



GMX 200™

Pilot's Guide
Addendum for
WSI Weather

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Ordering Information

To receive additional copies of this GMX 200 Pilot's Guide Addendum for WSI Weather, order Part Number 190-00607-06. To receive additional copies of the GMX 200 Pilot's Guide, order Part Number 190-00607-02. The GMX 200 Quick Reference Guide is Part Number 190-00607-03.

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WSI InFlight™ Flight Information Service (FIS) Function

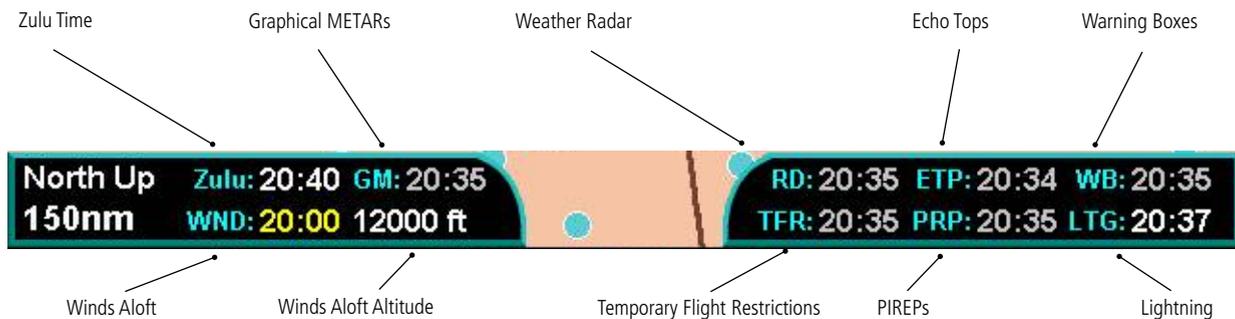
The Flight Information Service (FIS) Function allows access to graphic and text weather data messages on WSI InFlight-equipped installations. Graphical weather includes US and Canadian radar, METARs, winds aloft, temperature aloft, lightning strikes, warning areas, and TAFs. You can select Graphical WX, Text, or Status information by pressing the **MENU/ENT** key and then choosing the type of information with the **MENU ITEM** keys. Review the Limitations section in the Pilot's Guide Introduction for the limitations that apply to the FIS data.

Product Times

Product times shown on the lower portion of the display are: **GM** for Graphical METARs, **RD** for weather radar, **ETP** for EchoTops, **LTG** for Lightning, **PRP** for PIREPs, **TFR** for Temporary Flight Restrictions, **WND** for Winds Aloft, and **TMP** for Temperature Aloft, **ICE** for Icing, and **WB** for Warning Boxes (Airmets and Sigmets). Times are Zulu times when the data was assembled on the ground, not the time the data was received by the FIS sensor.

For GMX 200s that have a GPS receiver that provides time, the **Zulu** time is the time reported by the GPS receiver. For GMX 200s that do not have time provided by a GPS receiver, this field is invalid and dashed out.

Product times are shown in white when they are 0 to 5 minutes old, gray when they are 5 to 10 minutes old, and yellow when they are older than 10 minutes. For GMX 200s that have time available from a GPS receiver, age is based on the time reported by the GPS receiver. For GMX 200s that do not have time available from a GPS receiver, age is based on the time the data was received from the FIS sensor. In this case, the age of the data may be older than what is shown by the color coding. The WSI logo on the right is displayed when new data is being transferred from the WSI receiver to the GMX 200.



WSI FIS Graphic Weather Product Times

Graphical WX Overlay Options

A variety of graphical information is available with the Overlay function when viewing the Graphical WX display. Press the **OVRL** function key to view and select available options. Some or all of the following may be available, based on your FIS subscription.

- US and/or Canadian Weather Radar (determined by subscription)
- METARs, US, and/or Canadian (determined by subscription)
- SIGMETs & AIRMETs
- Echo Tops
- Icing
- TFRs
- Lightning
- Winds/Temperature Aloft
- Label
- Flight Plan
- Legend
- Map Detail
- Map Orientation

Graphical Weather (WX) Display

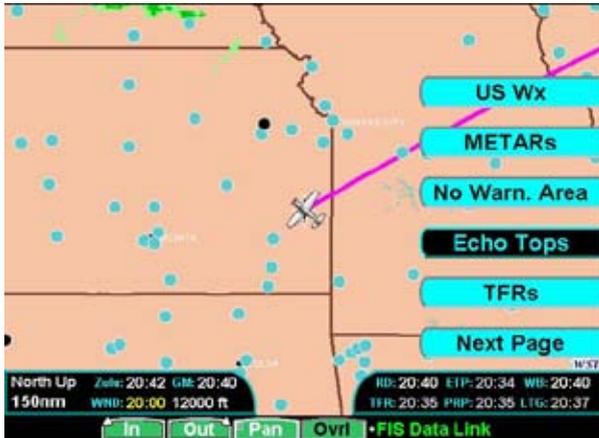
Weather radar images are available for display from the FIS sensor by selecting the Graphical WX option. A cyan dot pattern indicates areas where no data has been received from the FIS sensor. Solid cyan areas represent areas where the ground based weather radars are unable to monitor weather. This is typically caused by terrain obstruction. When depicted, color coded weather intensity is presented and is an indication of radar echo return strength. Different colors are used for US and Canadian weather. Because of weather radar differences, do not assume that the same actual weather intensities are represented by the same colors. The intensities associated with the color codes are available by viewing the Legend Overlay Option. The legend associated with the weather radar image is shown for the depicted radar data, US or Canadian.

The weather display and Icing products are mutually exclusive. You may select to display either the weather display or Icing, not both. Selecting the weather display will turn off the Icing display.



WSI FIS Graphic Weather Info

Menu Options for Overlay Page 1



WSI FIS Graphic Weather Overlay Menu Items (Page 1)

1. Press the **OVRL** function key to allow selection of the Overlay choices when viewing the Graphical WX option.
2. Press **MENU/ENT** to display menu items for the Overlay. Press **NEXT PAGE** to see more options.

US or Canadian Weather Radar

This option is only available when subscribed to both radar products. WSI offers subscriptions for US and Canadian radar data. Because of differences in radar technology, both data types cannot be displayed at the same time. When subscribed to both weather radar products, you can alternate between the two with the Overlay option.

METARs

When enabled, METARs are available as colored circles or diamonds at airports that provide METAR reports. Press the **METARs** key to cycle through the options of circular, diamond, or no METARs. Circles depict the current METAR. Diamonds depict the current weather condition. Refer to the Legend for a description of the color code. US and Canadian

METARs use the same color coding and will be shown at the same time with a subscription to both products.

SIGMETs & AIRMETs

When enabled, the following SIGMETs and AIRMETs are available for display with repeated presses of the Menu Item key :

- “SIGMETs” are for Convective SIGMETs
- “T AIRMET” is for Surface/Aloft Turbulence AIRMETs
- “Z AIRMET” is for Icing AIRMET
- “S AIRMET” is for an IFR condition, such as a mountain obstruction
- “No Warn. Area” turns off all SIGMETs and AIRMETs

These are collectively known as Warning Boxes and are displayed as color coded outlines of the affected area. Refer to the Legend for a description of the color coding.

Echo Tops

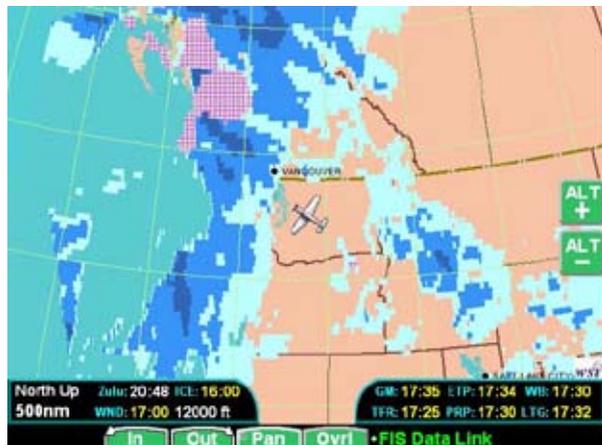
Echo Tops indicate the location, elevation, and direction of the highest radar echo. This is typically associated with storms. This may not indicate the top of a storm or clouds, only the highest radar return echo. Refer to the Legend for a description of the Echo Tops coding.

Icing

Icing data may be displayed with either Winds or Temperatures Aloft. Two icing hazards may be displayed. Current Icing Severity (CIS) is displayed in different shades of blue. Super-cooled Large Droplets (SLD) are shown in magenta. Refer to the Legend for a description of the CIS color coding. A dot pattern indicates areas where no icing has been received or is not available, such as the higher altitudes.

Press the **Icing** key to toggle the display of Icing data on and off. Use the **Alt+** and **Alt-** menu item keys

to select the altitude to display the reported information.



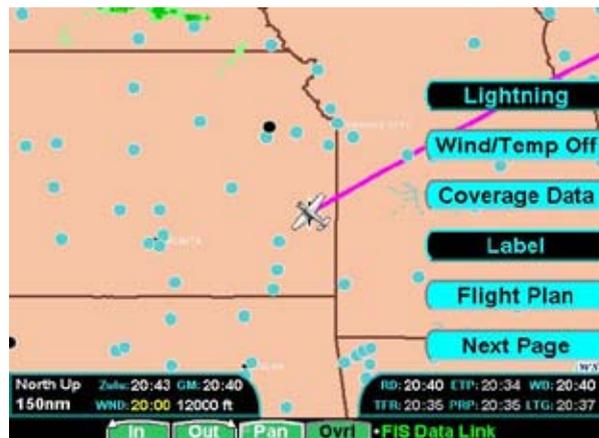
The Icing and weather radar displays are mutually exclusive, meaning one or the other may be displayed, but not both at the same time. Turning the Icing display on turns off the weather radar display.

Temporary Flight Restrictions (TFRs)

Temporary Flight Restrictions (TFRs) indicate areas where flight restrictions have been imposed. They are depicted as areas with yellow outlines and a cross-hatch pattern. The cross-hatch pattern indicates that the TFR is currently active or within 30 minutes of being active. The area may also contain the TFR identifier. The TFR identifier includes the TFR number and upper altitude. TFRs are displayed on the MAP function when Airspaces are enabled in the MAP function.

Menu Options for Overlay Page 2

1. Press the **OVRL** function key to allow selection of the Overlay choices when viewing the Graphical WX option.
2. Press **MENU/ENT** to display menu items for the Overlay.
3. Press **MAIN MENU** to return to the Main Menu.



WSI FIS Graphic Weather Menu Items

Lightning

Press the **Lightning** key to toggle the display of lightning strikes on and off.

Winds and Temperatures Aloft

Press the **Wind/Temp** key to toggle the display of Winds Aloft on, or Temperature Aloft on, or both off. Winds Aloft and Temperature Aloft may not both be shown at the same time. Temperatures are displayed in units of degrees Celsius. Minus temperatures are shown with a blue background. Plus temperatures are shown with an orange background. When Winds or Temperature Aloft are on, **Alt+** and **Alt-** Menu Item keys are available to select the altitude to display the reported information. If Icing is on, data is displayed for the same altitude.



WSI FIS Winds Aloft is selected



WSI FIS Coverage Data



WSI FIS Temperature Aloft is selected with Alt keys shown

Coverage Data

Press the **MENU/ENT** key and then press the **Coverage Data** key to toggle the display of the WSI weather radar coverage area on and off. Cyan areas indicate that there is no radar coverage.



NOTE: *Displaying Coverage Data with Radar data will provide a complete picture of Radar Coverage.*

Label

Press the **LABEL** key to toggle labels on and off.

Flight Plan

Press **MENU/ENT** key and then press the **FLIGHT PLAN** key to toggle the Flight Plan course line on and off. The magenta line is the active leg.

Menu Options for Overlay Page 3

Legend

Press **MENU/ENT** key and then press the **LEGEND** key to display the legends describing the graphic display colors. Press the **LEGEND** key once to display a legend for the METAR, Weather, and Radar colors. Press the **LEGEND** key a second time to display a legend for AIRMET and SIGMET colors and EchoTop graphics.

METAR	WX
○ No Data	No Data
● VFR	◀ No Sig Wx
● MVFR	◆ Liquid Precip
● IFR	◆ Obs to Visibility
● LIFR	◆ Solid Precip
● < CAT I	◆ Hazd. Phen
	◆ Winds \geq 20 knots

WSI FIS METAR and Wx Legend (US)

AIRMET and SIGMET Colors
■ Sigmets
■ Icing Airmet
■ Turbulence Airmet
■ IFR Airmet
■ Mountain Obscuration Airmet
■ Surface Winds Airmet

WSI FIS Legend for AIRMET and SIGMET Colors

Current Icing Severity
■ Light Icing
■ Moderate Icing
■ Heavy Icing
■ Supercooled Large Droplets

WSI FIS Current Icing Severity Legend



WSI FIS Legend for Echo Top Graphics

When viewing the Canadian radar data, the Canadian Radar legend colors will appear in the lower portion of the legend.

US RADAR	Canadian RADAR
■ 20-30 DBZ	■ Light <-----> Heavy
■ 30-40 DBZ	■ Environment Canada
■ 40-50 DBZ	■ Environnement Canada
■ 50-60 DBZ	
■ 60-80 DBZ	
■ Snow	
■ Mixed	

WSI FIS Legend for US and Canadian Radar

Map Detail

Press the Map Detail Menu Item key to choose between the display of No Overlays, the Base Map, or Map and Nav Aids.

SafeTaxi airport diagrams are always drawn if available in the database. SafeTaxi airport diagrams are drawn when the zoom scale is 20 NM, or lower, with progressively more details shown as the scale decreases.

Airport diagrams may show areas where extra vigilance is recommended due to traffic congestion, visibility constraints, or other unique circumstances. These areas are called hot spots and are identified by circular or elliptical lines. Although these areas are highlighted as places where extra caution is warranted and advised, they do not relieve the pilot of the responsibility to “see and avoid” other traffic or obstacles, on the airport surface or in the air. All taxiway and runway intersections should be approached with caution, whether they are marked with hot spots or not. Runways where Land and Hold Short Operations

(LAHSO) may be in effect are identified with yellow lines across the runway labeled “LAHSO”. Other areas where extra vigilance is recommended, such as construction zones, may also outlined with yellow lines. Hot spots and other outlined areas are derived from database information and may therefore contain errors or may not be included in the database.

Map Orientation

Press the Map Orientation Menu Item key to choose the configuration of the map orientation of **DTK Up**, **North Up**, **TRK Up**, **TRK Up Arc**, or **TRK Up 360**.

Exit Overlay Mode

Press the **Ovrl** function key to exit Overlay mode.



WSI FIS Graphic Weather Menu Items (Trk Up 360)

Text Display

FIS text messages are available on the text display and include METARs, TAFs, AIRMETs, SIGMETs, AIREPs, PIREPs, and TFRs. Individual text messages are updated every five minutes and composed of four parts: message type, location, time, and message body.

1. Press the **MENU/ENT** key and then press the **Text** key to activate the Text display.

2. Use the function arrow keys to select the FIS Category and information type. When available, press the **View** key for more detail or full screen display.



WSI FIS Text Weather Messages

The upper portion of the FIS Function page is used for displaying the contents of an individual FIS message while the lower portion of the screen is used for categorization and sorting of different message types, such as METARS, TAFs, SIGMETs, AIREPs, PIREPs, etc.

The FIS Category columns are loosely defined as message type, location and time stamp to handle the most common type of FIS up-link data.

The different message types and data content are fully controlled by the ground broadcast systems. The airborne system will automatically display any message type that is received.

US and Canadian text METARs, text and graphical TAFs are available at the same time when subscribed to both US and Canadian products. US and Canadian METARs and TAFs use the same format as described below.



WSI FIS Graphic and Text TAF Weather Messages

Selecting Text Data

White Selection Pointers above the smart keys can be used to select an alternate message for display. The selected line in the FIS Category area is noted by a white arrow. The pilot can move the Selection Pointer within the Category area to select the desired category, location, and time that is of interest with the use of the arrow keys. The **rotary knob** scrolls up and down through the list. Pressing the **rotary knob** switches between columns.

Using this interface, the pilot can easily select the desired message type (such as METAR), then select the airport of interest (such as KPDX), then select a specific METAR report by time (such as 141512Z).

At all times, the message displayed in the upper FIS Message area on the screen matches the highlighted entry in the FIS Category area below.

The system shows text METAR and TAF data for the 25 locations nearest the present position and up to the 25 locations nearest to the destination in the flight plan that are reporting weather information. The system will show all other data provided by the FIS sensor.

Smart Key Function

The fourth “smart” key performs special functions within the FIS Function:

When the Selection Pointer is located in the first of the three columns, the fourth “smart” key displays the label “Clear”. When pressed, all messages for the currently selected category will be cleared from the GMX 200. This feature can be used to clear old data received over the data link.

When the Selection Pointer is in the center-most column, the fourth “smart” key displays the label “Sort.” See below for how the sort option works.

When the Selection Pointer is in the right most column, the fourth “smart” key displays the label “View.” When pressed, the currently viewed message is presented in a full screen mode. This feature provides a mechanism to view large textual messages that do not fit within the upper half of the display area. Some messages may be longer than can be displayed in the full screen mode. These are indicated by a small arrow at the bottom of the area. Press the arrow keys to scroll through the information.

Viewing Text TAFs

Pressing the **View** key when highlighting TAFs will display a full screen with the text TAF at the top and a graphic representation in the lower portion of the screen. The **Time** column includes both date and time. The **METARs** column displays active METAR information. The **Prev** column displays prevailing conditions. The **Tempo** column displays temporary conditions. The **Prob** column displays probable conditions. Press the arrow keys to scroll the information and the **View** key to exit this view.

Sorting FIS Messages

Special sorting capabilities are provided for in the central “location” column. This sorting allows weather reports to be sorted by location based on different criteria.

When the Selection Pointer is located in the second column, the fourth “smart” key label changes to “Sort.” When pressed, the sorting of the messages cycle through the following options:

- (Distance to) Nearest Final Waypoint
- (Distance to) Nearest Present Position
- (Distance to) Nearest Next Waypoint
- Alphanumerically

When the sorting is based on distances from current ownership to a given airport, the system must be able to correlate a Jeppesen airport that matches the location field of the received message. If this lookup is successful, a distance shall be presented adjacent to the location text. If no corresponding location can be determined, no distance is assigned but the message is presented at the end of the list.

The default sorting method is “Nearest Present Position” and is reset when the FIS Function is re-entered.

Status Information

Status information shows satellite signal reception status, the amount of data received, and the weather products that have been activated. Contact your FIS service provider to activate and deactivate products.

1. Press the **MENU/ENT** key and then press the **Status** key to activate the Status display.



WSI FIS Status Statistics

2. Press the **Prod** function key to display the available WSI products.



WSI FIS Graphic and Text TAF Weather Messages

GMX 200 Safety Monitor Codes

The GMX 200 is designed to detect anomalies and unexpected operational and data events. When an anomaly or event occurs, the unit assumes the situation is unrecoverable and continued unit operation is ill-advisable. Regardless of the code, neither the unit nor operator has enough information to identify the source and resolve the problem. To avoid the possibility of displaying misleading data, the unit reboots itself to restore normal operations.

When an event occurs, the unit identifies the section of the software where the problem was detected. A code is displayed on the error screen before the reboot and in the MSG function after the reboot. Codes are organized by subsystem and functional block. See the table below for the list of codes. Error codes include four digits. The first two identify the function or software section that detected the error. The last two digits indicate a specific line or software instruction. The error code is an indication where the error was detected. However, in most cases it is not where the error occurred.

If the error code condition clears and does not return after resetting the unit, it can be assumed that the condition causing the code was temporary and the unit will continue to function properly. If the condition causing the event persists, the unit will detect the event and issue another reboot along with a code, typically the same code. This will continue until the unit is turned off or the condition causing the event is resolved.

Repeated occurrences of the same code indicate there may be a problem with the installation, with a sensor providing data to the GMX 200, or within the GMX 200. This situation should be analyzed in order to determine the root cause of the problem. Should a code be displayed twice within a short amount of time, please record the four-digit code if practical along with any other symptoms or information, and report the event to your Garmin technical support representative for further analysis. The GMX 200 also records log files on the SD card. A copy of these files should also be provided to Garmin to help investigate the problem.

Operational Response

Codes are not indicators that provide specific operational guidance (i.e., go or no-go). There is no specific action to be taken by the flight crew based on the displayed code. Codes are an indication that the unit may have received unexpected data, had a problem processing the received data, or other difficulty.

The following are recommended actions based on the current situation:

Pre-Flight and Post-Flight

If a code appears, the pilot should let the unit reboot. If the problem does not reappear, the operation may proceed. If the code continues to appear multiple times, the pilot should have the problem investigated by a mechanic. Repeated problems must be reported to Garmin technical support representative along with the code number and logfile(s).

During Flight

If a code appears, the pilot should let the unit reboot. If the problem does not reappear, the flight may continue. If the code continues to appear multiple times, the flight may continue at the pilot's discretion. The pilot has the option to turn the unit off. Repeated problems must be reported to Garmin technical support representative along with the code number and logfile(s).

Code	Subsystem
0xx	Safety Monitor
1xx	Startup
2xx	GPS
3xx	UAT
4xx	Altitude
5xx	General Drawing
6xx	WX 500 (StrikeFinder)
7xx	SL30
8xx	Ryan TCAD
9xx	Radar
10xx	Radar
11xx	Traffic (Skywatch, IHAS, GTX)
12xx	WSI
13xx	TAWS
14xx	GDL 69
15xx	Basemap
16xx	Display Head
17xx	Option Menu
18xx	Annunciation Flags
19xx	GAMA 429
45xx	Weather (UAT/WSI)
46xx	GPS
47xx	Message
48xx	GDL 69
49xx	GDL 69 Weather
50xx	Traffic
51xx	Radar/TAWS
52xx	IO
53xx	IO
54xx	IO
55xx	Charts (Jepp)
56xx	General Drawing
57xx	GDL 69 Audio
58xx	GDL 69 Audio
59xx	Traffic
60xx	Airports
61xx	Airspace
62xx	General Drawing
63xx	General Function Drawing
64xx	Charts
65xx	Terrain
66xx	Echo Tops (WSI)
67xx	Weather (UAT/WSI)
68xx	Flight Plan
69xx	Option Menu
70xx	Graphical METAR (UAT/WSI)
71xx	Basemap
72xx	IFR Map Function
73xx	Intersections
74xx	Lat/Lon Lines
75xx	Basemap
76xx	Custom Map Function
77xx	Message Function
78xx	Nav aids
79xx	NDBs
80xx	Obstructions
81xx	Baro Correction popup
82xx	GDL 90 Code Edit
83xx	Radar
84xx	VFR Function
85xx	Traffic
86xx	Smart Key/Soft Key Menu
87xx	Split Screen Function
88xx	Lightning Function
89xx	TAWS Function
90xx	TFR (WSI)
91xx	VOR Drawing
92xx	Warning Areas (WSI)
93xx	FIS Function (GDL 69)
94xx	TAFS (WSI)
95xx	Option Menu
96xx	Configuration Module
98xx	Startup tasks
99xx	Traffic Subsystem



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