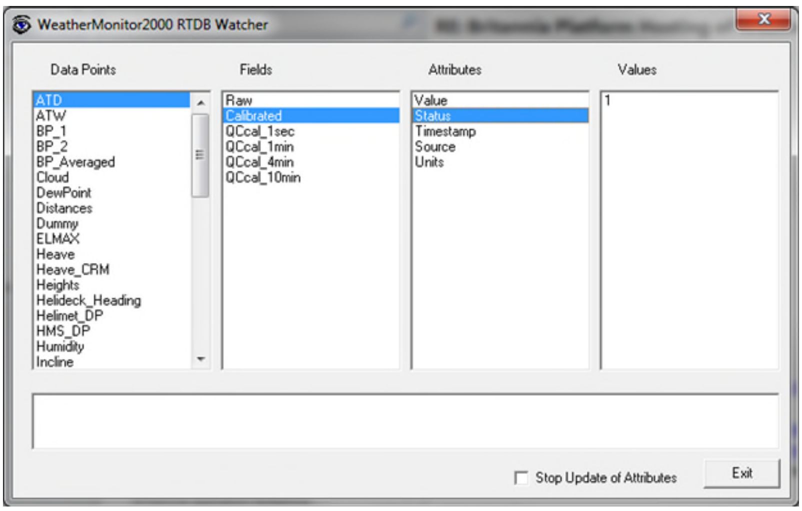
5. Weather Monitor - Troubleshooting

5.1 General system status

- On the Fugro HMS server, first check if data is being displayed on the custom browser; the display may be greyed out meaning that the system has timed out. If this has happened, try refreshing the webpage (press F5 or the refresh button) to see if this recovers the data.
- Note any displays that have "No Data" or are "Awaiting Data" and make note of any other error messages displayed on the webpages. The Sensor Status webpage is used to give a general overview of the status of each of the sensors.
- At the bottom of several of the webpages is a Last Update timestamp; make a note of this time and date and check to see if it is close to the present time. If the timestamp is in the past this may mean that the system has frozen and stopped updating the webpages.
- It is possible to find the data point being displayed on the webpages by placing the mouse cursor over the displayed value/error. Make a note of the data point source as this will help troubleshooting later.
- Take screen captures of the webpages as this will help troubleshooting later. There is a print icon available on the top right of each page then simply save as PDF file using the browser print dialog.
- Once all troubleshooting data have been retrieved from the webpages, close the Browser.

5.2 Using the Real Time Data Base (RTDB) Watcher

The Real Time Data Base (RTDB) Watcher can be accessed from the Administration Tools display by clicking the RTDB Watcher button; Weather Monitor must be running to use the RTDB Watcher. This tool allows the user to examine each data point received and processed by Weather Monitor. It is particularly useful as it displays data and status values from the sensors at each level of processing starting from the raw.



Using the data point source displayed on the webpages, select the appropriate Data Point – Field – Attribute. In this example, Air Temperature Dry (ATD) Raw Value has been chosen. The Raw value is the actual value being sent from the sensor. The Calibrated value is used if any calculations are needed to convert the Raw value into other units, such as converting voltages to degrees Celsius for temperature.

First check that data has been received in the Raw field. If no data are showing, then no data are being received from the sensor. Then check if the calibrated value is plausible based on current conditions. Also check the Status of the Raw and Calibrated fields; this will give you an indication of any errors. A status value of 0 (zero) means that the data are being received and processing ok; a status value of 1 (one) means no data are being received. Higher status values refer to other conditions defined by Fugro.

Check if the timestamp is updating. If it is not, it would indicate that the system has stopped receiving data.

Check several of the data points, ideally one for each sensor. Make a note of the data points, whether values are displayed and any status values.

If no raw data are being received, then this could mean that there is a hardware problem; if raw data is being received but not being processed this could mean a problem with the software.

Ensure all troubleshooting data has been recorded.

If you suspect no data is being received, then it is possible to check the serial communications functions using the serial comms viewer button on Admin Tools. Ensure that Weather Monitor has been stopped (see Section 5.4) and then press the serial comms viewer button. Take a screenshot of the display as this may aid in troubleshooting.

5.3 Task Manager and Event Log

With Weather Monitor running, open Task Manager (Ctrl-Alt-Del). Check the memory usage on the computer and if possible, take screen captures of the Task Manager pages (Applications, Processes and Performance). This will reveal if there is a problem with computer resources. Save the screen captures using Microsoft Paint to a suitable folder on the desktop.

Open the computer's event log (a direct link is available from the Administration Tools display); save the Application and System event logs by right-clicking on them and selecting "Save Log File As". Save both files to a suitable location on the computer such as the Desktop.

If possible, name the files suitably such as containing the date and vessel name e.g. Golden_Hind_MetData_1577-12-13.bmp, 28-Nov-1717_EvtLog_Application_Queen_Annes_Revenge.evt, HMS_Pinafore_Wind_Data_18780525 etc.

5.4 Restart PC and Weather Monitor software

To ensure that there is not a problem with the computer hardware and that the software has not frozen, stop Weather Monitor (Section 5.4).

Close Administration Tools and shutdown or restart the PC like a normal PC, via the Windows Start menu.

Let the PC boot up normally and allow Weather Monitor to auto start and the custom browser to open automatically. Wait a few minutes and check if data is being displayed on the webpages. If not, check the RTDB Watcher and repeat troubleshooting (remembering to record your findings).

Note: Motion data will take 20 minutes before data is shown on the webpage and Wave data will take 34 minutes.

5.5 Webpage Browsing

To browse the system webpages, open a browser and browse to the IP address or given URL of the Fugro HMS server. The HCA Pre-Landing webpage should now be displayed on the screen.

Open a command prompt (start – Run – type “cmd” – Enter)

If you are trying to connect remotely to the Fugro PC then you can use the ping command Type “ping XXX.XXX.XXX.XXX” where XXX.XXX.XXX.XXX is the IP address of the Fugro HMS server; this will ensure that the client PC can locate the weather station server (also try “ping *name of computer*”; this will ensure that the DHCP server can resolve the IP address of the weather station server from its computer name).

If the weather station server does not reply, then the client PC cannot access the webpages from the server.

For further information on webpage errors please contact Fugro: WeatherMonitor.support@fugro.com.

6. General System Maintenance

The sensors used by the metocean system are designed to be low maintenance or maintenance free. It is advisable to perform some routine inspection and maintenance of the system as follows:

1. General visual inspection of all sensors and enclosures, checking on the state of cabling and junction boxes. Make a note of changes of exposure, especially for the wind sensor and temperature & humidity sensor.
2. Cleaning of the ceilometer is advised monthly (if fitted). The cleaning procedure for the ceilometer window is as follows:
   a. First flush the window with clean water to remove coarse grains. Remember to keep the enclosure door closed.
   b. Then clean the window with a soft, lint-free cloth moistened with a mild detergent. Be careful not to scratch the window surface.
3. Cleaning of the visibility sensor is advised monthly (if fitted). The cleaning procedure for the sensor is as follows:
   a. Moisten a soft, lint-free cloth with isopropyl alcohol and wipe the lenses. Be careful not to scratch the lens surfaces. Lenses should dry indicating that the lens heating is functioning.
   b. Check that the hoods and lenses are free of condensed water, or ice and snow deposits.
   c. Wipe the dust from the inner and outer surfaces of the hoods.
4. Wave radar maintenance (if fitted):
   - Hose down sensor unit with fresh water
   - Check the following items for damage, corrosion, and security:
     – Weather protection cover
     – Flameproof housing and TRL/2 adapter
     – Antenna feeder with washer ball, finger nut and lock nut
     – Antenna dish
     – Mountings
     – Cable glands
     – Cables

Please refer to individual sensor manuals for more information on maintenance. Further computer maintenance such as hard drive disk checking and defragmentation (with weather monitor stopped) can also be done on a regular basis to ensure the hard drive consistency.

If a sensor has been damaged or appears to be functioning incorrectly, contact Fugro for further advice. For technical assistance, contact Fugro by email: northstar.support@fugro.com.