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Operations and Services

Aviation Weather Services, NWSPD 10-8

AVIATION METEOROLOGIST TRAINING AND COMPETENCIES

NOTICE: This publication is available at: http://www.nws.noaa.gov/directives/

OPR: W/AFS24 (L. Wilson) **Certified by:** W/AFS24 (B. Entwistle)
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SUMMARY OF REVISIONS: This directive supersedes and renames NWS Instruction 10-815, "*Aviation Meteorologist Training and Competencies,"* dated September 14, 2017.

Additional changes include:

1. Moved Aviation PDS information into Section 4 to provide better introduction for training requirements and aids. Updated the link to the new Aviation PDS website.
2. Updated Section 4.1 Baseline to be consistent with the updated Aviation Professional Development Series (PDS).
3. Removed Section 4.4 CWSU Meteorologists as it referred to 10-803 for CWSU training, however, 10-803 simply points back to this Instruction without providing additional information.
4. Updated training notification process in previous Section 6 Documentation and Reporting Requirements to terminate at the AFS24 Branch Chief level instead of at the AFSO Portfolio Director level per coordination with AFS2 Director and AFS24 Branch Chief
5. Removed Aviation PDS from Appendix A since it is now contained within Section 4.
6. Updated refresher training cycle from every 3-5 years to every 5 years to reduce confusion.
7. Updated wording to Aviation Meteorologist through document for consistency.

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05/17/2020

Andrew D. Stern
Director
Analyze, Forecast, and Support Office

Date

Aviation Meteorologist Training and Competencies

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1. Purpose

This directive provides 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 (QMS) for aviation forecast products and services. Aviation meteorologist training and competency is a part of this system. The NWS Aviation Training Program, with its Aviation Professional Development Series (PDS), provides training that enables NWS meteorologists to meet these standards and recommended practices as well as the World Meteorological Organization (WMO) competencies.

3. Aviation Meteorologists

NWS meteorologists producing and issuing any of the suite of core aviation weather forecasts and advisories or providing service back-up to other offices are required to complete baseline aviation training outlined in the Aviation Professional Series (PDS) Professional Competency Unit (PCU) 1. 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.

The Aviation 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 by the WMO in addition to those in ICAO Annex 3.

The PDS is designed to outline professional development planning/opportunities for the NWS aviation meteorologist in all aspects of aviation meteorology and related services. It is built upon four PCUs.

PCU 1: Required/Baseline Aviation Training. All courses in PCU 1 have been identified as essential for proficiency in the delivery of aviation products, forecasts, and support for domestic and international aviation operations. This includes:

- Distance Learning Aviation Course (DLAC) 1
- DLAC 2
- Impact of Weather on Air Traffic Management
- Weather Decision Support for the National Airspace System

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. Aviation meteorologists 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., GFE, AvnFPS, IC4D, WARP, AWIPS, N-AWIPS, etc.) and issued in accordance with documented requirements (such as various NWS Directives and ICAO ANNEX 3), priorities and deadlines.

PCU 4: Ensure the Quality of Aviation Meteorological Information and Services. Identify documented aviation performance measures and standards. Use tools to determine current levels of performance. Maintain and improve the quality and value of meteorological information and services.

These PCUs describe specific aviation meteorologist duties and/or programmatic services and support activities. The PCUs contain many aviation-related courses ranging from detailed scientific analysis to operational forecasting and warnings and Impact-based Decision Support Services (IDSS). Together, these four PCUs provide a comprehensive framework for assessing core skills and competencies for aviation forecasting and maintaining a high-quality aviation weather program with associated services consistent with ICAO Annex 3 and established WMO Aeronautical Forecaster Competency standards. The WMO Aeronautical Forecaster Competencies are outlined in Appendix A.

NWS offices and National Centers are encouraged to use the Aviation PDS to satisfy local training requirements.

The NWS Aviation PDS can be found at: https://training.weather.gov/pds/aviation/index.php

4.1 Baseline Training

All NWS supervisors of aviation meteorologists are required to ensure they are competent to issue aviation forecasts. The baseline training modules are listed in PCU 1 – Required/Baseline Aviation Training of the Aviation PDS found on this website:

https://training.weather.gov/pds/aviation/index.php.

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 local office policies. Aviation meteorologists should complete the required training within six months of arrival on station.

4.2 Recurrent Training

Experienced aviation meteorologists should periodically review appropriate updated training materials indicated in Section 4.1 as well as other available relevant aviation forecasting training materials. This should be done at least once every 5 years; however, the appropriate Regional Headquarters, National Centers, Center Weather Service Unit (CWSU), and Weather Forecast Office (WFO) management may require more periodic and/or specific refresher training.

4.3 Verification

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

5. Documentation and Reporting Requirements

To ensure overall program consistency, all NWS field offices that provide aviation forecasts and services should rotate through a 5-year plan that includes the NWS Aviation PDS as part of their aviation weather training program. AFS24 and the 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 regional training managers and 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 (see Appendix B). NWS Regions and National Centers providing aviation products or services are required to forward this confirmation to the AFS24 Branch Chief (see Appendix C). The re-currency date is every five years: 2020, 2025, 2030, etc.

APPENDIX A -WMO Aeronautical Forecaster Competency - Aeronautical Meteorological Forecaster[1]

The competencies apply:

a) For the area and airspace ofresponsibility,
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 weathersituation

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 andparameters

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.

[1] WMO- No. 49: Technical Regulations Basic Document No. 2, Volume II- Meteorological Service for International Air Navigation, 2018 Ehttps://library.wmo.int/doc_num.php?explnum_id=5526

APPENDIX B - 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: Aviation Meteorologist 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 C - Confirmation Letter to the Aviation and Space Weather Services Branch Chief

MEMORANDUM FOR: Chief, Aviation and Space Weather Services Branch (AFS24)

FROM: Regional Director/National Center Director

SUBJECT: Aviation Meteorologist 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.