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GOVERNMENT OF INDIA
OFFICE OF THE DIRECTOR GENERAL OF CIVIL AVIATION

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SUBJECT: Guidelines to Meteorological Service Provider for developing Training programme, job description and maintenance of training records of its technical staff.

1. Purpose

This Advisory Circular (AC) is issued to provide general information and guidance to meteorological service provider on development of training programme, job description and maintenance of training records for its technical staff providing meteorological services for Air Navigation in India.

2. References

- 2.1 DGCA Civil Aviation Regulations (CAR) Section 9 Series M Part I: Meteorological Service for Air Navigation.
- 2.2 ICAO Annex 3 – Meteorological Services for International Air Navigation.
- 2.3 ICAO Doc 8896 – Manual of Aeronautical Meteorological Practice.
- 2.4 WMO publication No 49 Vol I- General meteorological standards and recommended practices.
- 2.5 WMO publication No 49, Volume II- Meteorological Services for International Air Navigation.
- 2.6 WMO-No.1083-Vol-1-Manual on the Implementation of Education and Training Standards in Meteorology and Hydrology.
- 2.7 WMO-258-Volume-1-Guidelines for the Education and Training of Personnel in Meteorology and Operational Hydrology.

- 2.8 WMO-258-Supplement-No.1-Training and Qualification Requirements for Aeronautical Meteorological Personnel.
- 2.9 WMO-No.1101-Initial formation and specialisation of Meteorological personnel: Detailed Syllabus Examples.
- 2.10 ICAO Doc 9683- Human Factors Training Manual.

3. Introduction

- 3.1 Meteorological services play an essential role in Air Navigation and are required to ensure the safety and efficiency of civil aviation operations. The regulatory requirements for meteorological service provider have been stipulated in the DGCA CAR Section 9 Series M Part I and ICAO Annex 3.
- 3.2 India Meteorological Department (IMD) is responsible for providing aeronautical meteorological services for safety and regularity of International air navigation in accordance with the provisions of DGCA's CARs related to meteorology.
- 3.3 A suitable number of meteorological watch offices, and other meteorological offices/stations have been established by IMD to provide services required for air navigation services.
- 3.4 The information provided includes observations and reports of actual weather conditions at aerodromes, forecasts and warning. This information is made available at aerodrome meteorological offices/station and is disseminated as appropriate to aeronautical users including operators, flight crew members, air traffic services units, search and rescue units, airport management and others concerned with the conduct, or development of air navigation.
- 3.5 In order to enable IMD to establish and maintain a uniform and standardized the provisions of job-descriptions, training programme and maintenance of training records for its technical staff engaged in meteorological services for air navigation, DGCA hereby recommends the following requirements.

4. General training requirements for Aeronautical Meteorological Personnel (AMP)

- 4.1 The meteorological service provider shall have a training and education programme to provide continuing education and training for all its Aeronautical Meteorological Personnel (AMP) to attain and sustain their competency.
- 4.2 The Aeronautical Meteorological Forecaster (AMF) and Aeronautical Meteorological Observer (AMO) providing service for international air navigation shall comply with the knowledge, skill and competency

qualifications as stated in Chapter 2 and 3 respectively of the *WMO Publication No. 258, Supplement No. 1: Training and Qualification Requirements for Aeronautical Meteorological Personnel*.

- 4.3 *On-the-job Training*: On-the-job training (OJT) shall be provided to AMP on his/her posting at an airport.
- 4.4 *Refresher Training*: The meteorological service provider shall determine the type of refresher training necessary to meet operational requirements.
- 4.5 The training and education programme should be governed by the following criteria,
 - 4.5.1 Training and education shall be in accordance with the guidelines of WMO;
 - 4.5.2 Meteorological service provider shall have a training & education programme to provide continuing education and training for all its AMP to update and improve their competency;
 - 4.5.3 The programme should include a refresher training plan detailing and prioritizing the type of training to be provided.

5. Qualifications, training and competency requirements for Aeronautical Meteorological Forecaster (AMF)

5.1 Qualifications and training requirements for AMF

- 5.1.1 An AMF shall be a meteorologist; a person who holds a university degree or equivalent; has acquired an appropriate level of knowledge of mathematics, physics, chemistry and computer science, and has completed the Basic Instruction Package for Meteorologists (BIP-M). Details on the required knowledge and skills are given in WMO -No. 258, Volume I – Meteorology, Chapter 3.
- 5.1.2 The AMF shall be trained in the aeronautical meteorology specialisation either through courses at WMO-certified training institutions along with BIP-M or less formally during attachments to aeronautical meteorological office.
- 5.1.3 The AMF should be familiar with:
 - 5.1.3.1 phenomena that may impact flight operations (aircraft Icing, turbulence, volcanic ash etc.);
 - 5.1.3.2 procedures for meteorological services for international air navigation, as in Annex 3 and 11, and MET part of Air Traffic Service Manual;
 - 5.1.3.3 WMO/ICAO regulatory roles and documentation.

5.1.4 The training and qualifications requirements recommended in this circular are the minimum necessary for all AMF providing services for international air navigation.

5.2 Competency requirements in forecasting

5.2.1 The meteorological service provider shall establish procedures to ensure the competency of AMF to provide service for international air navigation. Following are the minimum generic competencies that should be demonstrated by all AMF:

5.2.1.1 Analyse and monitor continuously the weather situation;

5.2.1.2 Forecast aeronautical meteorological phenomena and parameters;

5.2.1.3 Warn of hazardous phenomena; and

5.2.1.4 Ensure the quality of meteorological information and services; and

5.2.1.5 Communicate meteorological information to internal and external users.

6. Qualifications, training and competency requirements for Aeronautical Meteorological Observer (AMO)

6.1 Qualifications and training requirements for AMO

6.1.1 The basic education and training of meteorological personnel engaged in meteorological observation for aeronautical purposes are similar to that of all meteorological personnel engaged in observation and reporting of weather for other sectorial application. Details on the required knowledge and skills are given in WMO-No. 258, Volume I – Meteorology, Chapter 4.

6.1.2 An AMO shall be a person who has successfully completed the Basic Instruction Package for Meteorological Technicians (BIP-MT) from WMO-certified training institute.

6.1.3 The AMO shall also be trained in the Aeronautical Meteorology, which should covers the following topics:

6.1.3.1 Basic Meteorology including phenomena that may impact on flight operations;

6.1.3.2 Observation, reporting and dissemination as per relevant WMO/ICAO codes;

- 6.1.3.3 Meteorological aspects of flight planning;
- 6.1.3.4 Procedures for meteorological services for international aviation;
- 6.1.3.5 Instrumentation.

6.1.4 The training and qualifications requirements recommended in this circular are the minimum necessary for all AMO providing services for international air navigation.

6.2 Competency requirements in aeronautical observing

- 6.2.1 Following are the generic competencies that should be demonstrated by an AMO:
 - 6.2.1.1 Monitor continuously the weather situation;
 - 6.2.1.2 Observe and record aeronautical meteorological phenomena and parameters;
 - 6.2.1.3 Ensure the quality of the performance of the systems and of meteorological information; and
 - 6.2.1.4 Communicate meteorological information to internal and external users.

7. Job-description of AMP

- 7.1 The meteorological service provider shall develop job description of for each position in order to ensure that the functions and activities of aeronautical meteorological services are aligned to the requirements of the DGCA regulations.
- 7.2 The functions of meteorological offices and stations serving international air navigation are set out in WMO-No. 49, Vol. II, Part I, Section 3 and 4 respectively.
- 7.3 As a general guide, the duties and responsibilities of meteorological offices should include the following:
 - 7.3.1 Prepare and/or obtain forecasts and other relevant information for aerodromes, flight information regions, routes and flights with which it is concerned.
 - 7.3.2 Maintain a continuous survey of meteorological conditions over the aerodromes, flight information regions and routes for which it is designated to prepare forecasts.
- 7.4 The duties and responsibilities of meteorological stations should include the following:

- 7.4.1 Make routine meteorological observations at fixed intervals.
- 7.4.2 Make special weather observations whenever specified changes occur in respect of surface wind, visibility, runway visual range, present weather, clouds and /or air temperature.

8. Maintenance of documents and records

8.1 The meteorological service provider shall maintain following documents:

- 8.1.1 The meteorological service provider shall properly maintain the educational qualification documents, training records and on-job training (OJT) certificates of all AMFs and AMOs at station level, regional level and at headquarter level;
- 8.1.2 The meteorological service provider's quality records (verification results of weather forecasts) for an appropriate length of time;
- 8.1.3 Records of aviation circulars and their implementations;
- 8.1.4 Records related to amendments in Aeronautical Information Publication (AIP) India;
- 8.1.5 Record of malfunction/fault of critical safety facilities/instruments;
- 8.1.6 Reports of queries on weather information for incidents/accidents that occurred in the airports;
- 8.1.7 Documents related to Audits;
- 8.1.8 Archive of low-level wind shear/microburst and periodic analysis for risk assessment purposes.

9. Human Factors

9.1 The meteorological service provider should ensure that human factor principles and regulatory requirements shall also be considered when developing the staffing roster.

Note – Guidance material on human factors principles can be found in the ICAO Human Factors Training Manual (Doc 9683).

Sd/-
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