

## 2 AVIATION WEATHER PRODUCT CLASSIFICATION AND POLICY

The demand for new and improved aviation weather products continues to grow and, with new products introduced to meet the demand, some confusion has resulted in the aviation community regarding the relationship between regulatory requirements and the new weather products.

This section will clarify that relationship by providing:

- classification of the weather products and policy guidance in their use,
- descriptions of the types of aviation weather information, and
- categorization of the sources of aviation weather information.

### 2.1 Classification of Aviation Weather Products

The FAA has developed two classifications of aviation weather products: *primary* weather products, and *supplementary* weather products. The classifications are meant to eliminate confusion by differentiating between weather products that may be used to meet regulatory requirements and other weather products that may only be used to improve situational awareness.

All flight-related, aviation weather decisions must be based on the primary weather products. Supplementary weather products augment the primary products by providing additional weather information, but may not be used as stand-alone products to meet aviation weather regulatory requirements or without the relevant primary products. When discrepancies exist between primary and supplementary products pertaining to the same weather phenomena, pilots must base flight-related decisions on the primary weather product. Furthermore, multiple primary products may be necessary to meet all aviation weather regulatory requirements.

Aviation weather products produced by the federal government (NWS) are primary products unless designated as a supplementary product by the FAA. In addition, the FAA may choose to restrict certain weather products to specific types of usage or classes of user. Any limitations imposed by the FAA on the use of a product will appear in the product label.

#### 2.1.1 Primary Weather Product Classification

A primary weather product is an aviation weather product that meets all of the regulatory requirements and safety needs for use in making weather-related flight decisions.

**Note:** Sections 3 through 8 of this Advisory Circular are considered Primary Weather Products.

#### 2.1.2 Supplementary Weather Product Classification

A supplementary weather product is an aviation weather product that may be used for enhanced situational awareness. A supplementary weather product must only be used in conjunction with one or more primary weather products. In addition, the FAA may further restrict the use of the supplementary weather products through limitations described in the product label.

**Note: Section 9 of this Advisory Circular contains information on Supplementary Weather Products.**

## **2.2 Types of Aviation Weather Information**

The FAA has identified the following three distinct types of weather information that may be needed to conduct aircraft operations: observations, analyses, and forecasts.

### **2.2.1 Observations**

Observations are raw weather data collected by some type of sensor(s). The observations can either be in situ (e.g. surface or airborne) or remote (e.g. weather radar, satellite, profiler, and lightning).

### **2.2.2 Analysis**

Analyses of weather information are an enhanced depiction and/or interpretation of observed weather data.

### **2.2.3 Forecasts**

Forecasts are the predictions of the development and/or movement of weather phenomena based on meteorological observations and various mathematical models.

In-flight weather advisories, including Significant Meteorological Information (SIGMET), Convective SIGMETs, Airman's Meteorological Information ([AIRMET](#)), Center Weather Advisories (CWA), and Meteorological Impact Statements (MIS), are considered forecast weather information products.

## **2.3 Categorizing Aviation Weather Sources**

The regulations pertaining to aviation weather reflect that, historically, the federal government was the only source of aviation weather information. That is, the FAA and NWS, or its predecessor organizations, were solely responsible for the collection and dissemination of weather data, including forecasts. Thus, the term "approved source(s)" referred exclusively to the federal government. The federal government is no longer the only source of weather information, due to the growing sophistication of aviation operations and scientific and technological advances.

Since all three types of weather information defined in paragraph 2.3 are not available from all sources of aviation weather information, the FAA has categorized the sources as follows: federal government, Enhanced Weather Information System (EWINS), and commercial weather information providers.

### **2.3.1 Federal Government**

The FAA and NWS collect weather observations. The NWS analyzes the observations, and produces forecasts, including in-flight aviation weather advisories (e.g., SIGMETs). The FAA and NWS disseminate meteorological observations, analyses, and forecast products through a variety of systems. The federal government is the only approval authority for sources of weather observations (e.g., contract towers and airport operators).

Commercial weather information providers contracted by the FAA to provide weather observations (e.g., contract towers) are included in the federal government category of approved sources by virtue of maintaining required technical and quality assurance standards under FAA and NWS oversight.

### **2.3.2 Enhanced Weather Information System (EWINS)**

EWINS is an FAA-approved proprietary system for tracking, evaluating, reporting, and forecasting the presence or absence of adverse weather phenomena. EWINS is authorized to produce flight movement forecasts, adverse weather phenomena forecasts, and other meteorological advisories.

To receive FAA approval, EWINS-approved source must have sufficient procedures, personnel, and communications and data processing equipment to effectively obtain, analyze, and disseminate aeronautical weather data. For a full explanation of the requirements for EWINS approval, see the *Air Transportation Operations Inspector's Handbook*, Order 8400.10, volume 3, chapter 7, section 5. An EWINS-approved source may produce weather analyses and forecasts based on meteorological observations provided by the federal government. Approval to use EWINS weather products is issued on a case by case basis and is currently only applicable to FAR part 121 and 135 certificate holders, who may either act as their own EWINS or contract those services from a separate entity. For these approved users, the weather analyses and forecasts produced by their approved EWINS are considered primary weather products as defined in paragraph 2.2.1, Primary Weather Products.

### **2.3.3 Commercial Weather Information Providers**

Commercial weather providers are a major source of weather products for the aviation community. In general, they produce proprietary weather products based on NWS products with formatting and layout modifications but no material changes to the weather information itself. This is also referred to as “repackaging.”

Commercial providers may also produce forecasts, analyses, and other proprietary weather products and substantially alter the information contained in NWS-produced products. Hence, operators and pilots contemplating using such services should request and/or review an appropriate description of services and provider disclosure. This should include, but is not limited to,

- the type of weather product (e.g., current weather or forecast weather),
- the currency of the product (i.e., product issue and valid times), and
- the relevance of the product.

Pilots and operators should be cautious when using unfamiliar products, or products not supported by FAA/NWS technical specifications. Commercially-available proprietary weather products that substantially alter NWS-produced weather products, or information, may only be approved for use by part 121 or part 135 operators or fractional ownership programs if the commercial provider is EWINS-qualified (see paragraph 2.4.2, above). Government products that are only repackaged and not altered, or products produced by EWINS-approved source, are considered primary weather products as defined in paragraph 2.2.1, Primary Weather Products.



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