

# Chapter 7. Safety of Flight

## Section 1. Meteorology

### 7-1-1. National Weather Service Aviation Weather Service Program

**a.** Weather service to aviation is a joint effort of the National Oceanic and Atmospheric Administration (NOAA), the National Weather Service (NWS), the Federal Aviation Administration (FAA), Department of Defense, and various private sector aviation weather service providers. Requirements for all aviation weather products originate from the FAA, which is the Meteorological Authority for the U.S.

**b.** NWS meteorologists are assigned to all air route traffic control centers (ARTCC) as part of the Center Weather Service Units (CWSU) as well as the Air Traffic Control System Command Center (ATCSCC). These meteorologists provide specialized briefings as well as tailored forecasts to support the needs of the FAA and other users of the NAS.

#### **c.** Aviation Products

**1.** The NWS maintains an extensive surface, upper air, and radar weather observing program; and a nationwide aviation weather forecasting service.

**2.** Airport observations (METAR and SPECI) supported by the NWS are provided by automated observing systems.

**3.** Terminal Aerodrome Forecasts (TAF) are prepared by 123 NWS Weather Forecast Offices (WFOs) for over 700 airports. These forecasts are valid for 24 or 30 hours and amended as required.

**4.** Inflight aviation advisories (for example, Significant Meteorological Information (SIGMETs) and Airmen's Meteorological Information (AIRMETs)) are issued by three NWS Meteorological Watch Offices; the Aviation Weather Center (AWC) in Kansas City, MO, the Alaska Aviation Weather Unit (AAWU) in Anchorage, AK, and the WFO in Honolulu, HI. Both the AWC and the AAWU issue area forecasts (FA) for selected areas. In addition, NWS meteorologists assigned to most ARTCCs as part of the Center Weather Service Unit (CWSU) provide Center Weather Advisories (CWAs) and

gather weather information to support the needs of the FAA and other users of the system.

**5.** Several NWS National Centers for Environmental Prediction (NCEP) provide aviation specific weather forecasts, or select public forecasts which are of interest to pilots and operators.

**(a)** The Aviation Weather Center (AWC) displays a variety of domestic and international aviation forecast products over the Internet at [aviationweather.gov](http://aviationweather.gov).

**(b)** The NCEP Central Operations (NCO) is responsible for the operation of many numerical weather prediction models, including those which produce the many wind and temperature aloft forecasts.

**(c)** The Storm Prediction Center (SPC) issues tornado and severe weather watches along with other guidance forecasts.

**(d)** The National Hurricane Center (NHC) issues forecasts on tropical weather systems (for example, hurricanes).

**(e)** The Space Weather Prediction Center (SWPC) provides alerts, watches, warnings and forecasts for space weather events (for example, solar storms) affecting or expected to affect Earth's environment.

**(f)** The Weather Prediction Center (WPC) provides analysis and forecast products on a national scale including surface pressure and frontal analyses.

**6.** NOAA operates two Volcanic Ash Advisory Centers (VAAC) which issue forecasts of ash clouds following a volcanic eruption in their area of responsibility.

**7.** Details on the products provided by the above listed offices and centers is available in FAA Advisory Circular 00-45, Aviation Weather Services.

**d.** Weather element values may be expressed by using different measurement systems depending on several factors, such as whether the weather products will be used by the general public, aviation interests, international services, or a combination of these