

**STATE OF LIBYA  
GOVERNMENT OF LIBYA  
MINISTRY OF TRANSPORT  
CIVIL AVIATION AUTHORITY**



**دولة ليبيا  
الحكومة الليبية  
وزارة المواصلات  
مصلحة الطيران المدني**

# **Libya Civil Aviation Regulations**

## **PART AERONAUTICAL METEOROLOGICAL SERVICES**

**(PART - MET)**

*Initial Issue – February 2020*

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## Libyan Civil Aviation Regulations

### Part Aeronautical Meteorological Services - (Part - MET)

#### Foreword

1. The regulations contained herein are adopted under the provision of Article No.(5) of Libyan Civil Aviation Law No.(6) of 2005, and issued and signed up by the Director General of Civil Aviation by virtue of powers vested from the Minister of Transport under the resolution No.(154) issued on 13/05/2015.
2. The Libyan Civil Aviation Regulations - Part Aeronautical Meteorological Services - (Part - MET) describes the requirement and the process of authorising and issuing of authorisation certificate to Aeronautical Meteorological Services providers.
3. LYCAA in development of these regulations has adopted ICAO standards and other international principles and practices.
4. The information contained herein is subject to constant review in the light of changing regulations and requirements. No subscriber or other reader should act on the basis of any such information without also referring to the applicable laws and regulations and/or without taking appropriate professional advice when/as indicated/required. Although, every effort has been made to ensure accuracy, the Libyan Civil Aviation Authority, shall not be held responsible for loss or damage caused by errors, omissions, misprints or misinterpretation of the contents hereof.
5. Copies of this publication can be downloaded from: [www.caa.gov.ly](http://www.caa.gov.ly)

Issued on 9<sup>th</sup> February 2020, and signed by



**Capt. Nasereddin Shaebelain**  
**Director General**

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## Libyan Civil Aviation Regulation – - Part Aeronautical Meteorological Services - (Part - MET)

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## Subpart A — CERTIFICATION AND OPERATION

### MET .001 - Applicability

- (a) Civil Aviation Regulations Part Aeronautical Meteorological is issued by Libyan Civil Aviation Authority in pursuit of its obligations to ensure enforcement of accepted international regulations and standards within organisations providing Meteorological Services within the TRIPOLI FIR as approved by the Authority.
- (b) Subpart - A provides the Rules governing the certification and operation of organisations providing meteorological services to aviation.
- (c) The objective of meteorological services for international air navigation shall be to contribute towards the safety, regularity and efficiency of international air navigation.
- (d) This objective shall be achieved by supplying all interested aviation organisations with the meteorological information necessary for the performance of their respective functions.
- (e) The organisation responsible for the provision of Meteorological Services shall determine the type and degree of meteorological services to be provided within the TRIPOLI FIR in accordance with the requirements of the ICAO Regional Plan (Doc9708)
- (f) The organisation responsible for the provision of Meteorological Services may arrange for the services to be provided on its behalf.
- (g) The organisation responsible for the provision of Meteorological Services and the services to be provided shall be included in the LIBYANAIP.
- (h) No person shall provide an aviation meteorological service except under the authority of, and in accordance with the provisions of, a meteorological certificate issued under this Part.

### MET. 005 - Definitions

When the following terms are used in the Standards and Recommended Practices for Meteorological Service for International Air Navigation, they have the following meanings:

**Aerodrome:** A defined area on land or water (including any buildings, installations and equipment) intended to be used either wholly or in part for the arrival, departure and surface movement of aircraft.

**Aerodrome climatological summary:** Concise summary of specified meteorological elements at an aerodrome, based on statistical data.

**Aerodrome climatological table:** Table providing statistical data on the observed occurrence of one or more meteorological elements at an aerodrome

**Aeronautical meteorological station:** Station designated to make observations and meteorological reports for use in international air navigation.

**Aircraft observation:** The evaluation of one or more meteorological elements made from an aircraft in flight.

**AIRMET information:** Information issued by a meteorological watch office concerning the occurrence or expected occurrence of specified en-route weather phenomena which may affect the safety of low-level aircraft operations and which was not already included in the forecast issued for low-level flights in the flight information region concerned or sub-area thereof

**Air-report:** A report from an aircraft in flight prepared in conformity with requirements for position, and operational and/or meteorological reporting.

**Authority:** means Libyan Civil Aviation Authority (LYCAA)

**Consultation:** Discussion with a meteorologist or another qualified person of existing and/or expected meteorological conditions relating to flight operations; a discussion includes answers to questions.



**Forecast:** A statement of expected meteorological conditions for a specified time or period, and for a specified area or portion of airspace.

**GAMET area forecast:** An area forecast in abbreviated plain language for low-level flights for a flight information region or sub-area thereof, prepared by the meteorological office designated by the meteorological authority concerned and exchanged with meteorological offices in adjacent flight information regions, as agreed between the meteorological authorities concerned.

**Grid point data in digital form:** Computer processed meteorological data for a set of regularly spaced points on a chart, for transmission from a meteorological computer to another computer in a code form suitable for automated use.

**Meteorological authority:** The authority providing or arranging for the provision of meteorological service for international air navigation on behalf of a Contracting State.

**Meteorological bulletin:** A text comprising meteorological information preceded by an appropriate heading.

**Meteorological information:** Meteorological report, analysis, forecast, and any other statement relating to existing or expected meteorological conditions.

**Meteorological office:** An office designated to provide meteorological service for international air navigation.

**Meteorological report:** A statement of observed meteorological conditions related to a specified time and location.

**Meteorological satellite:** An artificial Earth satellite making meteorological observations and transmitting these observations to Earth.

**Minimum sector altitude:** The lowest altitude which may be used which will provide a minimum clearance of 1 000 ft above all objects located in an area contained within a sector of a circle of 25 NM radius centered on a radio aid to navigation.

**Navigation specification:** A set of aircraft and flight crew requirements needed to support performance-based navigation operations within a defined airspace. There are two kinds of navigation specifications: Required Navigation Performance (RNP) specification and Area Navigation (RNAV) specification.

**Observation (meteorological):** The evaluation of one or more meteorological elements.

**Prognostic chart:** A forecast of a specified meteorological element(s) for a specified time or period and a specified surface or portion of airspace, depicted graphically on a chart.

**Quality assurance:** Part of quality management focused on providing confidence that quality requirements will be fulfilled (ISO 9000).

**Quality control:** Part of quality management focused on fulfilling quality requirements (ISO 9000).

**Quality management:** Coordinated activities to direct and control an organization with regard to quality (ISO 9000).

**Regional air navigation agreement:** Agreement approved by the Council of ICAO normally on the advice of a regional,

**Runway visual range (RVR):** The range over which the pilot of an aircraft on the centre line of a runway can see the runway surface markings or the lights delineating the runway or identifying its center line.

**SIGMET information:** Information issued by a meteorological watch office concerning the occurrence or expected occurrence of specified en-route weather phenomena which may affect the safety of aircraft operations.

**Volcanic ash advisory center (VAAC):** A meteorological center designated by regional air navigation agreement to provide advisory information to meteorological watch offices, area control centers, flight information centers, world area forecast centers and international OPMET databanks regarding the lateral and vertical extent and forecast movement of volcanic ash in the atmosphere following volcanic eruptions.

**VOLMET:** Meteorological information for aircraft in flight:

*Data link-VOLMET (D-VOLMET)*. Provision of current aerodrome routine meteorological reports (METAR) and aerodrome special meteorological reports (SPECI), aerodrome forecasts (TAF), SIGMET, special air-reports not covered by a SIGMET and, where available, AIRMET via data link.

*VOLMET broadcast*. Provision, as appropriate, of current METAR, SPECI, TAF and SIGMET by means of continuous and repetitive voice broadcasts.

**World area forecast center (W AFC)**: A meteorological center designated to prepare and issue significant weather forecasts and upper-air forecasts in digital form on a global basis direct to States by appropriate means as part of the aeronautical fixed service.

**World area forecast system (WAFS)**: A worldwide system by which world area forecast centers provide aeronautical meteorological en-route forecasts in uniform standardized formats.

### **MET. 010 Application for Certification**

- (a) The applicant for a meteorological certificate shall submit an application for a Meteorological Services Certificate to the Libyan Civil Aviation Authority.
- (b) The application shall include the locations and airspace at or within which the services will be provided.
- (c) The application shall be submitted to the Authority along with supporting documentation which shall include the exposition required by MET 095.

### **MET .015 - Issue of Certificate**

An applicant is entitled to a meteorological certificate if:

- (a) The applicant meets the requirements of this Subpart; and
- (b) The applicant and persons holding positions listed in MET 025(a). (1) to (5) inclusive are acceptable to the Authority; and
- (c) The organisation's exposition as required by MET.095 is acceptable to the Authority; and
- (d) The Authority is satisfied that the granting of the certificate is not contrary to the interests of aviation safety.
- (e) The validity of a Meteorological Certificate is based on continued operation in accordance with Civil Aviation Regulations, Civil Aviation Advisory Publications and other publications as promulgated by the Authority.
- (f) A Meteorological certificate remains in force until it expires, is suspended or revoked.
- (g) The holder of a meteorological certificate that expires or is revoked shall surrender the certificate to the Authority.
- (h) The holder of a meteorological certificate that is suspended shall immediately return the certificate to the Authority for appropriate endorsement.
- (i) The Meteorological Service Certificate shall remain valid subject to periodic surveillance audits conducted at the discretion of the Authority, confirming ongoing compliance with the Civil Aviation Regulations.
- (j) The Authority shall undertake a complete Meteorological Service certification audit at least once in every three-year period following the issue of a Meteorological Service Certificate.

### **MET .020 - Privileges of Certificate**

A meteorological certificate shall specify which of the following meteorological services and which training and assessment for such services the certificate holder is authorised to provide.

- (a) **Climatology service**: a service for the development and supply of climatological information in accordance with the requirements of chapter 8 of Annex 3, for a specific area or airspace; or
- (b) **Forecast service**: a service for the supply of forecast meteorological information in accordance with the requirements of chapter 6 of Annex 3, for a specific area or portion of airspace; or

- (c) **Information dissemination service:** a service for the collection and dissemination of meteorological information; or
- (d) **Meteorological briefing service:** a service for the supply of written and oral meteorological information on existing and expected meteorological conditions in accordance with the requirements of chapter 9 of Annex 3; or
- (e) **Meteorological reporting service:** a service for the supply of routine or special meteorological reports in accordance with the requirements of chapter 4 of Annex 3; or
- (f) **Meteorological watch service:** a service for maintaining a watch over meteorological conditions affecting aircraft operations in a specific area in accordance with the requirements of chapter 7 of Annex 3.

### **MET .025 - Personnel Requirements**

- (a) Each holder of a meteorological service certificate shall engage, employ or contract:
  - (1) An Accountable Manager who has the authority within the applicant's organisation to ensure that each meteorological service listed in their exposition can be financed and carried out to meet the operational requirements, and in accordance with the requirements prescribed by this Rule subpart; and
  - (2) A Head of Meteorology responsible for ensuring that the organisation complies with the meteorological provision requirements of this Part; and
  - (3) A Head of Training responsible for ensuring that the organisation complies with the training requirements of this Part; and
  - (4) A safety management post holder responsible for the provision of a safety management system according to the requirements of the authority; and
  - (5) A quality management post holder responsible for the provision of a quality management system; and; Sufficient personnel to plan, operate, supervise, inspect and certify the meteorological offices and facilities and provide the meteorological services listed in the applicant's exposition.
- (b) Each service certificate holder shall establish procedures:
  - (1) To provide training for meteorological personnel in accordance with the WMO requirements contained in as WMO 49, Vol. 1 and 2 and WMO 1083 Vol. 1 and 2; and
  - (2) To assess the competence in accordance with WMO requirements of those personnel who are authorised by the applicant to
    - (i) place and maintain facilities listed in the applicant's exposition into operational service; and
    - (ii) produce and release meteorological information; and
    - (iii) Establish a procedure to maintain and develop the competence of those authorised personnel; and
    - (iv) Provide those authorised personnel with written evidence of the scope of their authorisation.

### **MET .030 - Facility Requirements**

- (a) Each holder of a meteorological service certificate shall determine which meteorological office(s) they wish to establish. These shall be one or more of the following.
  - (1) A meteorological office either located at, or associated with an aerodrome to carry out some or all of the following tasks as required to meet the requirements of flight operations at the aerodrome:
    - (i) prepare and/or obtain forecasts complying with Annex 3 format and validity requirements for departing aircraft and local meteorological conditions; or
    - (ii) maintain a continuous watch of meteorological conditions over the aerodrome/s for which it prepares forecasts; or

- (iii) provide briefing, consultation and flight documentation to crew members and other flight operations personnel; or
  - (iv) supply other meteorological information, complying with Annex 3 format requirements, to aeronautical users including:
    - routine observations and reports;
    - special observations and reports;
    - aerodrome warnings;
    - wind shear warnings;
    - other warnings as locally agreed or
  - (v) display available meteorological information;
  - (vi) exchange meteorological information with other meteorological offices; or
  - (vii) supply information on pre-eruption volcanic activity, volcanic eruptions or ash cloud to associated ATS units, AIS units and meteorological watch offices as per letters of agreement;
- (2) A meteorological watch office which shall—
- (i) maintain a watch over meteorological conditions affecting flight operations within the watch office's area of responsibility; and
  - (ii) prepare and supply SIGMET and other information related to its area of responsibility to associated air traffic services; and
  - (iii) disseminate SIGMET information by AFTN;
  - (iv) when required by regional air navigation agreements or letters of agreement—
    - prepare AIRMET information related to its area of responsibility;
    - supply AIRMET information to associated ATS units;
    - disseminate AIRMET information;
  - (v) supply information on pre-eruption volcanic activity, volcanic eruptions or ash cloud, for which a SIGMET has not been issued, to its associated ATS units, AIS units as per letters of agreement, and to its associated VAAC as determined by regional air navigation agreement;
  - (vi) Supply information received concerning the accidental release of radioactive materials into the atmosphere in the area for which it has responsibility, or in adjacent areas to its associated ATS units, AIS units as per letters of agreement.
- (3) An aeronautical meteorological station which shall—
- (i) be established at aerodromes and offshore structures as deemed necessary by the organisation responsible for the provision of Meteorological Services to support both international air operations and off shore helicopter operations;
  - (ii) make routine observations at fixed intervals;
  - (iii) at aerodromes, make special observations whenever specified changes occur in respect of surface wind, visibility, runway visual range, present weather, clouds and /or air temperature.
- (b) Each holder of a meteorological service certificate shall establish procedures to ensure that:
- (1) Each of the meteorological offices and facilities listed in their exposition is:—
    - (i) sited and configured in accordance with security measures; designed to prevent unlawful or accidental interference; and
    - (ii) provided with suitable power supplies and means to ensure appropriate continuity of service.
  - (2) Equipment are in accordance with ICAO Doc 8896;

- (3) When applicable, each remote weather sensing facility listed in their exposition is installed and maintained in a technically appropriate position to ensure that the facility provides an accurate representation of the local meteorological conditions; and
- (4) Information concerning adverse weather conditions is disseminated to the maximum extent to all concerned agencies.

### **MET. 035 - Communication Requirements**

- (a) Each holder of a meteorological service certificate shall establish communication systems and procedures to ensure that each of the meteorological offices and facilities listed in their exposition can provide the meteorological information services in a timely reliable manner.
- (b) The communication systems and procedures must be able to handle the volume and nature of the meteorological information being communicated so that no meteorological information is delayed to the extent that the information becomes out of date.

### **MET. 040 - Input Requirements**

- (a) Each holder of a meteorological services certificate shall establish procedures to obtain input meteorological information appropriate to the meteorological service being provided.
- (b) The procedures shall ensure that:
  - (1) each meteorological office or facility listed in the holder's exposition that provides:
    - (i) a forecast service has continuous access to appropriate historical, real-time, and other meteorological information for the applicable forecast areas;
    - (ii) a meteorological briefing service in person or by any other interactive visual means, has adequate display and briefing resources available for the briefings;
    - (iii) a meteorological reporting service has adequate observing systems to supply adequate, accurate and timely meteorological reports in accordance with the requirements of Annex 3 Chapter 4;
    - (iv) a meteorological watch service has adequate meteorological information to supply an adequate, accurate and timely meteorological watch service; and
    - (v) a climatology service has adequate meteorological information for the preparation of climatological information.
  - (2) Aircraft reports and observations are processed appropriately according to the service being provided by the meteorological office.

### **MET. 045 - Output Requirements**

- (a) Each holder of a meteorological services certificate shall:
  - (1) Identify the output meteorological information provided by each meteorological service listed in their exposition;
  - (2) Determine the standards and formats for that output meteorological information, in accordance with the requirements of the relevant chapter and appendix of Annex 3 as well as the requirements of Attachments A, B and C of Annex 3; and
  - (3) Comply with the standards and formats determined under MET.045(a)(2)
- (b) Each holder of a meteorological services certificate shall establish procedures to ensure that the meteorological information supplied by each meteorological office and facility listed in their exposition is consistent with ICAO Human Factors principles and shall be in forms which require a minimum of interpretation by users.
- (c) Each holder of a meteorological service certificate shall establish letters of agreement or similar service provision agreements with the users of the holder's meteorological service/s, covering the user's requirements including notification requirements.

- (d) Each holder of a meteorological services certificate with respect to a meteorological reporting service, shall establish procedures to ensure that the reports issued comply with the requirements of Annex 3, Chapter 4.

### **MET. 050 - Equipment Requirements**

- (a) Each holder of a meteorological services certificate shall establish procedures to ensure that all electronic data processing facilities used in the acquisition, compilation, computing, access or dissemination of meteorological information are of a nature, configuration and capability to ensure the adequacy, accuracy and timeliness of that meteorological and related information.
- (b) At aerodromes with runways intended for Category II and III ILS operations, automated equipment for measuring or assessing, as appropriate, and for monitoring and remote indicating of surface wind, visibility, RVR, cloud base height, air and dew-point temperatures and atmospheric pressure shall be installed to support approach, landing and take-off operations.
- (c) These devices shall be integrated automatic systems for the acquisition, processing, dissemination and display in real time of the meteorological parameters affecting landing and take-off operations.
- (d) Human factor principles should be observed in the design of these devices.
- (e) At aerodromes with runways intended for Category I ILS operations, the requirements of MET.050 (b) should be met.

### **MET. 055 - Documentation**

- (a) Each holder of a meteorological services certificate shall hold copies of meteorological office manuals, facility manuals, technical standards and practices, procedure manuals and any other documentation that is necessary for the provision of the meteorological services listed in their exposition.

These documents shall include, but are not limited to:

- ICAO Annex3;
  - ICAO Doc7030;
  - ICAO Doc7192;
  - ICAO Doc8896;
  - ICAO Doc9328;
  - ICAO Doc9377;
  - ICAO Doc9708;
  - ICAO Doc9837;
  - ICAO Doc9859.
  - WMO Publication 49, volumes 1 and 2;
  - WMO Publication 1083, volumes 1 and 2.
- (b) Each holder of a meteorological services certificate shall establish a procedure to control the documentation required by MET.055(a)
- The procedure shall ensure that:
- (1) The documentation is reviewed and authorised by appropriate personnel before issue;
  - (2) Current issues of relevant documentation are available to personnel at all locations where they need access to such documentation for the provision of the meteorological services listed in the applicant's exposition;
  - (3) Obsolete documentation is promptly removed from all points of issue or use;
  - (4) Changes to documentation are reviewed and approved by appropriate personnel;
- and

- (5) The current version of each item of documentation can be identified to preclude the use of out of date editions.
- (c) The following documents shall be submitted to the Authority for acceptance.
  - Exposition (refer MET 095)
  - Safety Management System Manual (refer MET090)
  - Quality Management System Manual (refer MET 085)
  - Operations Manual (refer MET105)
  - Training and Competency Manual (refer MET025 (b))

*Note: All documentation shall be reviewed at intervals not exceeding twelve (12) months. The review shall be recorded and authorised before issue.*

### **MET. 060 - Periodic Inspection, Testing and Calibration**

- (a) Each holder of a meteorological services certificate shall establish procedures for—
- (b) The periodic inspection of each aeronautical meteorological office listed in the applicant's exposition; and The periodic inspection, testing and calibration of each facility listed in the applicant's exposition.
- (c) The procedures shall ensure that—
  - (1) Appropriate inspection equipment and systems are available to personnel for the inspection of each meteorological office;
  - (2) Appropriate inspection, measuring and test equipment and systems are available to personnel for the inspection, testing and calibration of each facility;
  - (3) The inspection, measuring and test equipment and systems have the precision and accuracy necessary for the inspections, measurements and tests being carried out; and
  - (4) All meteorological sensing facilities are calibrated and configured so that the environmental sensors fitted or incorporated yield reliable, accurate and representative meteorological information.

### **Met. 065 - Release of Meteorological Information**

- (a) Each holder of a meteorological services certificate shall establish procedures for—
  - (1) The release of meteorological information from each meteorological office listed in their exposition and;
  - (2) The placing and maintenance of facilities listed in their exposition into operational service.
- (b) The procedures shall ensure that persons authorised to supervise the production and release of meteorological information and persons authorised to place meteorological facilities into operational service have been assessed as competent under the procedures required by MET.025(b)

### **MET. 070 - Notification of Meteorological Office and Facility Status**

- (a) Each holder of a meteorological services certificate shall establish procedures to notify the users of the holder's meteorological services of relevant operational information and of any changes in the operational status of each meteorological office or facility listed in the holder's exposition.
- (b) The holder must ensure that the procedures established under MET.070(a) require—
  - (1) The operational information for each of the meteorological services granted that support the air navigation system or an air traffic service to be forwarded to the Aeronautical Information Service for publication in the Libyan AIP; and

- (2) The users of a meteorological office or facility to be notified without delay of any change in the operational status of the meteorological office or facility if the change may affect the safety of air navigation. For those meteorological offices and facilities published in the Libyan AIP, the information concerning any change to their operational status must be forwarded to the AIS for the issue of a NOTAM.

#### **MET.075 - Meteorological Information Check after Accident or Incident**

- (a) Each holder of a meteorological services certificate shall establish procedures for checking the adequacy, accuracy and timeliness of any of their meteorological information that may have been used by an aircraft or an air traffic service involved in an accident or incident.
- (b) The procedures shall ensure that—
  - (1) The checks are carried out as soon as practicable after notification to the holder's organisation of such an accident or incident; and
  - (2) Copies of the meteorological information are kept in a secure place for possible use by any subsequent investigation.

#### **MET.080 - Records**

- (a) Each holder of a meteorological services certificate shall establish procedures to identify, collect, index, store, maintain and dispose of the records that are necessary for the supply of the meteorological services listed in their exposition.
- (b) The procedures shall ensure that—
  - (1) There is a record of the input meteorological information obtained under the procedures required by MET.040;
  - (2) There is a record of all output meteorological information identified under MET.045;
  - (3) The records specified in MET.080(b) a and b are retained for a period of at least 31 days or for such longer period as may be required by the Authority;
  - (4) There is a record for each meteorological office and facility listed in the holder's exposition, in order to document the performance of each meteorological office and facility and to provide a traceable history of its maintenance, service and product quality, its periodic inspections, and the person responsible for each of these activities;
  - (5) There is a record of the equipment and systems used for verification, inspection, testing and calibration under the procedures required by MET.060. The record shall provide a traceable history of the location, maintenance and calibration checks for the equipment and systems;
  - (6) There is a record of each occurrence of erroneous meteorological information reported and of each malfunction detected under the procedures required by MET.085(e). The record shall detail the nature of the erroneous meteorological information or malfunction and the findings of the investigation and the follow-up corrective actions;
  - (7) There is a record of each internal quality review of the holder's organisation carried out under the procedures required by MET.085. The records shall detail the part or activity of the organisation that was reviewed, the findings of the review and any necessary follow-up corrective actions;
  - (8) There is a record for each person who is authorised by the holder to supervise the production and release of meteorological information and for each person who is authorised by the holder to place into, and maintain facilities in, operational service. The record shall include details of their experience, qualifications, training and current authorisations;
  - (9) All records are legible and of a permanent nature; and
  - (10) All records other than those required by MET.080(b) a and b are retained for at least one year, or for such longer period as may be required by the Authority, in order to establish a history of the performance of the meteorological services.



**MET. 085 - Internal Quality Management**

- (a) Each holder of a Meteorological Service Certificate shall establish internal quality management procedures to ensure compliance with, and the adequacy of, the procedures required by this Subpart.
- (b) The quality system established in accordance with MET.085 (a) shall conform to ISO 9000 standards and shall be certified by an approved organization.
- (c) The person who has responsibility for internal quality management shall have direct access to the Accountable Manager on matters affecting the adequacy, accuracy and timeliness of the meteorological information.
- (d) When the quality management procedures indicate that meteorological information to be supplied does not comply with the output requirements of MET.045(a)(3), and automatic error correction procedures are not appropriate, such information shall not be supplied to the users unless it is validated with the originator.
- (e) The quality system shall include procedures and resources for—
  - (1) The routine verification of meteorological information obtained and provided by the holder; and
  - (2) The assessment of the timeliness of transmission of messages or bulletins.
- (f) Each holder of a meteorological services certificate shall establish procedures—
  - (1) To identify, record, notify, investigate and rectify any report of erroneous meteorological information;
  - (2) To identify, record, notify, investigate and rectify any detected malfunction in the facilities and meteorological services listed in their exposition that may result in the supply of erroneous meteorological information;
  - (3) To notify without delay all users that have received the erroneous meteorological information;
  - (4) To notify the Authority, within 12 hours, of those malfunctions that cannot be remedied within 72 hours; and
  - (5) For the continuation of malfunction status reports in the event that such reports are required by the Authority.

**MET. 090 - Safety Management**

Each holder of a Meteorological Service Certificate shall establish a safety management system as required by the Authority.

**MET. 095 - Organizational Exposition**

- (a) Each holder of, or applicant for, a Meteorological Services Certificate shall provide the Authority with an exposition which shall contain—
  - (1) A statement signed by the Accountable Manager on behalf of the holder or applicant's organisation confirming that the exposition and any included manuals—
    - (i) define the organisation and demonstrate its means and methods for ensuring ongoing compliance with this Subpart; and
    - (ii) will be complied with at all times; and
  - (2) The titles and names of the person or persons required by MET.025(a) (1) to (5); and
  - (3) The duties and responsibilities of the person or persons specified in MET. 025(a) (1) to (5); and
  - (4) An organisation chart showing lines of responsibility of the persons specified in MET. 095(a) (2); and
  - (5) A summary of the holder or applicant's staffing structure at each meteorological office listed under MET.095 (a) (7) (i); and
  - (6) A list of the meteorological services to be covered by the certificate; and

- (7) A list providing—
    - (i) the location of each meteorological office operated by the holder or applicant; and
    - (ii) the location of each facility operated by the holder or applicant that provides meteorological information directly to the users; and
    - (iii) the meteorological services provided by each of those meteorological offices and facilities; and
    - (iv) the locations and airspace covered by such meteorological services; and
  - (8) Details of the holder or applicant's output meteorological information identified under MET.045(a) (1) and the standards and formats for that information determined under MET.045 (a) (2); and
  - (9) Details of the holder or applicant's procedures and systems required by this Subpart; and
  - (10) Procedures to control, amend and distribute the exposition.
- (b) The holder or applicant's exposition shall be acceptable to the Authority.

### **MET. 100 - Continued Compliance**

Each holder of a meteorological service certificate shall—

- (a) Hold at least one complete and current copy of their exposition at each meteorological office specified in their exposition; and
- (b) Comply with all procedures and systems detailed in their exposition; and
- (c) Make each applicable part of their exposition available to personnel who require those parts to carry out their duties; and
- (d) Continue to meet the standards and comply with the requirements of this part; and
- (e) Notify the Authority of any change of address, telephone or facsimile number, or e-mail address.

### **MET. 105 - Operations Manual**

Each holder of a meteorological services certificate shall provide an operations manual for each meteorological office listed in their exposition. The manual shall set out the procedures for the operation and maintenance of the meteorological office and associated facilities and shall include a list of—

- (a) The meteorological information and meteorological services provided; and
- (b) The minimum acceptable operating parameters and standards for facilities; and
- (c) The minimum meteorological inputs required; and
- (d) The minimum performance and quality levels for output meteorological information and meteorological services provided; and
- (e) The test equipment and systems required for the measurement of the minimum levels listed under MET. 105 (d)
- (f) Any mandatory check procedures for releasing meteorological information.

The holder shall ensure that the operations manual is kept up to date with respect to amendments to Annex 3.

### **MET.110 - Limitation on Certificate Holder**

The holder of a meteorological service certificate shall not—

- (a) Provide meteorological information where the meteorological input information required to provide that meteorological information is not available; or
- (b) Provide meteorological information where the operational performance of the meteorological office or facility producing that meteorological information does not meet the applicable requirements; or

- (c) Provide meteorological information where any integrity monitoring system associated with that meteorological information is not fully functional; or provide meteorological information where any required verification, inspection, test or calibration relating to that meteorological information has not been completed; or
- (d) Provide meteorological information where there is any cause whatsoever to suspect the integrity of that meteorological information.

#### **MET. 115 - Changes to a Certificate Holder's Organisation**

- (a) Each holder of a meteorological service certificate shall ensure that their exposition is amended so as to remain a current description of the holder's organisation and meteorological services provided.
- (b) The certificate holder shall ensure that any amendments made to the holder's exposition meet the applicable requirements of this Subpart and comply with the amendment procedures contained in the holder's exposition.
- (c) The certificate holder shall provide the Authority with a copy of each amendment to their exposition as soon after its incorporation into the exposition as practicable.
- (d) Where a certificate holder proposes to make a change to any of the following, prior notification to and acceptance by the Authority is required—
  - (1) The Accountable Manager; or
  - (2) The person/s listed in MET.025 (a) (1) to (5);
  - (3) The meteorological services the holder provides;
  - (4) The locations and airspace covered by each of the meteorological services the holder provides.
- (e) The Authority may prescribe conditions under which a certificate holder may operate during or following any changes specified in MET.115 (d)
- (f) Where any of the changes referred to in this Rule require an amendment to the certificate, the certificate holder shall forward the certificate to the Authority as soon as practicable.
- (g) The certificate holder shall make any amendments to the holder's exposition as the Authority may consider necessary in the interests of aviation safety.

#### **MET. 120 - Safety Inspections and Audits**

- (a) The Authority may, in writing, require the holder of a meteorological service certificate to undergo or carry out such inspections and audits of the holder's meteorological offices, facilities, documents and records as the Authority consider necessary in the interests of civil aviation safety and security.
- (b) The Authority may require from the holder of a meteorological service certificate such information as the Authority considers relevant to the inspection or audit.

## Subpart B - General Provisions

### MET .125 - Provision of Meteorological Service

- (a) The meteorological services provider shall be approved by the Authority. The objective of meteorological service for international air navigation shall be contribute towards the safety, regularity and efficiency of international air navigation.
- (b) This objective shall be achieved by supplying the following users: operators, flight crew members, ATS units, search and rescue services units, airport managements and others concerned with the conduct or development of international air navigation, with the meteorological information necessary for the performance of their respective functions.
- (c) The meteorological services provider shall comply with the requirements of the World Meteorological Organization (WMO) in respect of qualifications and training of meteorological personnel providing service for international air navigation.

### MET .130 - Supply, use and quality management of meteorological information

- (a) Close liaison shall be maintained between those concerned with the supply and those concerned with the use of meteorological information on matters which affect the provision of meteorological service for international air navigation.
- (b) In order to meet the objective of meteorological service for international air navigation, the meteorological services provider shall establish and implement a properly organized quality system comprising procedures, processes and resources necessary to provide for the quality management of the meteorological information to be supplied to the users listed in MET .125 (b).
- (c) The quality system shall provide the users with assurance that the meteorological information supplied complies with the stated requirements in terms of the geographical and spatial coverage, format and content, time and frequency of issuance and period of validity, as well as the accuracy of measurements, observations and forecasts. When the quality system indicates that meteorological information to be supplied to the users does not comply with the stated requirements, and automatic error correction procedures are not appropriate, such information shall not be supplied to the users unless it is validated with the originator.
- (d) The meteorological information supplied to the users listed in MET .125 (b) shall be consistent with Human Factors principles and shall be in forms which require a minimum of interpretation by these users and in conformance with these regulations.

### MET .135 - Notifications Required from Operators

- (a) An operator requiring meteorological service or changes in existing meteorological service shall notify the meteorological services provider or the aerodrome meteorological office concerned sufficiently in advance when:
  - (1) new routes or new types of operations are planned;
  - (2) changes of a lasting character are to be made in scheduled operations; and
  - (3) other changes, affecting the provision of meteorological service, are planned. Such information shall contain all details necessary for the planning of appropriate arrangements by the Aeronautical meteorological services provider.
- (b) The aerodrome meteorological office shall be notified by the operator or a flight crew member:
  - (1) (a) of flight schedules;
  - (2) (b) when non-scheduled flights are to be operated; and
  - (3) (c) when flights are delayed, advanced or cancelled.

## Subpart C - Meteorological Offices

### MET .140 - Aerodrome Meteorological Offices

- (a) The meteorological services provider shall establish one or more aerodrome and/or other meteorological offices which shall be adequate for the provision of the meteorological service required to satisfy the needs of international air navigation.
- (b) An aerodrome meteorological office shall carry out all or some of the following functions as necessary to meet the needs of flight operations at the aerodrome:
  - (1) prepare and/or obtain forecasts and other relevant information for flights with which it is concerned; the extent of its responsibilities to prepare forecasts shall be related to the local availability and use of en-route and aerodrome forecast material received from other offices;
  - (2) prepare and/or obtain forecasts of local meteorological conditions;
  - (3) maintain a continuous survey of meteorological conditions over the aerodromes for which it is designated to prepare forecasts;
  - (4) provide briefing, consultation and flight documentation to flight crew members and/or other flight operations personnel;
  - (5) supply other meteorological information to aeronautical users;
  - (6) display the available meteorological information;
  - (7) exchange meteorological information with other aerodrome meteorological offices; and
  - (8) supply information received on pre-eruption volcanic activity, a volcanic eruption or volcanic ash cloud, to its associated ATS unit, aeronautical information service unit and meteorological watch office as agreed between the meteorological, aeronautical information service and ATS authorities concerned.
- (c) The aerodromes for which landing forecasts are required shall be as determined by regional air navigation agreement.
- (d) For aerodromes without an aerodrome meteorological offices located at the aerodrome:
  - (1) The meteorological services provider concerned shall designate one or more aerodrome meteorological office(s) to supply meteorological information as required; and
  - (2) shall establish the means by which such information can be supplied to the aerodromes concerned.

### MET .145 - Meteorological Watch Offices

- (a) As Libya has accepted the responsibility for providing ATS within its flight information region and control area, then the meteorological services provider shall establish, on the basis of regional air navigation agreement, such meteorological watch office(s).
- (b) A meteorological watch office shall:
  - (1) maintain continuous watch over meteorological conditions affecting flight operations within its area of responsibility;
  - (2) prepare SIGMET and other information relating to its area of responsibility;
  - (3) supply SIGMET information and, as required, other meteorological information to associated ATS units;
  - (4) disseminate SIGMET information;
  - (5) when required by regional air navigation agreement:
    - (i) prepare AIRMET information related to its area of responsibility;
    - (ii) supply AIRMET information to associated ATS units; and
    - (iii) disseminate AIRMET information;

- (6) supply information received on pre-eruption volcanic activity, a volcanic eruption and volcanic ash cloud for which a SIGMET has not already been issued, to its associated ACC/FIC, as agreed between the meteorological and ATS authorities concerned, and to its associated VAAC as determined by regional air navigation agreement; and
- (7) supply information received concerning the accidental release of radioactive materials into the atmosphere, in the area for which it maintains watch or adjacent areas, to its associated ACC/FIC, as agreed between the meteorological and ATS authorities concerned, and to aeronautical information service units, as agreed between the meteorological and appropriate civil aviation authorities concerned. The information shall comprise location, date and time of the accident, and forecast trajectories of the radioactive materials.

## Subpart D - Meteorological Observations & Reports

### MET .150 - Aeronautical Meteorological Stations and Observations

- (a) The meteorological services provider shall establish, at aerodromes in Libya such aeronautical meteorological stations as it determines to be necessary. An aeronautical meteorological station may be a separate station or may be combined with a synoptic station.
- (b) Aeronautical meteorological stations shall make routine observations at fixed intervals. At aerodromes, the routine observations shall be supplemented by special observations whenever specified changes occur in respect of surface wind, visibility, runway visual range, present weather, clouds and/or air temperature.
- (c) meteorological services provider shall arrange for its aeronautical meteorological stations to be inspected at sufficiently frequent intervals to ensure that a high standard of observation is maintained, that instruments and all their indicators are functioning correctly, and that the exposure of the instruments has not changed significantly.
- (d) At aerodromes which can be used for Category II and CAT III instrument approach and landing operations, automated equipment for measuring or assessing, as appropriate, and for monitoring and remote indicating of surface wind, visibility, runway visual range, height of cloud base, air and dew-point temperatures and atmospheric pressure shall be installed to support approach and landing and takeoff operations. These devices shall be integrated automatic systems for acquisition, processing, dissemination and display in real time of the meteorological parameters affecting landing and take-off operations. The design of integrated automatic systems shall observe Human Factors principles and include back-up procedure.
- (e) The observations shall form the basis for the preparation of reports to be disseminated at the aerodrome of origin and of reports to be disseminated beyond the aerodrome of origin.

### MET .155 - Agreement between the meteorological services provider and ATS Authority

This agreement shall be established to cover the following:

- (a) The provision in Air traffic services units of displays related to integrated automatic system;
- (b) The calibration and maintenance of these displays/instruments;
- (c) The use to be made of these displays/instruments by air traffic services personnel;
- (d) As and where necessary, supplementary visual observation (for example, of meteorological phenomena of operational significance in the climb-out and approach areas) if and when made by air traffic service personnel to update or supplement the information supplied by the meteorological station;
- (e) Meteorological information obtained from aircraft taking off or landing; (for example, on wind shear); and
- (f) If available, meteorological information obtained from ground weather radar.

### MET .160 - Routine Observations and Reports

- (a) At aerodromes, routine observations shall be made throughout the 24 hours each day except as otherwise agreed between the Aeronautical meteorological services provider, the appropriate ATS authority and the operator concerned. Such observations shall be made at intervals of one hour, or if determined by regional air navigation agreement, at intervals of one half-hour.
- (b) Reports of routine observations shall be issued as:
  - (1) local routine reports, only for dissemination at the aerodrome of origin (intended for arriving and departing aircraft); and

- (2) METAR for dissemination beyond the aerodrome of origin (mainly intended for flight planning, VOLMET broadcasts and D-VOLMET).
- (c) At aerodromes that are not operational throughout 24 hours in accordance with, METAR shall be issued prior to the aerodrome resuming operations in accordance with regional air navigation agreement.

### **MET .165 - Special Observations and Reports**

- (a) A list of criteria for special observations shall be established by the meteorological services provider in consultation with the appropriate ATS authority, operators and other concerned.
- (b) Reports of special observations shall be issued as:
  - (1) local special reports, only for dissemination at the aerodrome of origin (intended for arriving and departing aircraft); and
  - (2) SPECI for dissemination beyond the aerodrome of origin (mainly intended for flight planning, VOLMET broadcasts and D-VOLMET) unless METAR are issued at half hourly intervals.
- (c) At aerodromes that MET.160 paragraph (a), following resumption of the issuance of METAR, SPECI shall be issued, as necessary.

### **MET .170 - Contents of Reports**

- (a) Local routine, special reports, METAR and SPECI shall contain the following elements in the order indicated:
  - (1) identification of the type of report;
  - (2) location indicator;
  - (3) time of the observation;
  - (4) identification of an automated or missing report, when applicable;
  - (5) surface wind direction and speed;
  - (6) visibility;
  - (7) runway visual range, when applicable;
  - (8) present weather;
  - (9) cloud amount, cloud type (only for cumulonimbus and towering cumulus clouds) and height of cloud base or, where measured, vertical visibility;
  - (10) air temperature and dew-point temperature; and
  - (11) QNH and, when applicable, QFE (*QFE included only in local routine and special reports*).
- (b) Optional elements included under supplementary information shall be included in METAR and SPECI in accordance with regional air navigation agreement.

### **MET .175 - Observing and Reporting Meteorological Elements**

- (a) **Surface wind**- The mean direction and the mean speed of the surface wind shall be measured, as well as significant variations of the wind direction and speed, and reported in degrees true and knots, respectively.
- (b) **Visibility** - The visibility as defined shall be measured or observed, and reported in meters or kilometers.
- (c) **Runway Visual Range** - Runway Visual Range shall be assessed on all runways intended for Category II and III instrument approach and landing operations.
  - (1) Runway Visual Range, assessed, shall be reported in meters throughout periods when either the visibility or the Runway Visual Range is less than 1500 m.
  - (2) Runway Visual Range assessments shall be representative of:
    - (i) the touchdown zone of the runway intended for non-precision or Category I instrument approach and landing operations;



- (ii) the touchdown zone and the mid-point of the runway intended for Category II instrument approach and landing operations; and
  - (iii) the touchdown zone, the mid-point and stop-end of the runway intended for Category III instrument approach and landing operations.
- (3) The units providing air traffic service and aeronautical information service for an aerodrome shall be kept informed without delay of changes in the serviceability status of the automated equipment used for assessing runway visual range.
- (d) **Present weather** - The present weather occurring at the aerodrome shall be observed and reported as necessary. The following present weather phenomena shall be identified, as a minimum: rain, drizzle, snow and freezing precipitation (including intensity thereof), haze, mist, fog, freezing fog and thunderstorms (including thunderstorms in the vicinity).
  - (e) **Clouds** - Cloud amount, cloud type and height of cloud base shall be observed and reported as necessary to describe the clouds of operational significance. When the sky is obscured, vertical visibility shall be observed and reported, where measured, in lieu of cloud amount, cloud type and height of cloud base. The height of cloud base and vertical visibility shall be reported in feet.
  - (f) **Air temperature and dew-point temperature** - The air temperature and the dew-point temperature shall be measured and reported in degrees Celsius.
  - (g) **Atmospheric pressure** - The atmospheric pressure shall be measured, and QNH and QFE values shall be computed and reported in hectopascals.
  - (h) Local routine, special reports, METAR and SPECI from automatic observing systems shall be identified with the word "AUTO".

## Subpart E - Aircraft Observations and Reports

### MET .185 - Types of aircraft observations

The following aircraft observations shall be made:

- (a) routine aircraft observations during en-route and climb-out phases of the flight for aircraft equipped with air-ground data link; and
- (b) special and other non-routine aircraft observations during any phase of the flight.

### MET .190 - Routine aircraft observations—designation

- (a) When air-ground data link is used and automatic dependent surveillance (ADS) or secondary surveillance radar (SSR) Mode S is being applied, automated routine observations shall be made every 15 minutes during the en-route phase and every 30 seconds during the climb-out phase for the first 10 minutes of the flight.
- (b) In the case of air routes with high-density air traffic, an aircraft from among the aircraft operating at each flight level shall be designated, at approximately hourly intervals, to make routine observations in accordance with paragraph (a). The designation procedures shall be subject to regional air navigation agreement.
- (c) In the case of the requirement to report during the climb-out phase, an aircraft shall be designated, at approximately hourly intervals, at each aerodrome to make routine observations in accordance with paragraph (a)

### MET .195 - Routine aircraft observations – exemptions

Aircraft not equipped with air-ground data link are exempted from making routine aircraft observations.

### MET .200 - Special aircraft observations

Special observations shall be made by all aircraft whenever the following conditions are encountered or observed:

- (a) moderate or severe turbulence; or
- (b) moderate or severe icing; or
- (c) severe mountain wave; or
- (d) thunderstorms, without hail, that are obscured, embedded, widespread or in squall lines; or
- (e) thunderstorms, with hail, that are obscured, embedded, widespread or in squall lines; or
- (f) heavy dust storm or heavy sandstorm; or
- (g) volcanic ash cloud; or
- (h) pre-eruption volcanic activity or a volcanic eruption.

### MET .205 - Other non-routine aircraft observations

When other meteorological conditions not listed under (MET .200). are encountered and which, in the opinion of the pilot-in-command, may affect the safety or markedly affect the efficiency of other aircraft operations, the pilot-in-command shall advise the appropriate ATS unit as soon as practicable.

### MET .210 - Reporting of Aircraft Observations during Flight

- (a) Aircraft observations shall be reported by air-ground data link. Where air-ground data link is not available or appropriate, special and other non-routine aircraft observations during flight shall be reported by voice communications.
- (b) Aircraft observations shall be reported during flight at the time the observation is made or as soon thereafter as is practicable.
- (c) Aircraft observations shall be reported as air-reports.

**MET .215 - Relay of air-reports by ATS units**

The meteorological services provider shall make arrangements with the appropriate ATS authority to ensure that on receipt by the ATS units of special air-reports by voice communication of:

- (a) special air-reports by voice communications, the ATS units relay them without delay to their associated meteorological watch office; and
- (b) routine and special air-reports by data link communications, the ATS units relay them without delay to their associated meteorological watch office and WAFCs.

**MET .220 - Recording and post-flight reporting of aircraft observations of volcanic activity**

Special aircraft observations of pre-eruption volcanic activity, a volcanic eruption or volcanic ash cloud shall be recorded on the special air-report of volcanic activity form. A copy of the form shall be included with the flight documentation provided to flights operating on routes which, in the opinion of the meteorological services provider could be affected by volcanic ash clouds.

## Subpart F - Forecasts

### MET .225 - Aerodrome forecast

- (a) An aerodrome forecast shall be prepared on the basis of regional air navigation agreement by the meteorological office designated by the Aeronautical meteorological services provider.
- (b) An aerodrome forecast shall be issued at a specified time not earlier than one hour prior to the beginning of its validity period and consist of a concise statement of the expected meteorological conditions at an aerodrome for a specified period.
- (c) Aerodrome forecasts and amendments thereto shall be issued as TAF and include the following information in the order indicated:
  - (1) identification of the type of forecast;
  - (2) location indicator;
  - (3) time of issue of forecast;
  - (4) identification of a missing forecast, when applicable;
  - (5) date and period of validity of forecast;
  - (6) identification of a cancelled forecast, when applicable;
  - (7) surface wind;
  - (8) visibility;
  - (9) weather;
  - (10) cloud;
  - (11) expected significant changes to one or more of these elements during the period of validity; and
  - (12) optional elements shall be included in TAF in accordance with regional air navigation agreement.
- (d) Aerodrome meteorological offices preparing TAF shall keep the forecasts under continuous review and, when necessary, shall issue amendments promptly. The length of the forecast messages and the number of changes indicated in the forecast shall be kept to a minimum.
- (e) TAF that cannot be kept under continuous review shall be cancelled.
- (f) The period of validity of a routine TAF shall not be less than 6 hours nor more than 30 hours; the period of validity shall be determined by regional air navigation agreement. Routine TAF valid for less than 12 hours shall be issued every 3 hours and those valid for 12 to 30 hours shall be issued every 6 hours.
- (g) When issuing TAF, meteorological offices shall ensure that not more than one TAF is valid at an aerodrome at any given time.

### MET .230 - Landing forecasts

- (a) A landing forecast shall be prepared by the aerodrome meteorological office designated by the meteorological services provider concerned as determined by regional air navigation agreement; such forecasts are intended to meet the requirements of local users and of aircraft within about one hour's flying time from the aerodrome.
- (b) Landing forecasts shall be prepared in the form of a trend forecast.
- (c) A trend forecast shall consist of a concise statement of the expected significant changes in the meteorological conditions at that aerodrome to be appended to a local routine or local special report, or a METAR or SPECI. The period of validity of a trend forecast shall be 2 hours from the time of the report which forms part of the landing forecast.

### MET .235 - Forecasts for take-off

A forecast for take-off shall be prepared by the aerodrome meteorological office designated by the meteorological services provider concerned if required by agreement between the meteorological services provider and operators.

**MET .240 - Area forecasts for low-level flights**

- (a) When the density of traffic operating below flight level 100 (or up to flight level 150 in mountainous areas, or higher, where necessary) warrants the routine issue and dissemination of area forecasts for such operations, the frequency of issue, the form and the fixed time or period of validity of those forecasts and the criteria for amendments thereto shall be determined by the meteorological services provider in consultation with the users.
- (b) When the density of traffic operating below flight level 100 warrants the issuance of AIRMET information, area forecasts for such operations shall be prepared in a format agreed upon between the meteorological services provider concerned. When abbreviated plain language is used, the forecast shall be prepared as a GAMET area forecast, employing approved ICAO abbreviations and numerical values; when chart form is used, the forecast shall be prepared as a combination of forecasts of upper wind and upper-air temperature, and of SIGWX phenomena. The area forecasts shall be issued to cover the layer between the ground and flight level 100 (or up to flight level 150 in mountainous areas, or higher, where necessary) and shall contain information on en-route weather phenomena hazardous to low level flights, in support of the issuance of AIRMET information, and additional information required by low-level flights.
- (c) Area forecasts for low-level flights prepared in support of the issuance of AIRMET information shall be issued every 6 hours for a period of validity of 6 hours and transmitted to meteorological watch offices and/or aerodrome meteorological offices concerned not later than one hour prior to the beginning of their validity period.

## **Subpart G - SIGMET & AIRMET Information, Aerodrome Warnings and Wind Shear Warnings and Alerts**

### **MET .245 - SIGMET information**

- (a) SIGMET information shall be issued by a meteorological watch office and shall give a concise description in abbreviated plain language concerning the occurrence and/or expected occurrence of specified en-route weather phenomena, which may affect the safety of aircraft operations, and of the development of those phenomena in time and space.
- (b) SIGMET information shall be cancelled when the phenomena are no longer occurring or are no longer expected to occur in the area.
- (c) The period of validity of a SIGMET message shall be not more than 4 hours. In the special case of SIGMET messages for volcanic ash cloud and tropical cyclones, the period of validity shall be extended up to 6 hours.
- (d) Close coordination shall be maintained between the meteorological watch office and the associated area control center/flight information center to ensure that information on volcanic ash included in SIGMET and NOTAM messages is consistent.
- (e) SIGMET messages shall be issued not more than 4 hours before the commencement of the period of validity. In the special case of SIGMET messages for volcanic ash cloud and tropical cyclones, these messages shall be issued as soon as practicable but not more than 12 hours before the commencement of the period of validity. SIGMET messages for volcanic ash and tropical cyclones shall be updated at least every 6 hours.

### **MET .250 - AIRMET information**

- (a) AIRMET information shall be issued by a meteorological watch office in accordance with regional air navigation agreement, taking into account the density of air traffic operating below flight level 100. AIRMET information shall give a concise description in abbreviated plain language concerning the occurrence and/or expected occurrence of specified en-route weather phenomena, which have not been included in the area forecast for low-level flights and which may affect the safety of low-level flights, and of the development of those phenomena in time and space.
- (b) AIRMET information shall be cancelled when the phenomena are no longer occurring or are no longer expected to occur in the area.
- (c) The period of validity of an AIRMET message shall be not more than 4 hours.

### **MET .255 - Aerodrome Warnings**

- (a) Aerodrome warnings shall be issued by the aerodrome meteorological office and shall give concise information of meteorological conditions which could adversely affect aircraft on the ground, parked aircraft, and the aerodrome facilities and services.
- (b) Aerodrome warnings shall be cancelled when the conditions are no longer occurring and/or no longer expected to occur at the aerodrome.

### **MET .260 - Wind Shear Warnings and Alerts**

- (a) Wind shear warnings shall be prepared by the aerodrome meteorological office designated by the meteorological services provider for aerodromes where wind shear is considered a factor, in accordance with local arrangements with the appropriate ATS unit and operators concerned. Wind shear warnings shall give concise information on the observed or expected existence of wind shear which could adversely affect aircraft on the approach path or take-off path or during circling approach between runway level and 1 600 ft. (500 m) above that level and aircraft on the runway during the landing roll or take-off run. Where local topography has been shown to produce significant wind shears at heights in excess of 1 600 ft. (500 m) above runway level, then 1 600 ft. (500 m) shall not be considered restrictive.

- (b) At aerodromes where wind shear is detected by automated, ground-based, wind shear remote-sensing or detection equipment, wind shear alerts generated by these systems shall be issued. Wind shear alerts shall give concise, up-to-date information related to the observed existence of wind shear involving a headwind/tailwind change of 15 kt (7.5 m/s) or more which could adversely affect aircraft on the final approach path or initial take-off path and aircraft on the runway during the landing roll or take-off run.

## **Subpart H - Aeronautical Climatological Information**

### **MET .265 - Provision of Aeronautical Climatological Information**

Aeronautical Climatological Information required for the planning of flight operations shall be prepared in the form of aerodrome climatological tables and aerodrome climatological summaries. Such information shall be supplied to aeronautical users as agreed between the meteorological services provider and those users.

### **MET .270 - Copies of meteorological observational data**

The Aeronautical meteorological services provider, on request and to the extent practicable, shall make available to any Aeronautical meteorological services provider, to operators and to others concerned with the application of meteorology to international air navigation, meteorological observational data required for research, investigation or operational analysis.



## Subpart I - Service for Operators and Flight Crew Members

### MET .275 - General provisions

- (a) Meteorological information shall be supplied to operators and flight crew members for:
  - (1) pre-flight planning by operators;
  - (2) in-flight re-planning by operators using centralized operational control of flight operations;
  - (3) use by flight crew members before departure; and
  - (4) aircraft in flight.
- (b) Meteorological information supplied to operators and flight crew members shall cover the flight in respect of time, altitude and geographical extent. Accordingly, the information shall relate to appropriate fixed times, or periods of time, and shall extend to the aerodrome of intended landing, also covering the meteorological conditions expected between the aerodrome of intended landing and alternate aerodromes designated by the operator.
- (c) Meteorological information supplied to operators and flight crew members shall be up to date and include the following information, as established by meteorological services provider in consultation with operators concerned:
  - (1) forecasts of:
    - (i) upper wind and upper-air temperature;
    - (ii) upper-air humidity;
    - (iii) geopotential altitude of flight levels;
    - (iv) flight level and temperature of tropopause;
    - (v) direction, speed and flight level of maximum wind; and
    - (vi) SIGWX phenomena;
  - (2) METAR or SPECI (including trend forecasts as issued in accordance with regional air navigation agreement) for the aerodromes of departure and intended landing, and for take-off, en-route and destination alternate aerodromes;
  - (3) TAF or amended TAF for the aerodromes of departure and intended landing, and for take-off, en-route and destination alternate aerodromes;
  - (4) forecasts for take-off;
  - (5) SIGMET information and appropriate special air-reports relevant to the whole route;
  - (6) volcanic ash and tropical cyclone advisory information relevant to the whole route; subject to regional air navigation agreement, GAMET area forecast and/or area forecasts for low-level flights in chart form prepared in support of the issuance of AIRMET information, and AIRMET information for low-level flights relevant to the whole route;
  - (8) aerodrome warnings for the local aerodrome;
  - (9) meteorological satellite images; and
  - (10) ground-based weather radar information.
- (d) Forecasts listed under 3),a) shall be generated from the digital forecasts provided by the WAFCs whenever these forecasts cover the intended flight path in respect of time, altitude and geographical extent, unless otherwise agreed between the meteorological services provider and the operator concerned.
- (e) When forecasts are identified as being originated by the WAFCs, no modifications shall be made to their meteorological content.
- (f) Charts generated from the digital forecasts provided by the WAFCs shall be made available, as required by operators, for fixed areas of coverage as detailed in MET Manual of Operation.

- (g) When forecasts of upper wind and upper-air temperature listed under 3.a. i. are supplied in chart form; they shall be fixed time prognostic charts for flight levels as specified in MET Manual of Operation. When forecasts of SIGWX phenomena are supplied in chart form, they shall be fixed time prognostic charts for an atmospheric layer limited by flight levels as specified in MET Manual of Operation.
- (h) The forecasts of upper wind and upper-air temperature and of SIGWX phenomena above flight level 100 requested for pre-flight planning and in-flight re-planning by the operator shall be supplied as soon as they become available, but not later than 3 hours before departure. Other meteorological information requested for pre-flight planning and in-flight re-planning by the operator shall be supplied as soon as is practicable.
- (i) meteorological services provider who is tasked to provide service for operators and flight crew members shall when necessary initiate coordinating action with the meteorological authorities of other States with a view to obtaining from them the reports and/or forecasts required.
- (j) Meteorological information shall be supplied to operators and flight crew members at the location to be determined by the Aeronautical meteorological services provider, after consultation with the operators and at the time to be agreed upon between the aerodrome meteorological office and the operator concerned. The service for pre-flight planning shall be confined to flights originating within the territory of the State concerned. At an aerodrome without a meteorological office at the aerodrome, arrangements for the supply of meteorological information shall be as agreed upon between the meteorological services provider and the operator concerned.

#### **MET .280 - Briefing, consultation and display**

- (a) Briefing and/or consultation shall be provided, on request, to flight crew members and/or other flight operations personnel. Its purpose shall be to supply the latest available information on existing and expected meteorological conditions along the route to be flown, at the aerodrome of intended landing, alternate aerodromes and other aerodromes as relevant, either to explain and amplify the information contained in the flight documentation or, if so agreed between the meteorological services provider and the operator, in lieu of flight documentation.
- (b) Meteorological information used for briefing, consultation and display shall include any or all of the information listed in MET .275 (c).
- (c) If the aerodrome meteorological office expresses an opinion on the development of the meteorological conditions at an aerodrome which differs appreciably from the aerodrome forecast included in the flight documentation, the attention of flight crew members shall be drawn to the divergence. The portion of the briefing dealing with the divergence shall be recorded at the time of briefing and this record shall be made available to the operator.
- (d) The required briefing, consultation, display and/or flight documentation shall normally be provided by the aerodrome meteorological office associated with the aerodrome of departure. At an aerodrome where these services are not available, arrangements to meet the requirement of flight crew members shall be agreed upon between the meteorological services provider and the operator concerned. In exceptional circumstances, such as an undue delay, the aerodrome meteorological office associated with the aerodrome shall provide or, if that is not practicable, arrange for the provision of a new briefing, consultation and/or flight documentation as necessary.

#### **MET .285 - Flight Documentation**

- (a) Flight documentation to be made available shall comprise information listed under Regulation MET .275 (c). (1) (i). and (vi)., (2)., (3)., (5)., (6). and, if appropriate, (7).
- (b) Whenever it becomes apparent that the meteorological information to be included in the flight documentation will differ materially from that made available for pre-flight planning and in-flight re-planning, the operator shall be advised immediately and, if practicable, be supplied with the revised information as agreed between the operator and the aerodrome meteorological office concerned.

- (c) meteorological services provider shall retain information supplied to flight crew members, either as printed copies or in computer files, for a period of at least 30 days from the date of issue. This information shall be made available, on request, for inquiries or investigations and, for these purposes, shall be retained until the inquiry or investigation is completed.

**MET .290 - Automated pre-flight information systems for briefing, consultation, flight planning and flight documentation**

- (a) Where meteorological services provider uses automated pre-flight information systems to supply and display meteorological information to operators and flight crew members for self-briefing, flight planning and flight documentation purposes, the information supplied and displayed shall comply with the relevant provisions in Regulations MET .280, to MET .290 inclusive.
- (b) Where automated pre-flight information systems are used to provide for a harmonized, common point of access to meteorological information and AIS information by operators, flight crew members and other aeronautical personnel concerned, the meteorological services provider shall remain responsible for the quality control and quality management of meteorological information provided by means of such systems in accordance with MET .130.

**MET .295 - Information for Aircraft in Flight**

- (a) Meteorological information for use by aircraft in flight shall be supplied by a meteorological office to its associated ATS unit and through D-VOLMET or VOLMET broadcasts as determined by regional air navigation agreement. Meteorological information for planning by the operator for aircraft in flight shall be supplied on request, as agreed between the meteorological services provider or authorities and the operator concerned.
- (b) Meteorological information for use by aircraft in flight shall be supplied to ATS units in accordance with Subpart J.
- (c) Meteorological information shall be supplied through D-VOLMET or VOLMET broadcasts in accordance with Subpart K.

## **Subpart J – Information for ATS units, SAR services & AIS units**

### **MET .300 - Information for ATS units**

- (a) The meteorological services provider shall designate a meteorological office to be associated with each ATS units. The associated meteorological office shall, after coordination with the ATS units, supply, or arrange for the supply of, up-to-date meteorological information to the units as necessary for the conduct of their functions.
- (b) A meteorological watch office shall be associated with a flight information center or an area control center for the provision of meteorological information.
- (c) Any meteorological information requested by an ATS unit in connection with an aircraft emergency shall be supplied as rapidly as possible.

### **MET .305 - Information for search and rescue services units**

Meteorological offices designated by the meteorological services provider in accordance with regional air navigation agreement shall supply search and rescue services units with the meteorological information they require in a form established by mutual agreement. For that purpose, the designated meteorological office shall maintain liaison with the search and rescue services unit throughout a search and rescue operation.

### **MET .310 - Information for AIS units**

The Aeronautical meteorological services provider, in coordination with Authority shall arrange for the supply of up-to-date meteorological information to relevant AIS units, as necessary, for the conduct of their functions.

## Subpart K - Requirements for & Use of Communications

### **MET .315 - Requirements for Communications**

- (a) Suitable telecommunications facilities shall be made available to permit aerodrome meteorological offices and, as necessary, aeronautical meteorological stations to supply the required meteorological information to ATS units on the aerodromes for which those offices and stations are responsible, and in particular to aerodrome control towers, approach control units and the aeronautical telecommunication stations serving these aerodromes.
- (b) Suitable telecommunications facilities shall be made available to permit meteorological watch offices to supply the required meteorological information to ATS and search and rescue services units in respect of the flight information regions, control areas and search and rescue regions for which those offices are responsible, and in particular to flight information centers, area control centers and rescue coordination centers and the associated aeronautical telecommunication stations.
- (c) Suitable telecommunications facilities shall be made available to permit world area forecast centers to supply the required world area forecast system products to aerodrome meteorological offices, meteorological authorities and other users.
- (d) Telecommunications facilities between aerodrome meteorological offices and, as necessary, aeronautical meteorological stations and aerodrome control towers or approach control units shall permit communications by direct speech.
- (e) Suitable telecommunications facilities shall be made available to permit meteorological offices to exchange operational meteorological information with other meteorological offices.

### **MET .320 - Use of aeronautical fixed service communications and the public internet - meteorological bulletins**

Meteorological bulletins containing operational meteorological information to be transmitted via the aeronautical fixed service or the public Internet shall be originated by the appropriate meteorological office or aeronautical meteorological station.

### **MET .325 - Use of aeronautical mobile service communications**

The content and format of meteorological information transmitted to aircraft and by aircraft shall be consistent with the provisions of this regulation.

### **MET .330 - Use of aeronautical data link service -contents of D-VOLMET**

D-VOLMET shall contain current METAR and SPECI, together with trend forecasts where available, TAF and SIGMET, special air-reports not covered by a SIGMET, and where available, AIRMET.

### **MET .335 - Use of aeronautical broadcasting service-contents of VOLMET broadcasts**

- (a) Continuous VOLMET broadcasts, normally on very high frequencies (VHF), shall contain current METAR and SPECI, together with trend forecasts where available.
- (b) Scheduled VOLMET broadcasts, normally on high frequencies (HF), shall contain current METAR and SPECI, together with trend forecasts where available and, where so determined by regional air navigation agreement, TAF and SIGMET.