

SIRIUS SATELLITE WEATHER REFERENCE MANUAL

The purpose of this manual is to provide operating procedures for NavNet VX2's Sirius Satellite Weather capability. An optional Sirius Weather Receiver BBWX1 and Sirius subscription are required. This manual is provided in addition to the NavNet VX2 Operator's Manual, which fully covers operating procedures for the NavNet VX2 system. Sample screens are shown in landscape format. Sirius weather coverage is currently available only in U.S. and Canada.

Information provided by the Sirius Marine Weather service is advisory nature only. You, the customer, agree to release FURUNO ELECTRIC CO., LTD., Sirius Satellite Radio Inc., Navcast Inc. and WSI Corporation from any and all claims arising from the use of this service, and you acknowledge that you have read the terms of your subscription agreement and agree to all the terms therein. If you do not have the subscription agreement, you will find a copy at: www.sirius.com/marineweatheragreement or call 1-800-869-5480 to have a copy sent to you.

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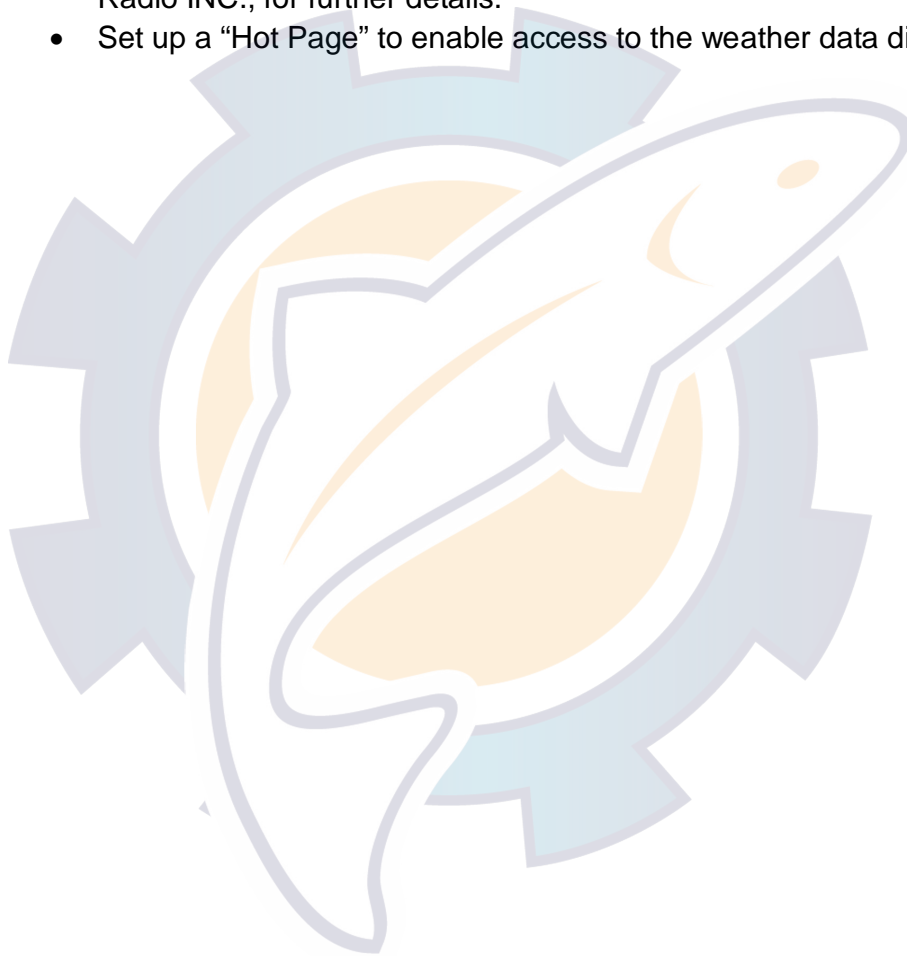
1. Overview

When connected to the Sirius Weather Receiver BBWX1, NavNet VX2 will display current and forecasted weather information for your area. Real time updating ensures that you have up-to-the-minute weather information for your area, as well as any other area in the U.S.

Setting up the weather application

Before you are able to use the weather application you will need to:

- Obtain an optional Sirius Weather Receiver BBWX1.
- Obtain a Sirius weather service subscription. Contact Sirius Satellite Radio INC., for further details.
- Set up a “Hot Page” to enable access to the weather data display.



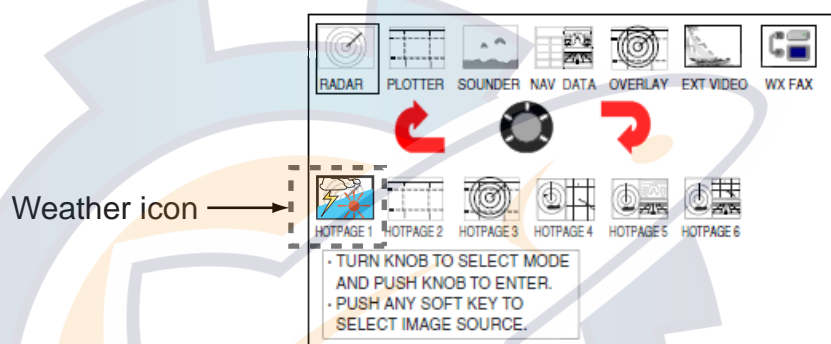
2. Weather Display Overview

After connecting and powering up both the BBWX1 and the associated NavNet VX2 display(s), it may take up to 30 minutes for your NavNet VX2 display to receive/accumulate WX data from the BBWX1.

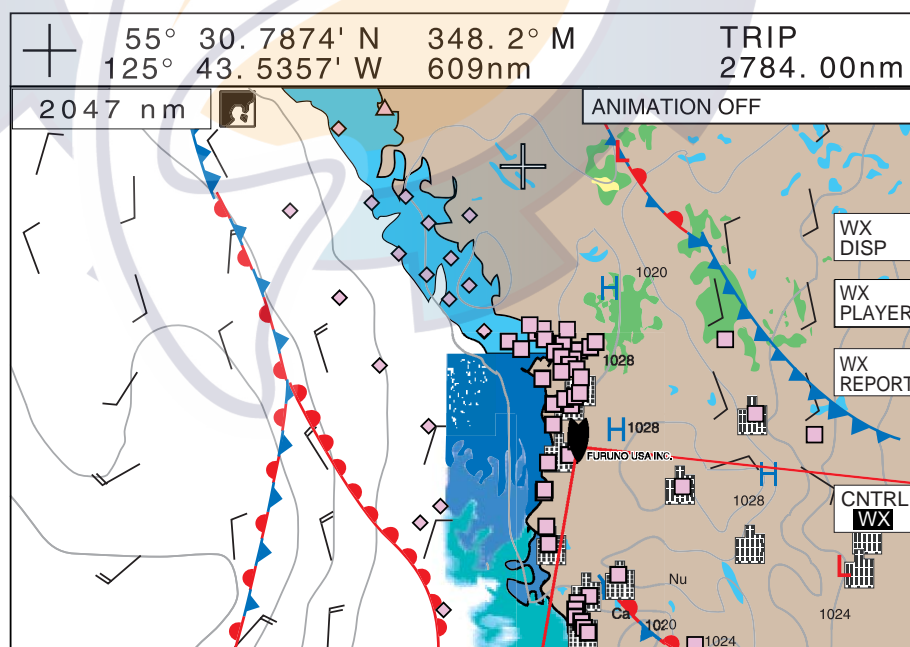
2.1 Setting up the weather display

To enable the weather display, you must setup a hot page. Press the MENU key, then press SYSTEM CONFIGURATION, SYSTEM SETUP, HOT PAGE & NAV DISP SETUP and HOT PAGE SETUP soft keys. Follow the on-screen prompts. (Refer to section 7.6 in the Operator's Manual for more detailed instructions.)

Note that the weather display is only available as a full screen display.



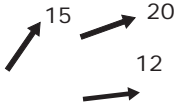
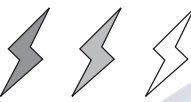
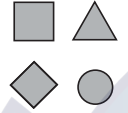







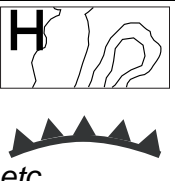
2.2 Example of weather display



Example of the weather display

3. Weather Icons

The table below shows the weather icons that appear the Sirius Satellite Weather display. These icons can be shown or hidden on the WEATHER DISPLAY window, which may be accessed with the WX DISP soft key. (See next paragraph.)

Icon	Color	Meaning
	Dark blue	Storm cast
	Dark yellow (recorded in last 0-5 min.), Medium yellow (recorded in last 5-10 min.), Light yellow (recorded in last 10-15 min.)	Lightning
	Pink	Surface observation stations
	Black (Arrow or Vane feather)	Wind
	Grey	Cities
	Blues	Waves
	Dark green-yellow	CANRAD (Canadian radar)
	Green-yellow-orange	Sea surface temperature
	Green-yellow-red (Rain), Blues (Snow), Pinks (Mixture)	NOWRAD (USA RADAR)
	Grey (Historical) Red (Current) Orange (Forecast)	Storm tracks
 etc.	For details, see page 10.	Surface pressure

3.1 Showing/hiding weather data layers

You can choose which data to show or hide on the display as below:

1. Press the WX DISP soft key to show the weather display window.

WEATHER DISPLAY		
► NOWRAD (USA RADAR)		ON
STORM CAST		ON
SEA SURFACE TEMP		ON
CANRAD (CANADIAN RADAR)		ON
STORM TRACKS		ON
LIGHTNING		ON
OBSERVATION STATIONS		ON
CITY FORECAST ICONS		ON
WIND		ON
WAVES		ON
SURFACE PRESSURE		ON
ALERT BOX		ON
MARINE ZONE		ON
COLOR SCALE		ON

2. Rotate the **ENTER** knob or trackball to choose the weather item that you want to show or hide.
3. Press the **ENTER** knob or ON/OFF soft key to choose on or off as appropriate.
4. Repeat steps 2 and 3 to show or hide other items.
5. Press the RETURN soft key to close the window.

3.2 Weather icons descriptions

NOWRAD (USA RADAR)

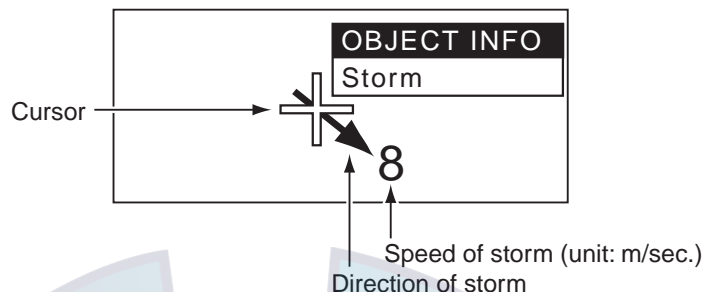
NOWRAD shows the type and level of precipitation. The “Level” number shown below is a figure of reflectivity from a weather radar. The larger the level number, the stronger the precipitation.

Color	Precipitation type	Level
Light green	Rain	15-19 dBz
Medium green	Rain	20-29 dBz
Dark green	Rain	30-39 dBz
Yellow	Rain	40-44 dBz
Orange	Rain	45-49 dBz
Light red	Rain	50-54 dBz
Dark red	Rain	over 55 dBz
Light blue	Snow	5-19 dBz
Dark blue	Snow	over 20 dBz
Light pink	Mixed	5-19 dBz
Dark pink	Mixed	over 20 dBz

STORM CAST

You can find the direction and speed of a storm by viewing a storm icon. For more detailed information, do the following:

1. Move the cursor over the storm that you want more detail.



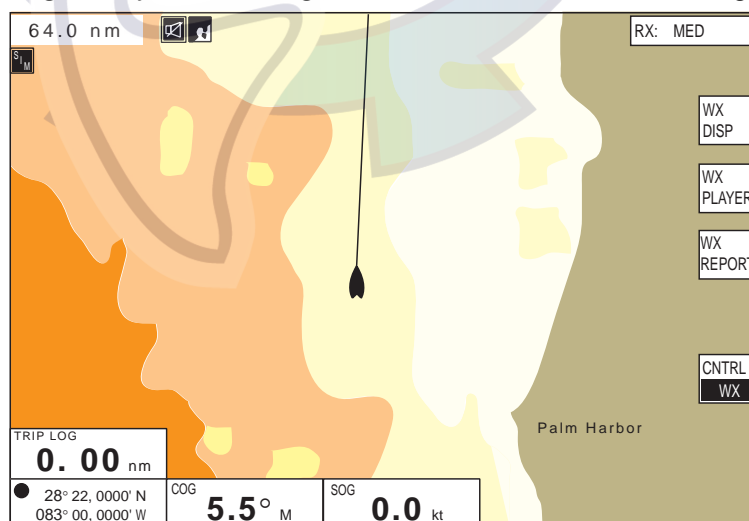
2. Press the **ENTER** knob to show the detailed storm cast window.

STORM CAST	
STORM ID	TBWN4
ECHO TOP	40000 ft
DIRECTON	127°M
SPEED	15.0 kt
TIME	14:44
POSITION	28°15.659'N/083°07.800'W
ATTRIBUTES	None

3. Press the RETURN soft key to close the window.

SEA SURFACE TEMP

This data layer shows the temperature of the sea surface in colors. The colors used are blue, green, yellow, orange and red, in order of ascending temperature.






CANRAD (CANADIAN RADAR)

This item shows the level of precipitation in Canada (Type of precipitation is not shown.)

Color	Level (mm per hour)
Transparent (low precipitation)	0.00 to 0.20 mm/hr
Light green	0.21 to 1.00 mm/hr
Medium green	1.01 to 4.00 mm/hr
Dark green	4.01 to 12.00 mm/hr
Yellow	12.01 to 24.00 mm/hr
Orange	24.01 to 50.00 mm/hr
Light red	50.01 to 100 mm/hr
Dark red	over 100.01 mm/hr

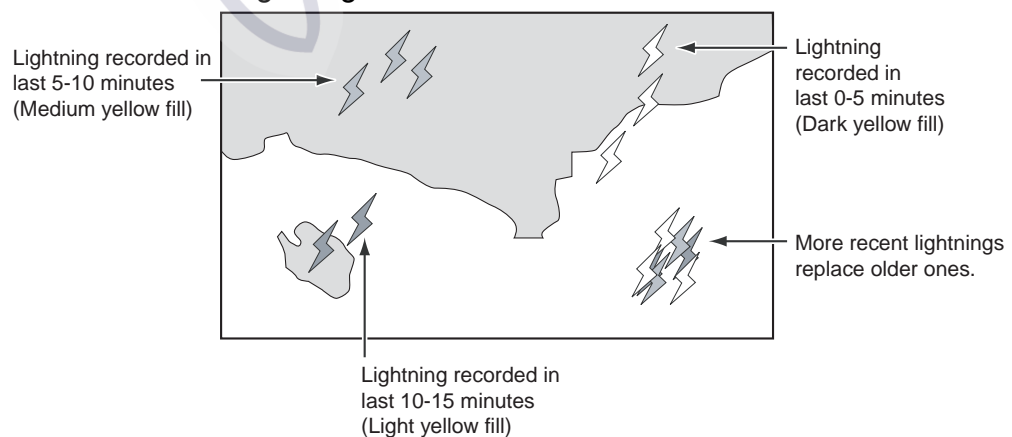
STORM TRACKS

The STORM TRACKS feature monitors large or dangerous storms, i.e, depressions, tropical disturbances, hurricanes, cyclones and typhoons in your area. Operate the trackball to place the cursor on the icon for additional information. Also, the storm tracks icons may be set up to show historical information (gray icon), current information (red icon) and forecast (orange icon).

Icon	Meaning
	Hurricane (Category 1-5)
	Tropical storm
	Tropical disturbance, Tropical depression

LIGHTNING

The lightning icons show where lightning has struck, within the last 5, 10 and 15 minutes. The icon's fill color indicates how recent the lightning strike was as shown in the illustration below. The number of lightning bolt markers indicates the number of times lightning has struck.

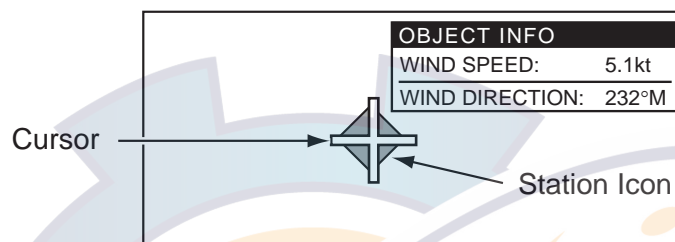


OBSERVATION STATIONS

You can check the historical or current weather information at observation stations.



To find station information, operate the trackball to place the cursor on the observation station that you want to get more details about. The OBJECT INFO window appears.



You can also find more detailed information as shown below.

1. Place the cursor on the station icon.
2. Push the ENTER knob to show the station data.

STATION DATA	
TIME	13:00
WIND SPEED	-. - kt
WIND DIRECTION	--- °M
WAVE HEIGHT	-. - ft
SEA TEMPERATURE	-. - °F
VISIBILITY	-. --- nm

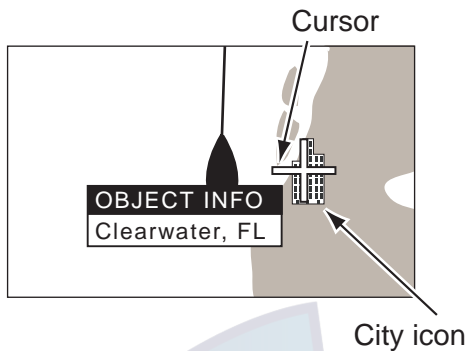
3. If you want to see more detailed weather information, press the VIEW FULL soft key.

STATION REPORT	
STATION ID	42021
STATION NAME	
STATION TYPE	Buoy
LATITUDE	28°18.000' N
LONGITUDE	083°18.000' W
TIME	13:00
DATE	OCT/12/2006
AIR TEMPERATURE	32.1 °F
HORIZONTAL VISIBILITY	-. --- nm
VERTICAL VISIBILITY	-. --- nm
SEA LEVEL PRESSURE	- mb
3 HOUR PRESSURE CHANGE	- mb
PRESSURE TENDANCY	---
WIND DIRECTION	--- °M

4. Press the RETURN key twice to close windows.

CITY FORECAST ICONS

City weather forecasts are available wherever city icons are shown. Operate the trackball to place the cursor on a city forecast icon, and then push the ENTER knob. A maximum of three forecasts will be shown.



FORECAST FOR Clearwater, FL

Friday

Plentiful sunshine. High 58F. Winds W at 5 to 10 mph.

Friday night

Generally clear. Low 29F. Winds light and variable.

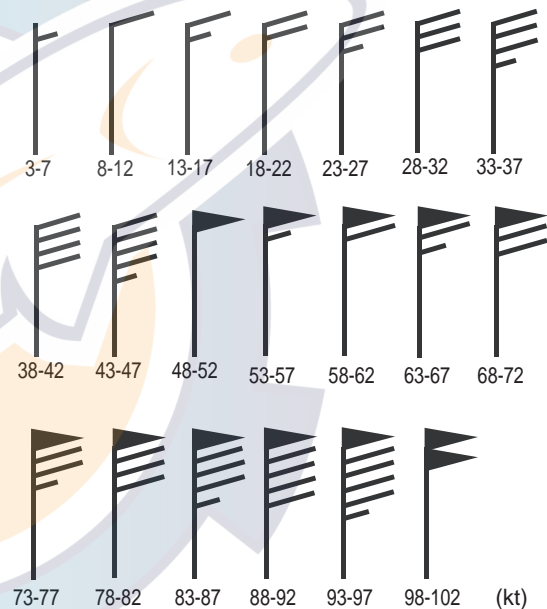
Saturday

Sunshine. High 58F. Winds S at 5 to 10 mph.

WIND

There are two types of WIND icon styles - Arrow marks and Vane feathers. You can select one or the other in the WEATHER SETUP menu.

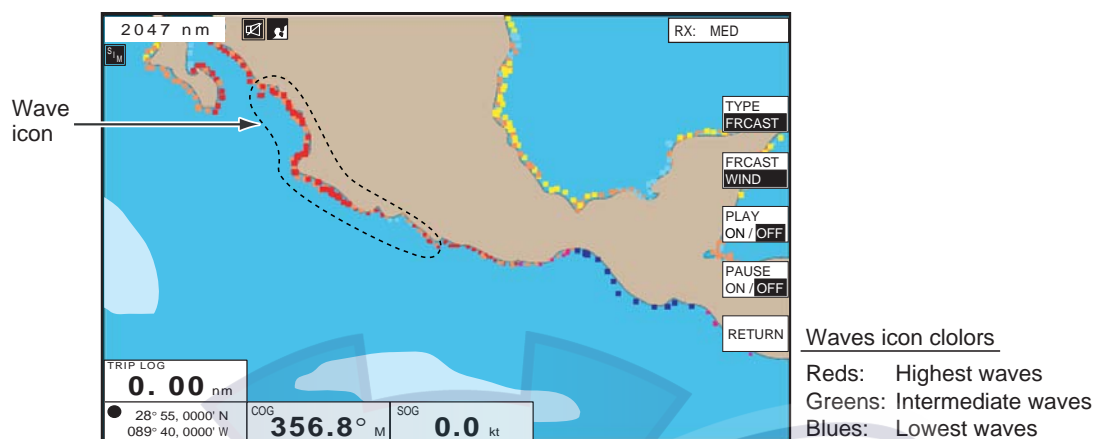
Arrow Marks show you wind speed and direction. The larger the arrow is, the stronger the wind. Vane feathers also show you wind speed and direction, but give you more details about the wind speed per the description shown at right.



Wind icons (Feathers)

WAVES

The Waves layer shows the current wave height (16 levels) in reds, greens and blues, in order of descending height.



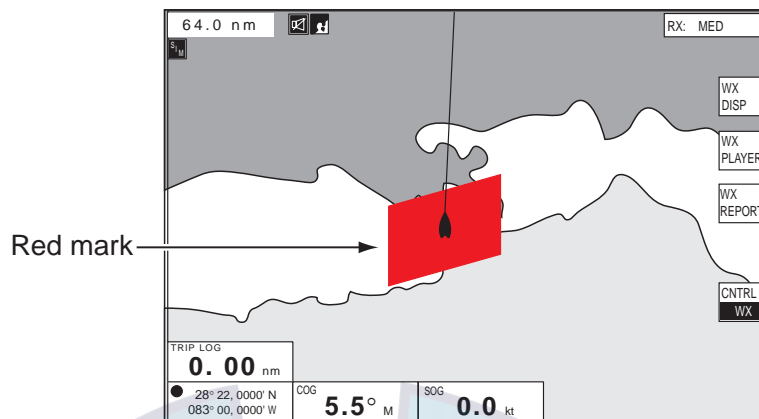
SURFACE PRESSURE

Turn this data layer on to show surface pressure with meteorological symbols.

Icon	Color	Meaning
	Blue	High pressure
	Red	Low pressure
	Red	Warm front
	Blue	Cold front
	Purple	Occluded front
	Red-Blue	Stationary front
	Brown	Trough
	Red	Squall line
	Brown	Dry line
	Grey	Isobars

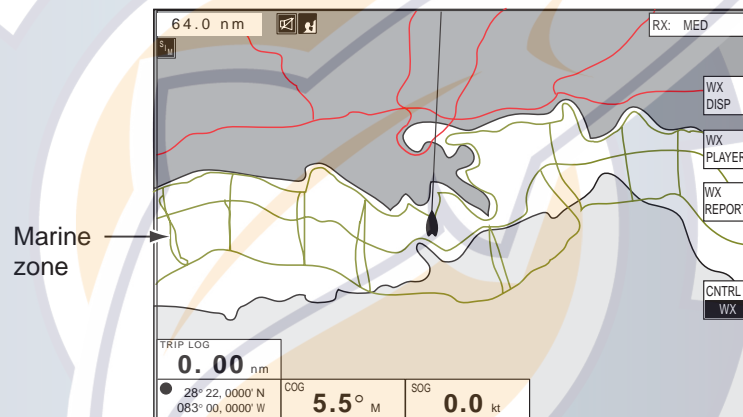
ALERT BOX

Alert areas are areas where severe weather is occurring. They are shown in red.



MARINE ZONE

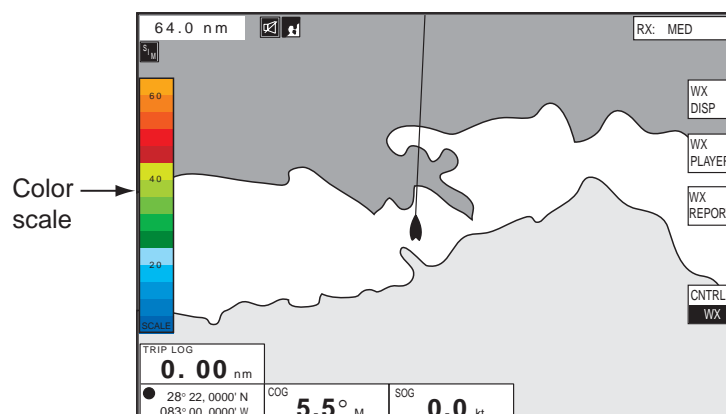
The coastal water is subdivided by zones for forecasts. These zones can be displayed on the screen with lines.



COLOR SCALE

The color scale appears at the left side of the screen and shows the range of colors used in a data layer, via the WX DISP window. There are four types of color scales: WAVE, SEA SURFACE TEMP, NOWRAD and CANRAD. Only one color bar scale may be shown on screen at one time, regardless of how many layers are active. If more than one weather display is active, the priority of the color bar is as shown below.

WAVE > SEA SURFACE TEMP > NOWRAD > CANRAD



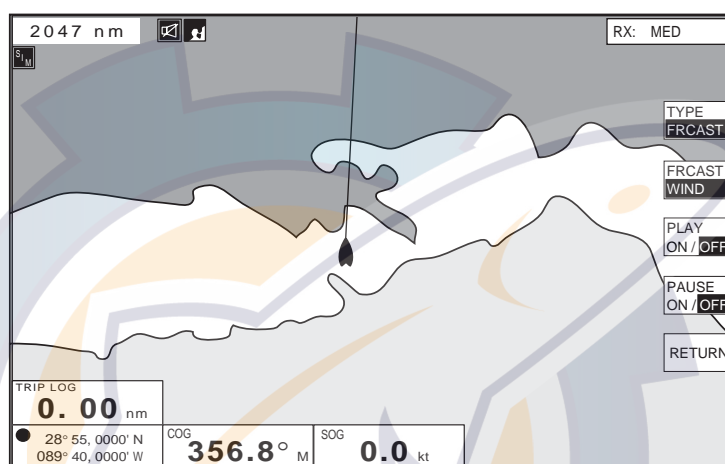
4. Weather Animation

This feature provides animated loops of three (3) days in 3-hour incremental forecasts of wind, waves, or barometer. The source for the animation can be NOWRAD or forecast.

Preparation for the weather animation

Choose the data source to use for the animation, NOWRAD or forecast, and the weather type to be shown among WIND, WAVE or BAROM.

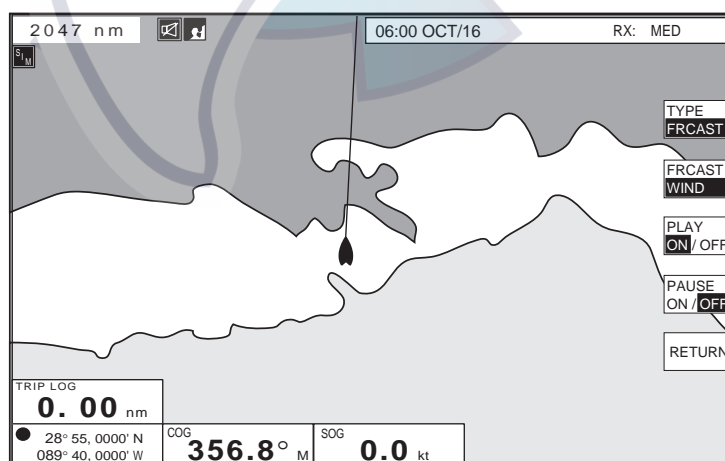
1. Press the WX PLAYER soft key to display the soft keys shown below.



2. Press the TYPE soft key to choose NOWRAD or FRCAST (forecast).
3. Press the FRCAST soft key to choose WIND, WAVE or BAROM as appropriate.

Playing the weather animation

1. Press the WX PLAYER soft key.
2. Press the PLAY soft key to start playing the animation.



To pause the animation, press the PAUSE soft key.

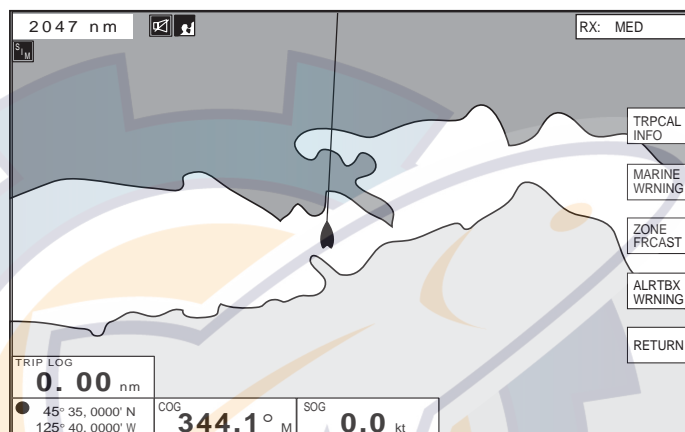
3. To stop the animation, press the PLAY soft key to choose OFF.

5. Weather Reports

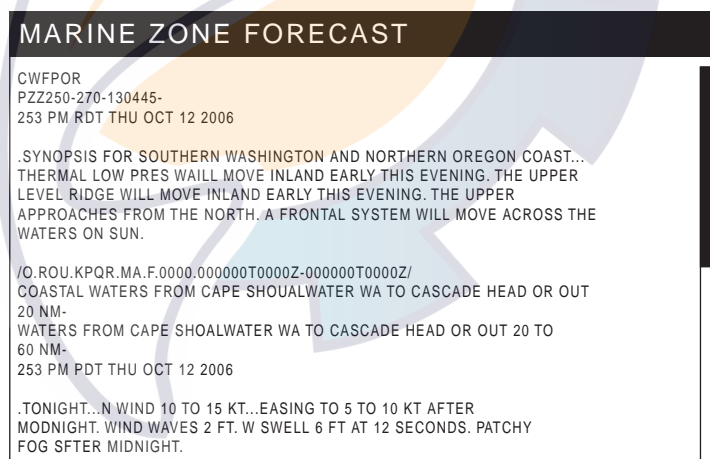
You can access the following weather report types:

- Tropical statement
- Marine warnings
- Zone forecast
- Watch box warnings

1. Press the WX REPORT soft key to show soft keys for the weather report.



2. Press the appropriate soft key to show weather information desired. For example, press the MARINE WARNING soft key.

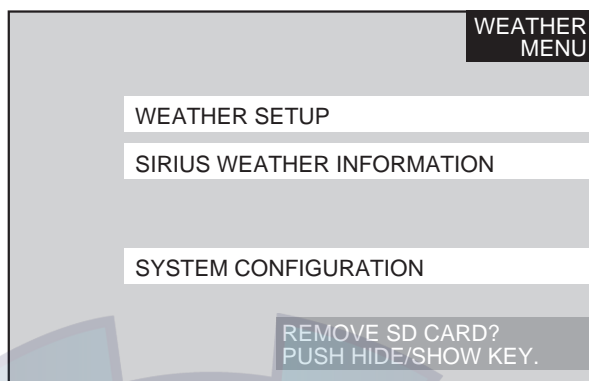


ex. Marine zone forecast

To close the report, press the RETURN soft key.

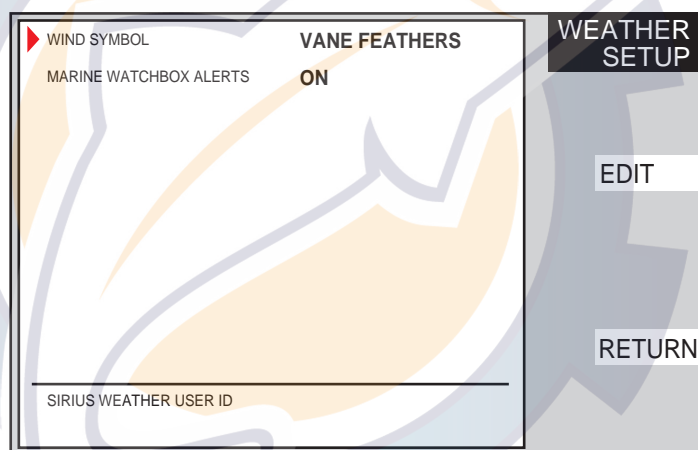
6. Weather Menu Settings

Various parameters for weather can be set up on the WEATHER menu. You can display this menu by pressing the MENU key.



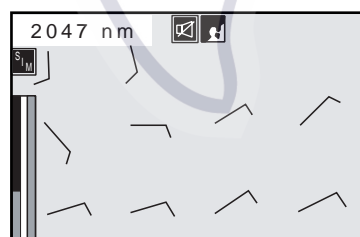
WEATHER SETUP

Press the WEATHER SETUP soft key on the WEATHER menu.

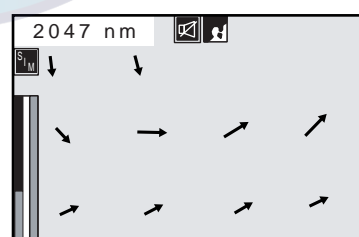


WIND SYMBOL

The WIND icon can be shown by arrow or vane feathers.



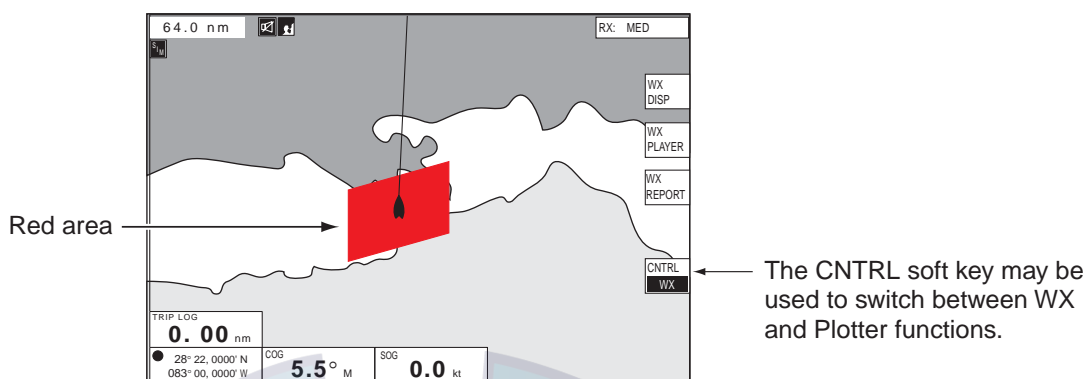
Vane feather type



Arrow type

MARINE WATCHBOX ALERTS

You can get audio (beep) and visual (speaker icon) alerts when a new weather alert, which appears as a red area on the display, occurs.



ALERT BOX

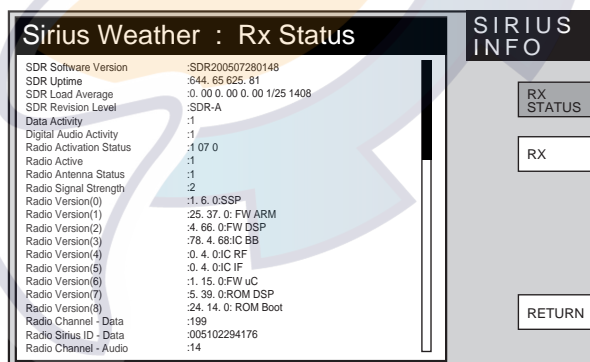
When you receive a warning via the Sirius system, a message is sent to you. The message can be displayed by selecting the WX menu and displaying the SIRIUS INFO screen.

The SIRIUS INFO screen

The SIRIUS INFO screen shows you either BBWX1 technical information, (RX STATUS) or a list of received messages (RX) depending on which soft key is pressed.

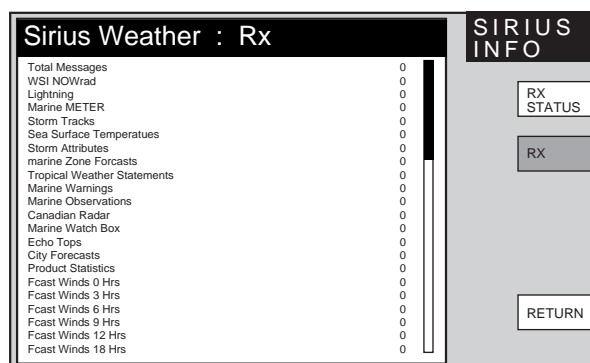
Sirius Weather: Rx Status

This screen shows you information about your Sirius WX receiver. Press the RX STATUS soft key to show the list.



Sirius Weather: Rx

Press the RX soft key to show a list of the Sirius messages you have received.





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