

**NATIONAL WEATHER SERVICE INSTRUCTION 10-815**

**SEPTEMBER 28, 2017**

**Operations and Services**

**Aviation Weather Services, NWSPD 10-8**

**AVIATION METEOROLOGIST TRAINING AND COMPETENCIES**

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**SUMMARY OF REVISIONS:** This directive supersedes and renames NWS Instruction 10-815, “Aviation Forecaster Training and Competencies,” dated July 1, 2014. Changes made to reflect the NWS Headquarters reorganization effective April 1, 2015.

Additional changes include:

1. Changed title & terminology throughout from Forecaster to Meteorologist to conform to International Civil Aviation Organization (ICAO) requirements.
2. Changes made to recommended course for introductory and recurring training
3. Added section 4.5 to link back to verification
4. Section 6, changed from 1 year to (3 to 5 years), to review the NWS Aviation PDS

Signed \_\_\_\_\_

Andrew D. Stern

Director

Analyze, Forecast, and Support Office

9/14/2017 \_\_\_\_\_

Date

**Aviation Meteorologist Training and Competencies**

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**1. Purpose**

The purpose of this directive is to provide specifications for the training of National Weather Service (NWS) aviation meteorologists. The Meteorologists-in-Charge (MICs) and the appropriate Regional Headquarters, and National Centers Branch Chiefs and Directors are responsible for ensuring aviation meteorologists are properly trained and competent to provide aviation weather services.

**2. Background**

As the designated meteorological provider for the U.S. Aviation Meteorological Authority (the Federal Aviation Administration), the NWS is committed to meeting the standards and recommended practices set forth in International Civil Aviation Organization (ICAO) Annex 3 Meteorological Service for International Air Navigation governing aviation weather products and services. In 2013, ICAO added a requirement to Annex 3 for all meteorological providers to establish a formal Quality Management System for aviation forecast products and services. Forecaster training and competency is a part of this Quality Management System. The NWS Aviation Training Program with its Aviation Professional Development Series (PDS) provides training that enables NWS meteorologists to meet the World Meteorological Organization (WMO) competencies.

### **3. Aviation Meteorologists**

NWS meteorologists producing, issuing, or providing service back-up to any of the suite of core aviation weather forecasts and advisories are required to complete baseline aviation training. This baseline consists of a core set of lessons covering the basic principles of aviation weather forecasting and aviation services. Special emphasis is placed on a) monitoring and forecasting the aviation weather environment to determine the need for issuance, cancellation, amendments, or updates of decision support information according to documented thresholds, regulations and operational impacts, and b) coordinating and communicating effectively with operational aviation partners to ensure the provision of the highest quality of aviation meteorological information and services.

### **4. Aviation Training and Verification.**

#### **4.1 Baseline**

All NWS managers are required to ensure their staff is competent. The baseline training modules listed below focus on the competency areas that the local office should use to fulfill that requirement:

Distance Learning Aviation Course 1 (Forecasting Fog/Low Stratus for Aviation Operations)  
Distance Learning Aviation Course 2 (Producing Customer-Focused TAFs)  
Impact of Weather on Air Traffic Management  
Weather Decision Support for National Airspace System

In addition, all NWS managers are encouraged to use the aviation PDS as a framework for training and identifying specific core skills and competencies for their staff with respect to aviation forecasting.

#### **4.2 Initial**

New aviation meteorologists with no previous NWS forecasting experience in the aviation environment will complete all baseline training modules in Section 4.1, along with any additional aviation training requirements as specified by regional supplements to this directive and/or local office policies. Forecasters should complete the required training within six months of arrival on station. Meteorological Interns are also required to complete the aviation training at:

<http://training.weather.gov/aviationPDS.php>

#### **4.3 Recurrent**

Experienced aviation meteorologists should complete and periodically review appropriate training materials indicated in Section 4.1 as well as other available training materials. This should be done at least once every 3 years; however, the appropriate Regional Headquarters, National Centers, or Center Weather Service Unit (CWSU) and Weather Forecast Office (WFO) (MIC discretion) may require more periodic and/or specific refresher training.

#### **4.4 CWSU Meteorologists**

In addition to this Instruction, NWS meteorologists assigned to a CWSU should follow the training guidelines outlined in NWSI 10-803.

#### **4.5 Verification**

Individual Stats on Demand should be used as part of the competency framework. Allowing the Science and Operations Officer or Aviation Focal Point the flexibility to train staff based on individual strengths and be able to target specific forecast challenges for future training. See NWSI 10-1601, and specifically section 4.2 for more information.

#### **5. Aviation Professional Development Series (PDS)**

The PDS provides a framework for training and identifying specific core skills and competencies for aviation forecasting. The NWS established the aviation PDS to promote the highest quality NWS aviation products and services, and to support the goals set forth in ICAO Annex 3. The PDS is designed to train the NWS aviation meteorologist in all aspects of aviation meteorology and related services.

The PDS is built upon five Professional Competency Units (PCUs). These PCUs describe specific aviation forecaster duties and/or programmatic services/support activities (Appendix A). The PCUs contain many aviation-related courses ranging from detailed scientific analysis, operational forecasting and warnings, to impact based decision support services. Together, these five PCUs provide a comprehensive framework for assessing core skills and competencies for aviation forecasting, as well as maintain a high quality aviation weather program with associated services consistent with ICAO Annex 3 and established WMO Aeronautical Forecaster Competency standards.

All NWS meteorologists are urged to complete the courses in the PDS. Necessary courses in the PDS may be determined by local NWS offices and National Centers to satisfy local training requirements. The NWS Aviation PDS can be found at:

<http://www.nws.noaa.gov/training/aviationPDS.php>.

The WMO Aeronautical Forecaster Competencies are outlined in Appendix B.

#### **6. Documentation and Reporting Requirements**

To ensure overall program consistency, all NWS field offices that provide aviation forecasts and services should rotate through a 3 to 5 year plan that includes the NWS Aviation PDS as part of their aviation weather training program. The Aviation and Space Weather Services Branch (AFS24) and Regional Aviation Meteorologist (RAM) should review the NWS Aviation PDS and associated PCUs annually for additions and improvements. Any changes can then be relayed to field offices for review and possible updates to their aviation training. CWSUs, WFOs, and Met Watch Offices (MWOs) are required to provide written confirmation to their RAM or appropriate National Center for Environmental Prediction (NCEP) Center Director stating the meteorologists performing aviation weather services are competent to do so. NWS Regions and National Centers providing aviation products or services are required to forward notification to the Director of the Analyze, Forecast, and Support Office and the Aviation and Space Weather Services Branch Chief (Appendix D). The re-currency date is every three years, next cycle due September 2020.

## **APPENDIX A - NWS Aviation Professional Development Series List of Professional Competencies**

The five Professional Competency Units (PCU) descriptions:

### **PCU 1: Coordinate and Communicate with Aviation System Operational Partners**

A National Weather Service (NWS) meteorologist must communicate effectively with operational aviation partners (i.e., controllers, traffic managers, flight specialists, airline dispatchers, etc.). Aviation meteorologists should understand the National Airspace System (NAS). Furthermore, an aviation meteorologist must understand the operations and responsibilities of our aviation partners and the impacts of aviation forecasts on operations. An aviation meteorologist will be expected to coordinate with his or her peers (i.e., other NWS aviation meteorologists) to provide clear and consistent information.

### **PCU 2: Continuously Assess and Forecast the Aviation Weather Environment**

Observations and forecasts of weather parameters and significant weather phenomena relevant to the mission of the meteorologist's office are continuously monitored to determine the need for issuance, cancellation, amendments, or updates of decision support information according to documented thresholds, regulations and operational impacts.

### **PCU 3: Provide Aviation Weather Information and Services**

Forecasters produce timely, accurate and consistent (spatially and temporally) forecasts. These forecasts must maintain meteorological integrity across boundaries of the area of responsibility. Forecasts of meteorological parameters and phenomena are prepared using production tools (i.e., AvnFPS, IC4D, WARP, N-AWIPS, etc.) and issued in accordance with documented requirements (such as various NWS Directives and ICAO Annex 3), priorities and deadlines.

### **PCU 4: Perform Outreach to the Aviation Community**

Identify customers of NWS aviation weather information and services. Establish a relationship with customers and determine their needs. Encourage them to use NWS information and services. Identify outreach opportunities, barriers to outreach and effective means for overcoming these barriers and provide outreach on NWS information and services for improved aviation decision support.

### **PCU 5: Ensure the Quality of Aviation Meteorological Information and Services**

Identify documented aviation performance measures and standards Use available tools to determine current levels of performance. Maintain and improve the quality and value of meteorological information and services.

## APPENDIX B - WMO Aeronautical Forecaster Competency Aeronautical Meteorological Forecaster

The competencies apply:

- a) For the area and airspace of responsibility,
- b) In consideration of the impact of meteorological phenomena and parameters on aviation operations, and
- c) In compliance with aviation user requirements, international regulations, local procedures and priorities.

### 1. *Analyze and monitor continuously the weather situation*

Competence description – Observations and forecasts of weather parameters and significant weather phenomena are continuously monitored to determine the need for issuance, cancellation or amendment/update of forecasts and warnings according to documented thresholds and regulations.

### 2. *Forecast aeronautical meteorological phenomena and parameters*

Competence description – Forecasts of meteorological parameters and phenomena are prepared and issued in accordance with documented requirements, priorities and deadlines.

### 3. *Warn of hazardous phenomena*

Competence description – Aviation advisories are issued in a timely manner when hazardous conditions are expected to occur or when parameters are expected to reach documented threshold values, and updated or cancelled according to documented advisory criteria.

### 4. *Ensure the quality of meteorological information and services*

Competence description – The quality of meteorological forecasts, warnings and related products is ensured at the required level by the application of documented quality management processes.

### 5. *Communicate meteorological information to internal and external users*

Competence description – User requirements are fully understood and are addressed by communicating concise and complete forecasts/warnings in a manner that can be clearly understood by the users.

**APPENDIX C - Confirmation Letter to the Regional Aviation Meteorologist/National Center Director**

MEMORANDUM FOR: Regional Aviation Meteorologist/National Center Director

FROM: Meteorologist-in-Charge/National Center Operations Branch

Chief SUBJECT: Aeronautical Forecaster Training and Competency

DATE: Month Day, Year

All meteorologists providing aviation products and services at WFO XXX/CWSU XXX/AWC/AAWU/ATCSCC demonstrated competency in accordance with NWS policy and procedures.

**APPENDIX D - Confirmation Letter to the Director of the Analyze, Forecast, and Support Office and the Aviation and Space Weather Services Branch Chief**

MEMORANDUM FOR: Director, AFSO

FROM: Regional Director/National Center Director

SUBJECT: Aeronautical Forecaster Training and Competency

DATE: Month Day, Year

All Regional/National Center meteorologists providing aviation products and services have demonstrated competency in accordance with NWS policy and procedures.

End