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**SIRIUS SATELLITE WEATHER
REFERENCE MANUAL**



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SIRIUS SATELLITE WEATHER REFERENCE MANUAL

The purpose of this manual is to provide operating procedures for Navnet NN3D's Sirius Satellite Weather capability. An optional Sirius Weather Receiver BBWX2 and Sirius subscription are required. This manual is provided in addition to the Navnet NN3D operator's manual, which fully covers operating procedures for the NavNet NN3D system. Sirius weather coverage is currently only available in U.S. and Canada.

Disclaimer – The weather information is subject to service interruptions and may contain errors or inaccuracies and consequently should not be relied upon exclusively. The service is provided as is. You are urged to check alternate weather information sources prior to making safety related decisions. You acknowledge and agree that you shall be solely responsible for use of the information and all decisions taken with respect thereto. By using this service, you release and waive any claims against Sirius Satellite Radio Inc., WSI, Navcast Incorporated and Furuno with regard to this service. If you do not have the subscription agreement, you will find a copy at: www.sirius.com/marineweather/marineweather_terms_and_conditions.pdf
Or call 1-800-869-5480 to have a copy sent to you.



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Weather

1.1 Weather Display Overview

When connected to the Sirius Weather Receiver BBWX2, this MFD 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.



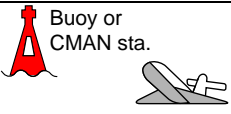







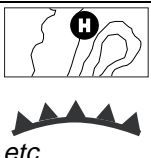
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Before using the weather application:

- Obtain an optional Sirius Weather Receiver BBWX2.
- Obtain a Sirius weather service subscription. Contact Sirius Satellite Radio INC., for further details.
- After connecting and powering up both the BBWX2 and the associated MFD displays, it may take up to 30 minutes for your MFD to receive/accumulate WX data from the BBWX2.
- If, during the installation of the equipment, the Installation Wizard fails to acknowledge the existence of the BBWX2, Sirius-related menus will not appear. Confirm that the equipment acknowledges the Sirius receiver.

1.2 Weather Icons

The table below shows the weather icons that appear the Sirius Satellite Weather display. These icons can be shown or hidden from the Weather menu.

Icon	Color	Meaning
	Pink	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
 Buoy or CMAN sta.	Buoy: Red CMAN station: Grey Airplane: White	Surface observation stations
	Pink	Wind
	Grey	Cities
	Dark blue	Waves
	Green-red	CANRAD (Canadian radar)
	Red-blue	Sea surface temperature
	Green (Rain) Blues (Snow) Pinks (Mixture)	NOWRAD (USA RADAR)
	Grey (Historical) Red (Current) Orange (Forecast)	Storm tracks
 <i>etc.</i>	For details, see page 7-6.	Surface pressure

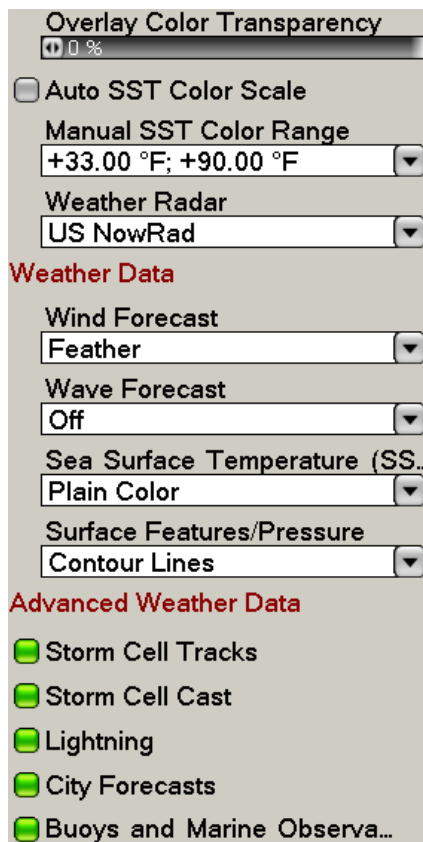
1.3 Weather Menu

The Weather menu lets you adjust the following weather-related items:

- Overlay transparency
- Color scale
- Weather radar (US or Canada)
- Standard weather data
- Advanced weather data

1.3.1 Displaying the Weather Menu

1. Press the **MENU** key to open the menu.
2. Use the RotoKey to open the Weather-Sirius menu.



3. Use the RotoKey to select the weather item that you want to show or hide.
4. Push the RotoKey to alternately turn the item on and off.
5. Press the **MENU** key to close the menu.

1.3.2 Weather Menu Description

Overlay Color Transparency

Adjust the transparency level of the weather overlay. Select this item with the RotoKey and push the RotoKey. Rotate the RotoKey to set and then push it to confirm setting. The higher the value the greater the transparency of the overlay.

Auto SST Color Scale

Enable/disable automatic adjustment of sea surface temperature color scale according to sea surface temperature.

Manual SST Color Range

Set the SST color range when Auto SST Color Scale is disabled. The setting range is +00.00 to 99.99 (degrees Fahrenheit).

Weather Radar

Select the weather radar to use USA NOWRAD (USA) or CANRAD (Canada). 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.

Precipitation indication on NOWRAD.

Weather radar 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

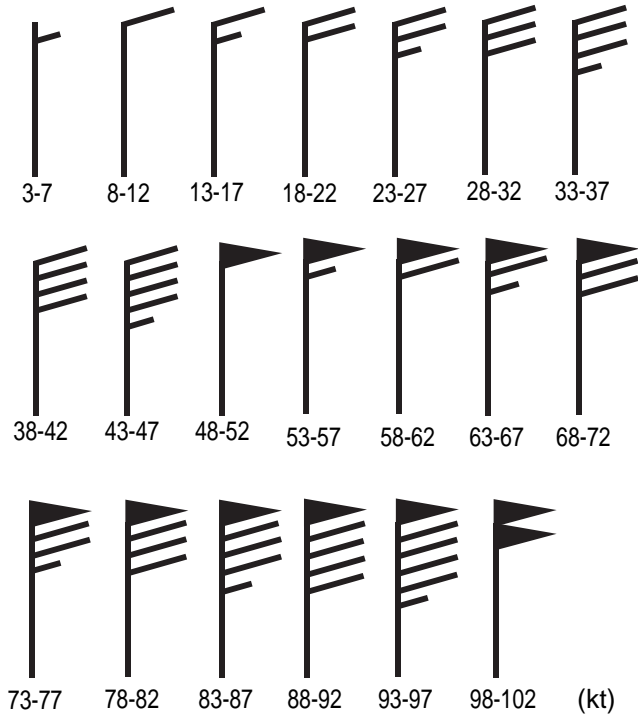
Precipitation indication on CANRAD

Weather radar 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

Weather Data

Wind Forecast

Select how to show the wind forecast. There are two types of wind icon styles: Vane feathers and Plain colors. Vane feathers also show you wind speed and direction, but give you more details about the wind speed per the description shown below.



Wind Force	10.0 kt
Wind Direction	306.5 M
Wave Height	+11.0 ft
Wave Direction	141.5 M
Wave Period	0m00s

Place cursor on a wind icon or anywhere on a body of water and hit the **left-click** button to show wind and wave information for that area.

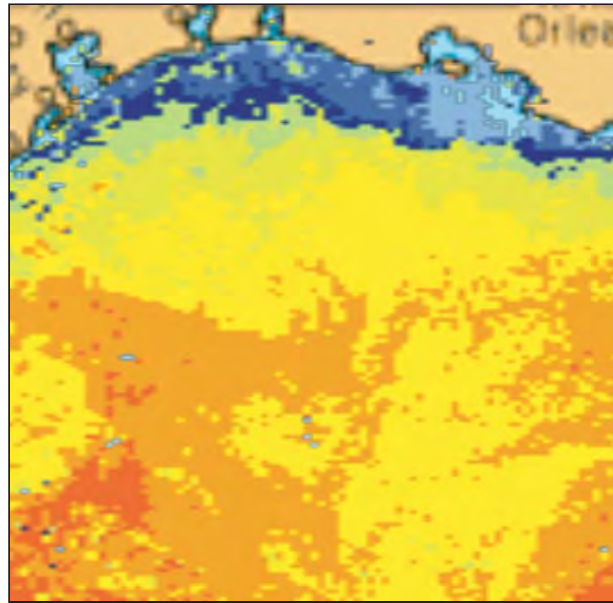
Waves Forecast

The Waves layer depicts wave height, with a dark blue arrow whose length increases with wave height. To find wave information place the cursor on a wave symbol and hit the **left-click** button.

Wind Force	30.0 kt
Wind Direction	186.5 M
Wave Height	+12.50 ft
Wave Direction	156.5 M
Wave Period	0m00s

Sea Surface Temperature

This data layer shows the temperature of the sea surface in shades of red and blue, in order of descending temperature.



Surface Features/Pressure




Enable this feature to get surface pressure with meteorological symbols. The cursor may be placed on an surface pressure icon to show the name of the surface pressure.

Seasurface temp 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

Advanced Weather Data

Storm Tracks

The storm track icons show significant storms in your area. These include tropical disturbances, depressions, storms and cyclones, hurricanes, typhoons and super typhoons. These symbols are displayed in three different colors: Grey, historical; Red-current, and Orange, forecast.

Storm tracks Icons	Meaning
	Hurricane (Category 1-5)
	Tropical storm
	Tropical disturbance, Tropical depression

To find simple storm tracks information, place the cursor on the icon. For more detailed information, press the **left-click** button.

Type	Typhoon
Wind Speed	8.0 kt
True Direction	111.5 °M
Wind Gust Speed	35.0 kt
Max Wind Speed	25.0 kt
Pressure	1008 hPa
Track Position Type	Current
Date of Observation	Oct/12/06
Position	17°36.0000' N; 121°54.0000' W

Simple storm tracks information

Name	OLIVIA
Type	Typhoon
Wind Speed	8.0 kt
True Direction	111.5 °M
Wind Gust Speed	35.0 kt
Max Wind Speed	25.0 kt
Pressure	1008 hPa
Track Position Type	Current
Date of Observation	Oct/12/06
Position	17°36.0000' N; 121°54.0000' W

Detailed storm tracks information

Storm Cell Cast

You can find the direction and speed of a storm by placing by placing the cursor on the icon. For more detailed information, press the **left-click** button.

Speed	14.0 kt
True Direction	66.0 °T
Position	24°29.2800' N; 82°59.8800' W

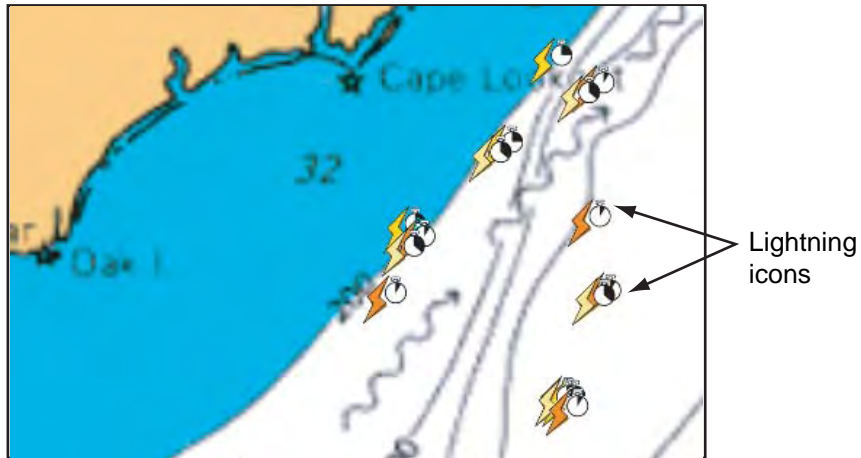
Simple storm cell cast information

Speed	20.0 kt
True Direction	81.0 °T
Date of Observation	Dec/18/07
Echo Top	+25000.00 ft
Type	Unknown
Position	24°32.4000' N; 83°15.5400' W




Detailed storm cell cast information

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 table below. The number of lightning bolt markers indicates the number of times lightning has struck.



.Description of lightning icons

Lightning icon	Color	Period
	Orange	Last 0-5 min.
	Medium yellow	Last 5-10 min.
	Light yellow	Last 10-15 min.

To find simple lightning information, place the cursor on it. For more detailed information, push the **left-click** button.


Period 0 - 5 minutes
Position 39°48.6000' N; 112°10.2000' W

Simple lightning information

Period 0 - 5 minutes
Position 40°40.8000' N; 109°31.8000' W

Detailed lightning information

City Forecasts

City weather forecasts are available wherever city icons are shown. For simple information, place the cursor on the city icon (). For more detailed information, push the **left-click** button.

Name Sacramento, CA
Position 38°34.8000' N; 121°29.4000' W


Simple city information

Name Sacramento, CA
Thursday
Considerable clouds this morning. Some decrease in clouds later in the day. High 68F. Winds SW at 5 to 10 mph.
Thursday night
Some clouds. Low near 40F. Winds SSW at 5 to 10 mph.
Friday
Intervals of clouds and sunshine. High 68F. Winds SW at 5 to 10 mph.

Detailed city information

Buoys

You can check the historical or current weather information at buoys.

For simple information, place the cursor on the buoy icon (), etc. For more detailed information, push the **left-click** button.

Type	Buoy
Position	36°48.0000' N; 121°54.0000' W

Simple buoy information

Name	
Type	Buoy
Date of Observation	Mar/08/07
Ship Speed	0.0 kt
Ship Direction	0.0 °T
Wind Speed	5.8 kt
Wind Direction	80.0 °T
Wind Gust Speed	9** kt
Wind Speed At 10 Meters	5.1 kt
Wind Speed At 20 Meters	5.1 kt
Peak Wind Date	---
Peak Wind Dir	255.0 °T
Peak Wind Speed	9** kt
Variable Wind First Dir	255.0 °T
Variable Wind Second Dir	255.0 °T
Water Tmp	54.23 °F
Air Tmp	48.11 °F
Dewpoint Tmp	5**.* °F
Max Tmp in last 24 hours	5**.* °F
Max Tmp in last 6 hours	5**.* °F

↓
Scroll for more data

Detailed buoy data

1.4 Weather Reports

Marine zone forecasts, marine warnings, tropical information and weather alerts are sent to your unit. You can view them on the Weather menu, by opening respective sub menu.

Sirius sends warning messages to alert you to bad weather. You can view these messages by opening the Weather-Alert Box menu.

1.4.1 Marine Zone Forecast

These forecasts cover the following areas.

- US coastal weather forecasts
- US offshore forecasts
- High seas forecasts
- Great Lakes forecasts
- Near Shore forecasts
- Canadian coastal weather forecast.

```
Waters from Cocoa Beach to Jupiter Inlet FL from
20 to 60 NM

CWFMLB
AMZ575-032245-
SYNOPSIS FOR FLAGLER BEACH TO JUPITER INLET OUT 60 NM-
422 AM EST SAT FEB 3 2007
.SYNOPSIS...A COLD FRONT WILL STALL OVER SOUTH FLORIDA AND THE
FLORIDA STRAITS TODAY. HIGH PRESSURE WILL REMAIN NORTH OF THE
AREA THROUGH MID WEEK.
.GULF STREAM HAZARDS...NORTH WINDS 15 TO 20 KNOTS.
THE APPROXIMATE LOCATION OF THE WEST WALL OF THE GULF STREAM AS
OF SATURDAY FEB 2 AT 4 AM...
38 NAUTICAL MILES EAST OF PONCE INLET.
24 NAUTICAL MILES EAST OF PORT CANAVERAL.
18 NAUTICAL MILES EAST OF SEBASTIAN INLET.
11 NAUTICAL MILES EAST OF FORT PIERCE INLET.
/O.ROU.KMLB.MA.F.0000.000000T0000Z-000000T0000Z/
WATERS FROM COCOA BEACH TO JUPITER INLET 20 TO 60 NM OFFSHORE-
422 AM EST SAT FEB 3 2007
.TODAY...NORTH WINDS 15 TO 20 KNOTS. SEAS 3 TO 4 FEET. CHANCE OF
RAIN.
```

Marine zone forecast

1.4.2 Marine warning

Display the marine warnings (US coastal or near shore).

```
Waters from Cocoa Beach to Jupiter Inlet FL from
20 to 60 NM

NOWMLB
AMZ555-575-031045-
SHORT TERM FORECAST
NATIONAL WEATHER SERVICE MELBOURNE FL
243 AM EST SAT FEB 3 2007
COCOA BEACH TO JUPITER INLET OUT TO 20 NM-INDIAN RIVER-MARTIN-
OKEECHOBEE-OSCEOLA-SOUTHERN BREVARD-ST. LUCIE-
243 AM EST SAT FEB 3 2007
.NOW...
THROUGH 6 AM...LIGHT RAIN OR SPRINKLES WILL EXTEND FROM FAR SOUTHERN
SECTIONS OF BREVARD AND OSCEOLA COUNTIES SOUTH TO AROUND LAKE
OKEECHOBEE. THE AREA WILL CONTINUE TO WORK SOUTH DURING THE EARLY
MORNING HOURS.
$$
```

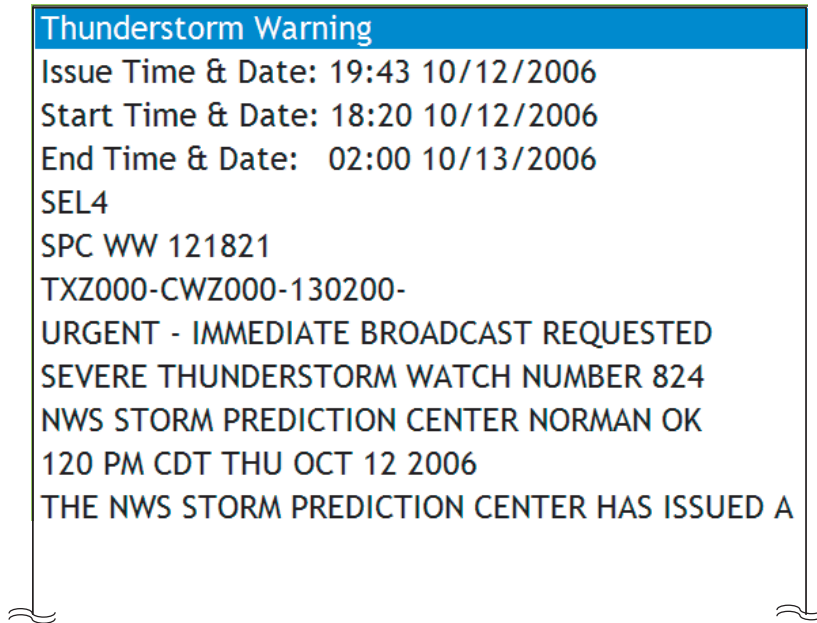
1.4.3 Tropical Statement

Below is an example of a tropical weather statement.

```
TW DAT
TROPICAL WEATHER DISCUSSION
NWS TPC/NATIONAL HURRICANE CENTER MIAMI FL
105 AM EST SAT FEB 03 2007
TROPICAL WEATHER DISCUSSION FOR NORTH AMERICA...
CENTRAL AMERICA...THE GULF OF MEXICO...THE CARIBBEAN SEA...
NORTHEASTERN SECTIONS OF SOUTH AMERICA...AND THE ATLANTIC
OCEAN TO THE AFRICAN COAST FROM THE EQUATOR TO 32N.
THE FOLLOWING INFORMATION IS BASED ON SATELLITE IMAGERY...
METEOROLOGICAL ANALYSIS...WEATHER OBSERVATIONS...AND RADAR.
BASED ON 0000 UTC SURFACE ANALYSIS AND SATELLITE IMAGERY THROUGH
0515 UTC.
...THE ITCZ...
ITCZ AXIS IS CENTERED ALONG 8N13W 3N23W 1N30W CROSSING THE
EQUATOR NEAR 34W CONTINUING ALONG 2S40W INTO NE BRAZIL.
SCATTERED MODERATE CONVECTION IS WITHIN 150 NM S OF THE AXIS
BETWEEN 20W-24W. ISOLATED MODERATE IS WITHIN 180 NM N W OF 32W.
...DISCUSSION...
```

1.4.4 Marine WatchBox

The message "Weather Alarm, Press Menu Button" appears on the status bar when a tornado or thunderstorm warning is received. To view the details of the warning, press the **MENU** key to open the Alert Box in the Weather menu. The message is automatically opened in the Alert Box. A typical warning message is shown below.



You can show or hide the WatchBox warning message with Sirius Marine WatchBox in the Alarm-General menu.