



ADVISORY CIRCULAR

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GUIDANCE ON DEVELOPMENT OF THE AERONAUTICAL METEOROLOGICAL SERVICES MANUAL OF OPERATIONS (MET MANSOPS)

1.0 PURPOSE

The purpose of this advisory circular is to provide guidelines to the Meteorological Service Provider (MSP) in the preparation of the Meteorological Manual of Operations (MET MANSOPS).

2.0 REFERENCES

- 2.1 Regulation 5 of Civil Aviation (Meteorological Services for Air Navigation) Regulations, 2022.
- 2.2 Regulation 16, 17 and 18 of Civil Aviation (Certification of Air Navigation Services) Regulations, 2022

3.0 GUIDANCE AND PROCEDURES

3.1 General

- 3.1.1 The Civil Aviation (Meteorological Services for Air Navigation) Regulation, 2022 in Regulation 5 requires the Meteorological services provider to develop manual of operations and procedures that guide their operations from time to time.
- 3.1.2 The procedures and processes outlined in a manual of meteorological operations shall adequately and appropriately address the mechanism used in the provision of meteorological services for air navigation in Uganda.
- 3.1.3 The Meteorological Manual of Operations (MET MANSOPS) should form PART SIX (VI) of the main Manual of Air Navigation Services Operations (MANSOPS).

3.2 The Contents of MET Manual of Operations

The items that should be included in MET MANSOPS, together with a short description of the type of information to be included for each item, are listed in the following paragraphs.

3.2.1 General requirements

- (a) An organizational chart of the meteorological service provider should be included in the MET MANSOPS and the chart should include:
 - (i) The diagrammatic presentation or other means of describing the service provider's organisational structure;
 - (ii) The positions of the principals (officers) of the organization;
 - (iii) The description of the chain of command to be established by the MSP with a statement of the duties and responsibilities of the supervisory positions within the organization;
 - (iv) The Methodology showing how the MSP determines the number of operational staff required, including the number of operational supervisory staff.
- (b) The MET MANSOPS should be;
 - (i) Type written;
 - (ii) Signed by the Accounting Officer of meteorological service provider;
 - (iii) In a format that is easy to revise and includes a list of effective pages; and
 - (iv) Organized in a manner that facilitates evaluation and approval processes.
- (c) The MSP shall submit two copies of the manual to the Authority for regulatory approval prior to implementation.
- (d) The MSP shall keep at least one approved copy of the manual at the principal place of business.

3.2.2 Specific Contents of the MET MANSOPS

The MET MANSOPS should contain all information and instructions necessary to enable the technical personnel perform their duties and should include;

- (i) List of services to be provided.
- (ii) Personnel requirements and their responsibilities;
- (iii) Training and performance assessment of staff and how that information is tracked;
- (iv) The processes of implementing Quality Management System;
- (v) Contingency plans developed for part or total system failure;
- (vi) Facilities and equipment and how they are installed and maintained;
- (vii) Fault and defect reporting;
- (viii) Maintenance of documents and records;
- (ix) The meteorological services to support search and rescue operations and co-ordination, processes and procedures;
- (x) Systems and procedures in the provision of meteorological services for air navigation;
- (xi) Coordination arrangement with aeronautical information services (AIS); and
- (xii) Any other information that may be relevant to service provider's execution of its responsibilities.

3.3 Types of Aeronautical Meteorological Services Provided

3.3.1 The MET Manual of Operations should also include:

- (a) A statement setting out the meteorological services and related functions that the MSP proposes to perform under the Civil Aviation (Meteorological Service for Air Navigation) Regulations, 2022.

- (b) Proposed hours of operations for each service.
- (c) The location within which each service is to be provided.
- (d) The specific location or locations in case of distributed facilities, from which each service is to be provided.
- (e) In case(s) where the proposed meteorological service(s) are provided at an aerodrome meteorological office, meteorological watch office or aeronautical meteorological stations, the following shall be provided;
 - (i) List of instruments used in Aeronautical weather observations.
 - (ii) Routine and special meteorological reports
 - (iii) SIGMET information, aerodrome warnings, wind shear warnings and alerts where applicable.
 - (iv) Forecasts
 - (v) Information for air traffic services, search and rescue services and aeronautical information services.
 - (vi) Services for operators and flight crew members.
 - (vii) Aeronautical climatological information

3.3.2 Compliance with Regulatory Requirements

- (a) The MSP should ensure that provisions in MET MANSOPS complies with regulatory requirements prescribed in the Civil Aviation (Meteorological Services for Air Navigation) Regulations, 2022.
- (b) The Authority shall assess whether the provisions of MET MANSOPS comply with the regulatory requirements prescribed in the Civil Aviation (Meteorological Services for Air Navigation) Regulations, 2022 before regulatory approval.

3.3.3 Information Necessary for Service Provision

- (a) The MET MANSOPS shall include a description of the arrangements made or proposed to be made by the MSP to ensure that it has and will continue to receive, the information necessary for providing each service. The information shall include the following;
 - (i) Meteorological information that is both internally and externally sourced.
 - (ii) The description shall indicate the information requirement, its use in meteorological service provision, its source and the means of its transfer, receipt and display.
 - (iii) The integrity levels of the information/data should also be defined and be consistent with its operational criticality.
- (b) Information/Data sourced from another MET service provider, Air traffic services (ATS) units or meteorological unit must be adequate in respect to integrity.
- (c) The examples of information/data sources required are:
 - (i) World area forecasting centre
 - (ii) NOTAM

- (iii) Automatic weather observing systems
- (iv) National meteorological centres
- (v) Air traffic services
- (vi) Meteorological watch offices
- (vii) Aerodrome meteorological observatories/stations
- (viii) OPMET data banks
- (ix) Meteorological Headquarters
- (x) Meteorological warning service
- (xi) Local and remote radar data
- (xii) Air reports and aircraft observations
- (xiii) Meteorological Satellite information
- (xiv) Information on unmanned free balloons
- (xv) Information concerning volcanic activity
- (xvi) Information concerning tropical cyclones
- (xvii) Information concerning radioactive material and toxic chemical clouds.
- (xviii) World and Regional Space Weather Centres

3.3.4 The Output Data

- (a) The MET MANSOPS shall include a description of the arrangements made or proposed to be made by the MSP to ensure that it can and will continue to be able to, disseminate information/data required by users.
- (b) The examples of data/information recipients could normally include some or all of the following:
 - (i) Air operators
 - (ii) WAFC
 - (iii) ATS units
 - (iv) OPMET data bank
 - (v) SAR unit
 - (vi) Adjacent aeronautical meteorological service providers
 - (vii) Aerodrome administration
 - (viii) Other meteorological offices and watch offices

3.4 The Meteorological Service Provider's Record Keeping and Documentation System

3.4.1 Requirements for record keeping

- (a) The MET MANSOPS shall include the requirement for a record keeping system that covers identification, collection, indexing, storage, security, maintenance, access and disposal of records necessary for the provision of aeronautical meteorological services.
- (b) The records systems shall provide an accurate chronicle of aeronautical meteorological activities especially when and where such records may be required for the purpose of reconstruction of events for air safety investigation.
- (c) The type of records to be kept and period is specified in the Civil Aviation (Meteorological Service for Air Navigation) Regulations, 2022.

- (d) The Authority shall ensure through regular inspections that the meteorological service provider has a system in place that will cover all the technical record types required.

3.4.2 Agreements with Other Organizations

- (a) The MET MANSOPS shall contain a copy of any agreement with other bodies entered into by the meteorological service provider in relation to the provision of the aeronautical meteorological services.
- (b) The following agreements will normally be required:
- (i) Service Level Agreement (SLA)
 - An agreement with ATM provider, or a prospective ATM provider, that provides, or is proposing to provide the meteorological services for air navigation and/or the ATM facilities required for meteorological service provision.
 - Where necessary, an agreement with air operators outlining the meteorological services provided.
 - (ii) Aerodrome Operator Agreement
 - Such an agreement will be necessary in the situation where the meteorological service provider is to provide aeronautical meteorological services at a controlled aerodrome.
 - Where the facilities necessary for meteorological services provision, such as meteorological observatory and aeronautical meteorological office, are the property of the aerodrome, the use of the facilities by the meteorological service provider shall also be covered by the agreement.
 - (iii) Agreement with Other Meteorological Service Agencies
 - Where the facilities necessary for meteorological services provision, such as meteorological observatory, upper air observation, satellite and radar data are managed by a different meteorological agency, the use of such facilities by the designated meteorological service provider shall be covered by an agreement.

3.5 The Quality Management System (QMS)

- 3.5.1 The Quality Management System (QMS) described in the MET MANSOPS and adopted by the MSP must comply with requirements of the Civil Aviation (Meteorological Services for Air Navigation) Regulations, 2022 and any other guidelines as may be provided by the Authority.
- 3.5.2 The QMS procedure and processes should be described in the MET MANSOPS, including processes proposed for management review of the Quality System as well as the implementation of corrective action where necessary.

3.6 Disseminating Information to Staff

The MET MANSOPS shall contain a description of the procedures and documentation to be used by the MSP to provide its staff with information on:

- (a) The relevant procedures for service provisions.
- (b) Operational work instructions to staff
- (c) Operational changes to be conveyed to staff from time to time.

3.7 Meteorological Service Provider's Training and Assessment Program

- 3.7.1 The MSP shall ensure that its training and competence assessment of personnel is covered in MET MANSOPS.
- 3.7.2 The MET MANSOPS shall detail the MSP's training and assessment program and demonstrate that all technical personnel performing functions for meteorological services are competent to perform that function.

3.8 Commissioning of New Facilities, Equipment and Services

- 3.8.1 The MET MANSOPS should describe the processes for the installation, commissioning and transition into service phases of new facilities, equipment and services; provide evidence, arguments and assumptions for acceptance of the operational performance and the quality of the new facility, equipment, procedure or service.
- 3.8.2 The quality assurance shall establish that the design objectives in respect to performance and safety have been met, or if not met, that appropriate corrective actions and/or risk mitigation can be implemented.
- 3.8.3 There should be a process for sign-off authorisation by supervisors responsible for the design, performance, operation and maintenance of the new system, prior to it being commissioned for operational use.

3.9 Amendment of the MET MANSOPS

- 3.9.1 For the purposes of maintaining the accuracy of the information in the MET MANSOPS, the meteorological service provider shall whenever necessary, amend the manual and keep the manual updated and shall submit the said amendments to the Authority for acceptance and approval.
- 3.9.2 The meteorological service provider shall include in the MET MANSOPS the processes proposed for preparation, authorisation and issue of amendments to its manual.
- 3.9.3 The MET MANSOPS should be a controlled document and therefore, the amendment process must similarly be controlled.



DIRECTOR SAFETY, SECURITY AND ECONOMIC REGULATION