

# Update

## Aviation Weather Services

### FAA Advisory Circular 00-45H Change 2

This Update makes the FAA Advisory Circular *Aviation Weather Services* (ASA-AC00-45H1) current for all FAA changes, including Change 2 (released 11/11/19). This change adds guidance and information on new Flight Information Service-Broadcast (FIS-B) weather products/tables and updates the GS/GR coding elements, the Convective significant meteorological information (SIGMET) description, and changes Helicopter Emergency Management Service (HEMS) to helicopter air ambulance (HAA).

Visit [www.asa2fly.com](http://www.asa2fly.com) to stay informed of FAA changes affecting this document.

**Page #/location:** | **Description of change;** and/or new text as applicable.



## CHAPTER 1

*Page 1-8, the following change applies to section 1.3.2:*

### **1.3.2** Pilot Briefing via the Internet.

1.3.2.1 Aviation Digital Data Service (ADDS). ADDS is a joint effort of the FAA, NOAA, and the National Center for Atmospheric Research (NCAR). ADDS provides text, digital, and graphical forecasts, analyses, and observations of aviation-related weather variables.

### **1.3.2.2 REMOVED**

*Page 1-8, section 1.3.4 has been moved to section 1.3.3:*

### **1.3.3** Hazardous In-Flight Weather Advisory Service (HIWAS).

*Page 1-8, section 1.3.5 has been moved to section 1.3.4 and updated to read:*

### **1.3.4** Flight Information Service-Broadcast (FIS-B).

FIS-B over universal access transceiver (UAT) data-link service provides Aeronautical Information (AI) to the flightdeck for aircraft operating in the NAS. These products are broadcast over the Automatic Dependent Surveillance-Broadcast (ADS-B) UAT link so pilots have timely information of regional weather and NAS status/changes that might affect flight. It is critical that pilots understand that FIS-B meteorological information and AI products provide strategic information to the flight deck that enhances a preflight briefing. FIS-B AI products do not include all NOTAMs. FIS-B NOTAM information is limited to the past 30 days. As a result, FIS-B AI may not include all NOTAMs that a preflight briefing includes. The pilot in command (PIC) is responsible for reviewing all necessary information prior to flight. Therefore, AI information obtained via FIS-B may not be relied upon for a thorough preflight briefing. For additional information on standard briefing, refer to the Aeronautical Information Manual (AIM), Chapter 7, Safety of Flight, Subparagraph 7-1-4b, Weather Products.

The following list represents the initial suite of textual and graphical products available through FIS-B and provided free-of-charge. This advisory circular (AC) and AC 00-63, Use of Cockpit Displays of Digital Weather and Aeronautical Information, contain detailed information concerning FIS-B

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meteorological products. AIM Chapter 3, Airspace; Chapter 4, Air Traffic Control; and Chapter 5, Air Traffic Procedures contain information on Special Use Airspace (SUA), TFR, and NOTAM products.

- Text: METAR and SPECI;
- Text: PIREP;
- Text: Winds and Temperatures Aloft;
- Text: TAF;
- Text: NOTAM Distant and Flight Data Center;
- Text/Graphic: AIRMET;
- Text/Graphic: SIGMET;
- Text/Graphic: Convective SIGMET;
- Text/Graphic: SUA;
- Text/Graphic: TFR NOTAM;
- Graphic: Next generation weather radar (NEXRAD) Composite Reflectivity Products (Regional and National);
- Lightning;
- Turbulence;
- Cloud Tops;
- Icing;
- Graphical AIRMETs (G-AIRMET); and
- CWA.

Users of FIS-B should familiarize themselves with the operational characteristics and limitations of the system, including: system architecture, service environment, product lifecycles, modes of operation, and indications of system failure.

Update intervals are defined as the rate at which the product data is available from the source for transmission. Transmission intervals are defined as the amount of time within which a new or updated product transmission must be completed and/or the rate or repetition interval at which the product is rebroadcast. Table 1-1, FIS-B Over UAT Product Update and Transmission Intervals, provides update and transmission intervals for each product.

Where applicable, FIS-B products include a look-ahead range expressed in nautical miles for three service domains: Airport Surface, Terminal Airspace, and En route/Gulf of Mexico. Table 1-2, Product Parameters for Low/Medium/High Altitude Tier Radios, provides service domain availability and look-ahead ranging for each FIS-B product.

Prior to using this capability, users should familiarize themselves with the operation of FIS-B avionics by referencing the applicable user's guides. Users should obtain guidance concerning the interpretation of information displayed from the appropriate avionics manufacturer.

Users should report FIS-B malfunctions not attributed to aircraft system failures or covered by active NOTAM via the ADS-B/Traffic Information Services-Broadcast (TIS-B)/FIS-B Problem Report on the following website:

<https://www.faa.gov/exits/?pageName=this%20form&pgLnk=http%3A%2F%2Fgoo%2Eggl%2Fforms%2FisWdKYpYYv>

Users may also report malfunctions by submitting FAA Form 8740-5, Safety Improvement Report, via mail, fax, or email to your local Flight District Standards Office (FSDO) Safety Program Manager (SPM).

**Table 1-1. FIS-B Over UAT Product Update and Transmission Intervals**

Product	FIS-B Over UAT Service Update Interval <sup>1</sup>	FIS-B Service Transmission Interval <sup>2</sup>
AIRMET	As available	5 minutes
Convective SIGMET	As available	5 minutes
METARs/SPECIs	1 minute/as available	5 minutes
NEXRAD Composite Reflectivity (CONUS)	15 minutes	15 minutes
NEXRAD Composite Reflectivity (Regional)	5 minutes	2.5 minutes
NOTAMs-D/FDC/TFR	As available	10 minutes
PIREP	As available	10 minutes
SIGMET	As available	5 minutes
Special Use Airspace Status	As available	10 minutes
TAF/AMEND	6 hours/as available	10 minutes
Temperature Aloft	12 hours	10 minutes
Winds Aloft	12 hours	10 minutes
Lightning Strikes	5 minutes	5 minutes
Turbulence	15 minutes	15 minutes
Icing Forecasts	15 minutes	15 minutes
Cloud Tops	15 minutes	15 minutes
Graphical AIRMETS	00Z,03Z, 06Z, 09Z/12 hr forecasts	3 hour
Center Weather Advisories	As available	As available

1. The Update Interval is the rate at which the product data is available from the source.
2. The Transmission Interval is the amount of time within which a new or updated product transmission must be completed and the rate or repetition interval at which the product is rebroadcast.
3. Notice to Airmen-Distant (NOTAM-D) and Notice to Airmen-Flight Data Center (NOTAM-FDC) products broadcast via FIS-B are limited to those issued or effective within the past 30 days.

**Table 1-2. Product Parameters for Low/Medium/High Altitude Tier Radios**

Product	Surface Radios	Low Altitude Tier	Medium Altitude Tier	High Altitude Tier
CONUS NEXRAD	N/A	CONUS NEXRAD not provided	CONUS NEXRAD imagery	CONUS NEXRAD imagery
Winds & Temps Aloft	500 NM look-ahead range	500 NM look-ahead range	750 NM look-ahead range	1,000 NM look-ahead range
METAR	100 NM look-ahead range	250 NM look-ahead range	375 NM look-ahead range	CONUS: CONUS Class B & C airport METARs and 500 NM look-ahead range Outside of CONUS: 500 NM look-ahead range
TAF	100 NM look-ahead range	250 NM look-ahead range	375 NM look-ahead range	CONUS: CONUS Class B & C airport TAFs and 500 NM look-ahead range Outside of CONUS: 500 NM look-ahead range
AIRMET, SIGMET, PIREP and Special Use Airspace/SAA	100 NM look-ahead range. PIREP/SUA is N/A	250 NM look-ahead Range	375 NM look-ahead range	500 NM look-ahead range
Regional NEXRAD	150 NM look-ahead range	150 NM look-ahead range	200 NM look-ahead range	250 NM look-ahead range
NOTAMs–D/FDC/TFR	100 NM look-ahead range	100 NM look-ahead range	100 NM look-ahead range	100 NM look-ahead range
Lightning Strikes	N/A	150 NM look-ahead range	200 NM look-ahead range	250 NM look-ahead range
Turbulence	N/A	150 NM look-ahead range	200 NM look-ahead range	250 NM look-ahead range
Icing Forecasts	N/A	150 NM look-ahead range	200 NM look-ahead range	250 NM look-ahead range
Cloud Tops	N/A	150 NM look-ahead range	200 NM look-ahead range	250 NM look-ahead range
Graphical AIRMETS	N/A	250 NM look-ahead range	375 NM look-ahead range	500 NM look-ahead range
Center Weather Advisories	N/A	250 NM look-ahead range	375 NM look-ahead range	500 NM look-ahead range

Users should obtain guidance concerning the content, format, and symbology of individual FIS-B products from the manufacturer of the avionics equipment used to receive and display them.

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Page 1-9, section 1.3.6 has been moved to section 1.3.5 and updated to read:

### **1.3.5 Operational Use of FIS-B Products.**

FIS-B information may be used by the pilot for the safe conduct of flight and aircraft movement. However, FIS-B does not replace a thorough preflight briefing that may be from one or several Meteorological Information and AI sources. Pilots are encouraged, but not required, to use the dispatch/System Operations Control (SOC) (if applicable), or access an FSS via telephone. Title 14 CFR part 91, § 91.103 requires the pilot in command (PIC) to be familiar with all available information concerning that flight. A pilot should be particularly alert and understand the limitations and quality assurance (QA) issues associated with individual products. This includes graphical representation of NEXRAD imagery and NOTAM/TFR.

## **CHAPTER 2**

Page 2-2, the following change applies to section 2.3.1:

‘Direct User Access Terminal System (DUATS II)’ was removed from the second paragraph.

## **CHAPTER 3**

Page 3-3, the follow change applies to the first bullet point in section 3.1.3:

- **Manual Observation.** Weather observations done by a human weather observer who is certified by the FAA.

Page 3-10, the following change applies to Table 3-2:

Under the precipitation column GS was changed to read ‘GS Snow Pellets’.

Page 3-11, the following changes applied to section 3.1.5:

In all cases where hail is referenced in this section **GS** was removed as part of the coding for hail. **GS** is updated to refer to small hail and/or snow pellets.

Page 3-61, the following link was updated in sub-section 3.4.9.2:

<https://www.weather.gov/tae/research-zrpaper>

## **CHAPTER 5**

Page 5-7, the following change applies to section 5.1.4:

### **5.1.4 Convective SIGMET.**

Convective SIGMETs are issued for the CONUS instead of SIGMETs for thunderstorms. Any Convective SIGMET implies severe or greater turbulence, severe icing, and low-level windshear.

Although the areas where the Convective SIGMETs apply may be shown graphically, such a graphical depiction of the Convective SIGMET polygon is a “snapshot” that outlines the area (or line) of thunderstorms at the issuance time of 55 past each hour. During the valid time of the SIGMET, the area/line will move according to the movement vector given in the SIGMET. For fast moving areas or lines, they will very likely end up outside the SIGMET polygon by the end of the hour. Slow moving or stationary areas or lines will likely remain in or very close to the original polygon. For additional clarification, the movement “MOV FROM...” within the Convective SIGMET describes the current movement of the SIGMET area or line. In cases when cell movements are different within the area, the SIGMET will include an additional line that states “CELL MOV FROM.” Detailed information regarding the Convective SIGMET depiction should be compared to the textual version for storm



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movement, velocity, cloud tops, and several other important elements. Users should exercise caution as areas of convection and their associated polygons can change and should only be used for strategic planning.

*Page 5-63, the following change applies to section 5.9.1.2:*

#### **5.9.1.2 Forecast Weather Product Elements Tabs.**

The following table shows which weather elements are displayed on each forecast product tab. The acronyms in this table are decoded for each product by clicking the products tab to review the NWS Hazard and Code and the AWC SIGMET and Code charts found at <https://www.aviationweather.gov/gfa/help?page=products>.

*Page 5-172, the last paragraph in sub-section 5.22.2.3 was updated to read:*

Due to the graphical (and colorful) nature of these products, considerations have been made by the NWS for people who cannot distinguish colors. Despite these efforts, some shades may be somewhat more difficult to distinguish. A color blindness tool, such as the following, may assist in reading the graphics: <https://www.ryobi-sol.co.jp/visolve/en/>.

## **CHAPTER 6**

*Page 6-1, the following phraseology change applies to Chapter 6:*

### **Phraseology Change.**

The term Emergency Medical Service/Helicopter (EMS/H) or HEMS is obsolete. It has been replaced with helicopter air ambulance (HAA). Refer to AC 135-14, Helicopter Air Ambulance Operations, for terminology changes associated with this name change

At the moment, there will be no change to the HEMS Tool phraseology. HAA operators should use the HEMS Tool developed by University Corporation for Atmospheric Research (UCAR) Foundation/ National Center for Atmospheric Research (NCAR) and operated by AWC as they always have until a new tool or tool name has been developed.

*Page 6-1, the following abbreviations have been update in section 6.1:*

All reference to ‘HEMS operators’ has been updated to reflect the new phraseology ‘HAA operators’. ‘HEMS Tool’ still remains in effect.

*Page 6-13, the following phraseology change has been made to sub-section 6.1.3.1 number 2:*

2. Focused on low-altitude flights common to HAA.

## **APPENDIX D**

*Page D-1, the following change applies to table D-1:*

The hyperlink for Center Weather Services Unit (CWSU) is update to, <https://www.aviationweather.gov/cwamis>