STATE OF LIBYA
MINISTRY OF TRANSPORT
CIVIL AVIATION AUTHORITY

دولة ليبيا
وزارة المواصلات
مصلحة الطيران المدني

LYCAR Part-MET

Libyan Civil Aviation Regulation

Part - MET: Aeronautical Meteorology Services

Second issue, February 2023

Approved by and published under the authority of the President of LYCAA.

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RECORD OF REVISIONS

No.	Date	Description / Highlights
Issue 1	February 2020	Initial issue
Issue 2	February 2023	New issue

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FOREWORD

1. The regulation contained herein is adopted under the provision of Article N5 of Libyan Civil Aviation Law N6 of 2005, issued and signed by the President of Libyan Civil Aviation by virtue of powers vested from the Minister of Transport under the resolution N154 issued on 13.05.2015.

2. The Libyan Civil Aviation Regulations - Part Aeronautical Meteorological Services (LYCAR Part-MET) describes the requirement of Aeronautical Meteorological Services providers. The regulation contained herein is in conformity with ICAO Annex 3, ICAO standards and best practices.

3. 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 taking appropriate professional advice when/as indicated/required. Although, every effort has been made to ensure accuracy, the Libyan Civil Aviation Authority (LYCAA) shall not be held responsible for loss or damage caused by errors, omissions, misprints or misinterpretation of the content hereof.

4. The use of the male gender implies the female gender and vice versa.

5. Copies of this regulation can be obtained from the ANS Inspectorate Office of the LYCAA or can be downloaded on the official website: www.caa.gov.ly

6. Transition Period: The Libyan Air Navigation Service Providers are required to comply with the requirements of this regulation within three months after its official publication.

Dr. Mohamed Shlibek
President of LYCAA
14th of February 2023

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Subpart A - Certification and operation

MET.005 Applicability

(1) 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 organizations providing Meteorological Services within the Tripoli FIR as approved by the Authority.

(2) Subpart - A provides the Rules governing the certification and operation of organizations providing meteorological services to aviation.

(3) The objective of meteorological services for international air navigation shall be to contribute towards the safety, regularity and efficiency of international air navigation.

(4) This objective shall be achieved by supplying all interested aviation organizations with the meteorological information necessary for the performance of their respective functions.

(5) The organizations 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 (Doc 9708).

(6) The organization responsible for the provision of Meteorological Services may arrange for the services to be provided on its behalf.

(7) The organization responsible for the provision of Meteorological Services and the services to be provided shall be included in the Libyan AIP.

(8) 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.010 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.

Aerodrome control tower. A unit established to provide air traffic control service to aerodrome traffic.

Aerodrome elevation. The elevation of the highest point of the landing area.

Aerodrome meteorological office. An office designated to provide meteorological service for aerodromes serving international air navigation.

Aerodrome reference point. The designated geographical location of an aerodrome.

Aeronautical fixed service (AFS). A telecommunication service between specified fixed points provided primarily for the safety of air navigation and for the regular, efficient and economical operation of air services.

Aeronautical fixed telecommunication network (AFTN). A worldwide system of aeronautical fixed circuits provided, as part of the aeronautical fixed service, for the exchange of messages and/or digital data between aeronautical fixed stations having the same or compatible communications characteristics.

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

Aeronautical mobile service (RR S1.32). A mobile service between aeronautical stations and aircraft stations, or between aircraft stations, in which survival craft stations may participate; emergency position-indicating radio beacon stations may also participate in this service on designated distress and emergency frequencies.

Aeronautical telecommunication station. A station in the aeronautical telecommunication service.

Aircraft. Any machine that can derive support in the atmosphere from the reactions of the air other than the reactions of the air against the earth's surface.

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.

Air traffic services unit. A generic term meaning variously, air traffic control unit, flight information Center or air traffic services reporting office.

Alternate aerodrome. An aerodrome to which an aircraft may proceed when it becomes either impossible or inadvisable to proceed to or to land at the aerodrome of intended landing where the necessary services and facilities are available, where aircraft performance requirements can be met and which is operational at the expected time of use. Alternate aerodromes include the following:

Take-off alternate. An alternate aerodrome at which an aircraft would be able to land should this become necessary shortly after take-off and it is not possible to use the aerodrome of departure.

En-route alternate. An alternate aerodrome at which an aircraft would be able to land in the event that a diversion becomes necessary while en route.

Destination alternate. An alternate aerodrome at which an aircraft would be able to land should it become either impossible or inadvisable to land at the aerodrome of intended landing.

Note: The aerodrome from which a flight departs may also be an en-route or a destination alternate aerodrome for that flight.

Altitude. The vertical distance of a level, a point or an object considered as a point, measured from mean sea level (MSL).

Approach control unit. A unit established to provide air traffic control service to controlled flights arriving at, or departing from, one or more aerodromes.

Appropriate ATS authority. The relevant authority designated by the State responsible for providing air traffic services in the airspace concerned.

Area control Center (ACC). A unit established to provide air traffic control service to controlled flights in control areas under its jurisdiction.

Area navigation (RNAV). A method of navigation which permits aircraft operations on any desired flight path within the coverage of ground- or space-based navigation aids or within the limits of the capability of self-contained aids, or a combination of these.

Note: Area navigation includes performance-based navigation as well as other operations that do not meet the definition of performance-based navigation.

Automatic dependent surveillance - contract (ADS-C). A means by which the terms of an ADS-C agreement will be exchanged between the ground system and the aircraft, via a data link, specifying under what conditions ADS-C reports would be initiated, and what data would be contained in the reports.

Note: The abbreviated term "ADS contract" is commonly used to refer to ADS event contract, ADS demand contract, ADS periodic contract or an emergency mode.

Authority: means Libyan Civil Aviation Authority (LYCAA).

Briefing. Oral commentary on existing and/or expected meteorological conditions.

Cloud of operational significance. A cloud with the height of cloud base below 1 500 m (5000ft) or below the highest minimum sector altitude, whichever is greater, or a cumulonimbus cloud or a towering cumulus cloud at any height.

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.

Control Area (CTA). A controlled airspace extending upwards from a specified limit above the earth.

Cruising level. A level maintained during a significant portion of a flight.

Elevation. The vertical distance of a point or a level, on or affixed to the surface of the earth, measured from mean sea level.

Extended range operation. Any flight by an airplane with two turbine engines where the flight time at the one engine inoperative cruise speed (in ISA and still air conditions), from a point on the route to an adequate alternate aerodrome, is greater than the threshold time approved by the State of the Operator.

Flight crew member. A licensed crew member charged with duties essential to the operation of an aircraft during a flight duty period.

Flight documentation. Written or printed documents, including charts or forms, containing meteorological information for a flight.

Flight information Center (FIC). A unit established to provide flight information service and alerting service.

Flight information region (FIR). An airspace of defined dimensions within which flight information service and alerting service are provided.

Flight level. A surface of constant atmospheric pressure which is related to a specific pressure datum, 1 013.2 hectopascals (hPa), and is separated from other such surfaces by specific pressure intervals.

Note 1: A pressure type altimeter calibrated in accordance with the Standard Atmosphere:

a) When set to a QNH altimeter setting will indicate altitude.

b) When set to a QFE altimeter setting will indicate height above the QFE reference datum.

c) When set to a pressure of 1 013.2 hPa, may be used to indicate flight levels.

Note 2: The terms "height" and "altitude", used in Note 1, indicate altimetric rather than geometric heights and altitudes.

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.

Note: In most cases, such data are transmitted on medium- or high-speed telecommunications channels.

Height. The vertical distance of a level, a point or an object considered as a point, measured from a specified datum.

Human Factors principles. Principles which apply to aeronautical design, certification, training, operations and maintenance and which seek safe interface between the human and other system components by proper consideration to human performance.

ICAO meteorological information exchange model (IWXXM). A data model for representing aeronautical meteorological information. International airways volcano watch (IAVW). International arrangements for monitoring and providing warnings to aircraft of volcanic ash in the atmosphere.

Note: The IAVW is based on the cooperation of aviation and non-aviation operational units using information derived from observing sources and networks that are provided by States. The watch is coordinated by ICAO with the cooperation of other concerned international organizations.

Level. A generic term relating to the vertical position of an aircraft in flight and meaning variously height, altitude or flight level.

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.

Meteorological watch office (MWO). An office designated to provide information concerning the occurrence or expected occurrence of specified en-route weather and other phenomena in the atmosphere that may affect the safety of aircraft operations within its specified area of responsibility.

Minimum sector altitude. The lowest altitude which may be used which will provide a minimum clearance of 1000 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**. A navigation specification based on area navigation that includes the requirement for performance monitoring and alerting, designated by the prefix RNP, e.g. RNP 4, RNP APCH.
>
> **Area navigation (RNAV) specification**. A navigation specification based on area navigation that does not include the requirement for performance monitoring and alerting, designated by the prefix RNAV, e.g. RNAV 5, RNAV 1.

Note: The Performance-based Navigation (PBN) Manual (Doc 9613), Volume II, contains detailed guidance on navigation specifications.

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

Operational control. The exercise of authority over the initiation, continuation, diversion or termination of a flight in the interest of the safety of the aircraft and the regularity and efficiency of the flight.

Operational flight plan. The operator's plan for the safe conduct of the flight based on considerations of airplane performance, other operating limitations and relevant expected conditions on the route to be followed and at the aerodromes concerned.

Operational planning. The planning of flight operations by an operator.

Operator. The person, organization or enterprise engaged in or offering to engage in an aircraft operation.

Performance-based navigation (PBN). Area navigation based on performance requirements for aircraft operating along an ATS route, on an instrument approach procedure or in a designated airspace.

Note: Performance requirements are expressed in navigation specification (RNAV specification, RNP specification) in terms of accuracy, integrity, continuity, availability and functionality needed for the proposed operation in the context of a particular airspace concept.

Pilot-in-command. The pilot designated by the operator, or in the case of general aviation, the owner, as being in command and charged with the safe conduct of a flight.

Prevailing visibility. The greatest visibility value, observed in accordance with the definition of "visibility", which is reached within at least half the horizon circle or within at least half of the surface of the aerodrome. These areas could comprise contiguous or non-contiguous sectors.

Note: This value may be assessed by human observation and/or instrumented systems. When instruments are installed, they are used to obtain the best estimate of the prevailing visibility.

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.

Reporting point. A specified geographical location in relation to which the position of an aircraft can be reported.

Rescue coordination Center. A unit responsible for promoting efficient organization of search and rescue services and for coordinating the conduct of search and rescue operations within a search and rescue region.

Runway. A defined rectangular area on a land aerodrome prepared for the landing and take-off of aircraft.

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

Search and rescue services unit. A generic term meaning, as the case may be, rescue coordination Center, rescue sub-center or alerting post.

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.

Space weather center (SWXC). A center designated to monitor and provide advisory information on space weather phenomena expected to affect high-frequency radio communications, communications via satellite, GNSS-based navigation and surveillance systems and/or pose a radiation risk to aircraft occupants.

Note: A space weather center is designated as global and/or regional.

Standard isobaric surface. An isobaric surface used on a worldwide basis for representing and analyzing the conditions in the atmosphere.

State volcano observatory. A volcano observatory, designated by regional air navigation agreement, to monitor active or potentially active volcanoes within a State and to provide information on volcanic activity to its associated area control center/flight information center, meteorological watch office and volcanic ash advisory center.

Threshold. The beginning of that portion of the runway usable for landing.

Touchdown zone. The portion of a runway, beyond the threshold, where it is intended landing airplanes first contact the runway.

Tropical cyclone. Generic term for a non-frontal synoptic-scale cyclone originating over tropical or sub-tropical waters with organized convection and definite cyclonic surface wind circulation.

Tropical cyclone advisory center (TCAC). A meteorological center designated by regional air navigation agreement to provide advisory information to meteorological watch offices, world area forecast centers and international OPMET databanks regarding the position, forecast direction and speed of movement, central pressure and maximum surface wind of tropical cyclones.

Upper-air chart. A meteorological chart relating to a specified upper-air surface or layer of the atmosphere.

Visibility. Visibility for aeronautical purposes is the greater of:

a) the greatest distance at which a black object of suitable dimensions, situated near the ground, can be seen and recognized when observed against a bright background.

b) the greatest distance at which lights in the vicinity of 1 000 candelas can be seen and identified against an unlit background.

Note: The two distances have different values in air of a given extinction coefficient, and the latter b) varies with the background illumination. The former a) is represented by the meteorological optical range (MOR).

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 (WAFC). 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.015 Application for certification

(1) The applicant for a meteorological certificate shall submit an application for a Meteorological Services Certificate to the Libyan Civil Aviation Authority.

(2) The application shall include the locations and airspace at or within which the services will be provided.

(3) The application shall be submitted to the Authority along with supporting documentation which shall include the exposition required by MET 100.

MET.020 Issue of certificate

An applicant is entitled to a meteorological certificate if:

(1) The applicant meets the requirements of this Subpart; and

(2) The applicant and persons holding positions listed in MET.030 (1) paragraph (a) to (e) inclusive are acceptable to the Authority; and

(3) The organizations exposition as required by MET.095 is acceptable to the Authority; and

(4) The Authority is satisfied that the granting of the certificate is not contrary to the interests of aviation safety.

(5) The validity of a Meteorological Certificate is based on continued operation is accordance with Civil Aviation Regulations, Civil Aviation Advisory Publications and other publications as promulgated by the Authority.

(6) A Meteorological certificate remains in force until it expires, is suspended or revoked.

(7) The holder of a meteorological certificate that expires or is revoked shall surrender the certificate to the Authority.

(8) The holder of a meteorological certificate that is suspended shall immediately return the certificate to the Authority for appropriate endorsement.

(9) The Meteorological Service Certificate shall remain valid subject to periodic surveillance audits confirming ongoing compliance with the Civil Aviation Regulations.

(10) 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.025 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 authorized to provide.

(1) 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

(2) 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

(3) Information dissemination service: a service for the collection and dissemination of meteorological information; or

(4) 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

(5) 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

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.030 Personnel requirements

(1) Each holder of a meteorological service certificate shall engage, employ or contract:

(a) An Accountable Manager who has the authority within the applicant's organization 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 Regulations;

(b) A Head of Meteorology responsible for ensuring that the organization complies with the meteorological provision requirements of this Part;

(c) A Head of Training responsible for ensuring that the organization complies with the training requirements of this Part;

(d) A safety management post holder responsible for the provision of a safety management system according to the requirements of the Authority; and

(e) 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.

(2) Each service certificate holder shall establish procedures:

(a) 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

(b) To assess the competence in accordance with WMO requirements of those personnel who are authorized by the applicant to:

i. Place and maintain facilities listed in the applicant's exposition into operational service;

ii. Produce and release meteorological information;

iii. Establish a procedure to maintain and develop the competence of those authorized personnel; and

iv. Provide those authorized personnel with written evidence of the scope of their authorization.

MET.035 Facility requirements

(1) 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:

(a) 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.

v. Display available meteorological information; or

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.

(b) A meteorological watch office which shall:

i. maintain a watch over meteorological conditions affecting flight operations within the watch office's area of responsibility;

ii. prepare and supply SIGMET and other information related to its area of responsibility to associated air traffic services;

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; and

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.

(c) An aeronautical meteorological station which shall be established at aerodromes and offshore structures as deemed necessary by the organization responsible for the provision of Meteorological Services to support both international air operations and off shore helicopter operations.

(d) Make routine observations at fixed intervals 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.

(2) Each holder of a meteorological service certificate shall establish procedures to ensure that:

(a) 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.

(b) Equipment is in accordance with ICAO Doc 8896.

(c) 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.

(d) Information concerning adverse weather conditions is disseminated to the maximum extent to all concerned agencies.

MET.040 Communication requirements

(1) 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.

(2) 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.045 Input requirements

(1) Each holder of a meteorological services certificate shall establish procedures to obtain input meteorological information appropriate to the meteorological service being provided.

(2) The procedures shall ensure that:

(a) 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,

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.

(b) Aircraft reports and observations are processed appropriately according to the service being provided by the meteorological office.

MET.050 Output requirements

(1) Each holder of a meteorological services certificate shall:

(a) Identify the output meteorological information provided by each meteorological service listed in their exposition;

(b) 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

(c) Comply with the standards and formats determined under MET.50(1)(b).

(2) 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.

(3) 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.

(4) 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.055 Equipment requirements

(1) 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.

(2) 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.

(3) 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.

(4) Human factor principles shall be observed in the design of these devices.

(5) At aerodromes with runways intended for Category I ILS operations, the requirements of MET.055 (2) shall be met.

MET.060 Documentation

(1) 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:

- Annex 3.
- ICAO Doc 7030.
- ICAO Doc 7192.
- ICAO Doc 8896.
- ICAO Doc 9328.
- ICAO Doc 9377.
- ICAO Doc 9708.
- ICAO Doc 9837.
- ICAO Doc 9859.
- WMO Publication 49, volumes 1 and 2.
- WMO Publication 1083, volumes 1 and 2.

(2) Each holder of a meteorological services certificate shall establish a procedure to control the documentation required by MET.060 (1).

The procedure shall ensure that:

(a) The documentation is reviewed and authorized by appropriate personnel before issue;

(b) 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;

(c) Obsolete documentation is promptly removed from all points of issue or use;

(d) Changes to documentation are reviewed and approved by appropriate personnel; and

(e) The current version of each item of documentation can be identified to preclude the use of out-of-date editions.

(3) The following documents shall be submitted to the Authority for acceptance:

- Exposition (refer MET.100).
- Safety Management System Manual (refer MET.095).
- Quality Management System Manual (refer MET.090).
- Operations Manual (refer MET.110).
- Training and Competency Manual (refer MET.030 (2)).

MET.065 Periodic inspection, testing and calibration

(1) Each holder of a meteorological services certificate shall establish procedures.

(2) 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.

(3) The procedures shall ensure that:

(a) Appropriate inspection equipment and systems are available to personnel for the inspection of each meteorological office;

(b) Appropriate inspection, measuring and test equipment and systems are available to personnel for the inspection, testing and calibration of each facility;

(c) The inspection, measuring and test equipment and systems have the precision and accuracy necessary for the inspections, measurements and tests being carried out; and

(d) All meteorological sensing facilities are calibrated and configured so that the environmental sensors fitted or incorporated yield reliable, accurate and representative meteorological information.

MET.070 Release of meteorological information

(1) Each holder of a meteorological services certificate shall establish procedures for:

(a) The release of meteorological information from each meteorological office listed in their exposition; and

(b) The placing and maintenance of facilities listed in their exposition into operational service.

(2) The procedures shall ensure that persons authorized to supervise the production and release of meteorological information and persons authorized to place meteorological facilities into operational service have been assessed as competent under the procedures required by MET.030 (2).

MET.075 Notification of meteorological office and facility status

(1) 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.

(2) The holder must ensure that the procedures established under MET.075 (1) require:

(a) 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

(b) 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.080 Meteorological information check after accident or incident

(1) 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.

(2) The procedures shall ensure that:

(a) The checks are carried out as soon as practicable after notification to the holder's organization of such an accident or incident; and

(b) Copies of the meteorological information are kept in a secure place for possible use by any subsequent investigation.

MET.085 Records

(1) 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.

(2) The procedures shall ensure that:

(a) There is a record of the input meteorological information obtained under the procedures required by MET.045.

(b) There is a record of all output meteorological information identified under MET.050.

(c) The records specified in MET.085 (2) 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.

(d) 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.

(e) There is a record of the equipment and systems used for verification, inspection, testing and calibration under the procedures required by MET.065. The record shall provide a traceable history of the location, maintenance and calibration checks for the equipment and systems.

(f) There is a record of each occurrence of erroneous meteorological information reported and of each malfunction detected under the procedures required by MET.090 (5). 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.

(g) There is a record of each internal quality review of the holder's organization carried out under the procedures required by MET.090. The records shall detail the part or activity of the organization that was reviewed, the findings of the review and any necessary follow-up corrective actions.

(h) There is a record for each person who is authorized by the holder to supervise the production and release of meteorological information and for each person who is authorized by the holder to place into, and maintain facilities in, operational service. The record shall include details of their experience, qualifications, training and current authorizations.

(i) All records are legible and of a permanent nature; and

(j) All records other than those required by MET.085(2) 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.090 Internal quality management

(1) 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.

(2) The quality system established in accordance with MET.090 (1) shall conform to ISO 9000 standards.

(3) 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.

(4) When the quality management procedures indicate that meteorological information to be supplied does not comply with the output requirements of MET.050 (1)(C), and automatic error correction procedures are not appropriate, such information shall not be supplied to the users unless it is validated with the originator.

(5) The quality system shall include procedures and resources for:

(a) The routine verification of meteorological information obtained and provided by the holder; and

(b) The assessment of the timeliness of transmission of messages or bulletins.

(6) Each holder of a meteorological services certificate shall establish procedures:

(a) To identify, record, notify, investigate and rectify any report of erroneous meteorological information;

(b) 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;

(c) To notify without delay all users that have received the erroneous meteorological information;

(d) To notify the Authority, within 12 hours, of those malfunctions that cannot be remedied within 72 hours; and

(e) For the continuation of malfunction status reports in the event that such reports are required by the Authority.

MET.095 Safety Management System

Each holder of a Meteorological Service Certificate shall establish a Safety Management System as required by the Authority.

MET.100 Organizational Exposition

(1) Each holder of, or applicant for, a Meteorological Services Certificate shall provide the Authority with an Exposition which shall contain:

(a) A statement signed by the Accountable Manager on behalf of the holder or applicant's organization confirming that the exposition and any included manuals:

i. Define the organization and demonstrate its means and methods for ensuring ongoing compliance with this Subpart; and

ii. Will be complied with at all times.

(b) The titles and names of the person or persons required by MET.030 (1) a to e;

(c) The duties and responsibilities of the person or persons specified in MET. 030 (1) (a) to (e);

(d) An organization chart showing lines of responsibility of the persons specified in MET. 100 (1) (b);

(e) A summary of the holder or applicant's staffing structure at each meteorological office listed under MET.100 (1) g (i);

(f) A list of the meteorological services to be covered by the certificate;

(g) A list providing:

i. The location of each meteorological office operated by the holder or applicant;

ii. The location of each facility operated by the holder or applicant that provides meteorological information directly to the users;

iii. The meteorological services provided by each of those meteorological offices and facilities; and

iv. The locations and airspace covered by such meteorological services.

(h) Details of the holder or applicant's output meteorological information identified under MET.050 (1) (a) and the standards and formats for that information determined under MET.050 (1) (b);

(i) Details of the holder or applicant's procedures and systems required by this Subpart; and

(j) Procedures to control, amend and distribute the exposition.

(2) The holder or applicant's exposition shall be acceptable to the Authority.

MET.105 Continued compliance

Each holder of a meteorological service certificate shall:

(1) Hold at least one complete and current copy of their exposition at each meteorological office specified in their exposition; and

(2) Comply with all procedures and systems detailed in their exposition; and

(3) Make each applicable part of their exposition available to personnel who require those parts to carry out their duties; and

(4) Continue to meet the standards and comply with the requirements of this part; and

(5) Notify the Authority of any change of address, telephone or facsimile number, or e-mail address.

MET.110 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:

(1) The meteorological information and meteorological services provided; and

(2) The minimum acceptable operating parameters and standards for facilities; and

(3) The minimum meteorological inputs required; and

(4) The minimum performance and quality levels for output meteorological information and meteorological services provided; and

(5) The test equipment and systems required for the measurement of the minimum levels listed under MET. 110 (4)

(6) 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.115 Limitation on certificate holder

The holder of a meteorological service certificate shall not:

(1) Provide meteorological information where the meteorological input information required to provide that meteorological information is not available; or

(2) Provide meteorological information where the operational performance of the meteorological office or facility producing that meteorological information does not meet the applicable requirements; or

(3) 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

(4) Provide meteorological information where there is any cause whatsoever to suspect the integrity of that meteorological information.

MET.120 Changes to a certificate holder's organization

(1) 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 organization and meteorological services provided.

(2) 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.

(3) 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.

(4) Where a certificate holder proposes to make a change to any of the following, prior notification to and acceptance by the Authority is required:

(a) The Accountable Manager;

(b) The person/s listed in MET.030 (1) a to e;

(c) The meteorological services the holder provides; and

(d) The locations and airspace covered by each of the meteorological services the holder provides.

(5) The Authority may prescribe conditions under which a certificate holder may operate during or following any changes specified in MET.120 (4).

(6) Where any of the changes referred to in MET.120 require an amendment to the certificate, the certificate holder shall forward the certificate to the Authority as soon as practicable.

(7) 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.125 Safety inspections and audits

(1) 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.

(2) 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.130 Objective, determination and provision of meteorological service

(1) The objective of meteorological service for international air navigation shall contribute towards the safety, regularity and efficiency of international air navigation.

(2) 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.

(3) The LYCAA shall determine the meteorological service which will be provided to meet the needs of international air navigation. This determination shall be made in accordance with the provisions of this Regulation and in accordance with regional air navigation agreement. It shall include the determination of the meteorological service to be provided for international air navigation over international waters and other areas which lie outside the territory of the State of Libya.

(4) The LYCAA shall designate the authority, hereinafter referred to as the meteorological services provider, to provide or to arrange for the provision of meteorological service for international air navigation on its behalf. Details of the meteorological authority so designated shall be included in the State aeronautical information publication, in accordance with Annex 15, Chapter 5.

(5) 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.135 Supply, use and quality management of meteorological information

(1) 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.

(2) 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 Regulation (MET.130 paragraph 2).

(3) 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.

(4) Demonstration of compliance of the quality system applied shall be by audit. If non-conformity of the system is identified, action shall be initiated to determine and correct the cause. All audit observations shall be evidenced and properly documented.

(5) Owing to the variability of meteorological elements in space and time, to limitations of observing techniques and to limitations caused by the definitions of some of the elements, the specific value of any of the elements given in a report shall be understood by the recipient to be the best approximation of the actual conditions at the time of observation.

(6) Owing to the variability of meteorological elements in space and time, to limitations of forecasting techniques and to limitations caused by the definitions of some of the elements, the specific value of any of the elements given in a forecast shall be understood by the recipient to be the most probable value which the element is likely to assume during the period of the forecast. Similarly, when the time of occurrence or change of an element is given in a forecast, this time shall be understood to be the most probable time.

(7) The meteorological information supplied to the users listed in Regulation (MET.130 paragraph 2) 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.140 Notifications required from operators

(1) An operator requiring meteorological service or changes in existing meteorological service shall notify the meteorological services provider or the aerodrome meteorological office concerned. The minimum amount of advance notice required shall be as agreed between the meteorological authority or aerodrome meteorological office and the operator concerned.

(2) The meteorological authority shall be notified by the operator requiring service when:

(a) New routes or new types of operations are planned;

(b) Changes of a lasting character are to be made in scheduled operations; and

(c) 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.

(3) The aerodrome meteorological office shall be notified by the operator or a flight crew member:

(a) Of flight schedules.

(b) When non-scheduled flights are to be operated; and

(c) When flights are delayed, advanced or cancelled.

Subpart C - Global systems, supporting centers & meteorological offices

MET.145 World Area Forecast System

The objective of the World Area Forecast System (WAFS) shall be to supply meteorological authorities and other users with global aeronautical meteorological en-route forecasts in digital form. This objective shall be achieved through a comprehensive, integrated, worldwide and, as far as practicable, uniform system, and in a cost-effective manner, taking full advantage of evolving technologies.

MET.150 World Area Forecast Centers

(1) If having accepted the responsibility for providing a World Area Forecast Center (WAFC) within the framework of the WAFS, Libya shall arrange for that center:

(a) To prepare gridded global forecasts of:

i. Upper wind;

ii. upper-air temperature and humidity;

iii. Geopotential altitude of flight levels;

iv. Flight level and temperature of tropopause;

v. Direction, speed and flight level of maximum wind;

vi. Cumulonimbus clouds;

vii. Icing; and

viii. Turbulence.

(b) To prepare global forecasts of significant weather (SIGWX) phenomena.

(c) To issue the forecasts referred to in a) and b) in digital form to meteorological authorities and other users, as approved on advice from the meteorological authority.

(d) to receive information concerning the release of radioactive materials into the atmosphere from its associated World Meteorological Organization (WMO) regional specialized meteorological center (RSMC) for the provision of transport model products for radiological environmental emergency response, in order to include the information in SIGWX forecasts.

MET.155 Aerodrome meteorological offices

(1) 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.

(2) 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:

(a) 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;

(b) Prepare and/or obtain forecasts of local meteorological conditions;

(c) Maintain a continuous survey of meteorological conditions over the aerodromes for which it is designated to prepare forecasts;

(d) Provide briefing, consultation and flight documentation to flight crew members and/or other flight operations personnel;

(e) Supply other meteorological information to aeronautical users;

(f) Display the available meteorological information;

(g) Exchange meteorological information with other aerodrome meteorological offices; and

(h) 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.

(3) The aerodromes for which landing forecasts are required shall be as determined by regional air navigation agreement.

(4) For aerodromes without an aerodrome meteorological office located at the aerodrome:

(a) The meteorological services provider concerned shall designate one or more aerodrome meteorological office(s) to supply meteorological information as required; and

(b) Shall establish the means by which such information can be supplied to the aerodromes concerned.

MET.160 Meteorological watch offices

(1) As LYCAA 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).

(2) A meteorological watch office shall:

(a) Maintain continuous watch over meteorological conditions affecting flight operations within its area of responsibility;

(b) Prepare SIGMET and other information relating to its area of responsibility;

(c) Supply SIGMET information and, as required, other meteorological information to associated ATS units;

(d) Disseminate SIGMET information;

(e) 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.

(f) 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

(g) 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.

MET.165 Volcanic Ash Advisory Centers

(1) If having accepted the responsibility for providing a VAAC within the framework of the international airways' volcano watch, Libya shall arrange for that center to respond to a notification that a volcano has erupted or is expected to erupt, or that volcanic ash is reported in its area of responsibility, by:

(a) Monitoring relevant geostationary and polar-orbiting satellite data and, where available, relevant ground-based and airborne data, to detect the existence and extent of volcanic ash in the atmosphere in the area concerned.

Note: Relevant ground-based and airborne data include data derived from Doppler weather radar, ceilometers, lidar and passive infrared sensors.

(b) Activating the volcanic ash numerical trajectory/dispersion model in order to forecast the movement of any ash "cloud" which has been detected or reported.

Note: The numerical model may be its own or, by agreement, that of another VAAC.

(c) Issuing advisory information regarding the extent and forecast movement of the volcanic ash "cloud" to:

i. MWOs, ACCs and FICs serving FIRs in its area of responsibility which may be affected;

ii. Other VAACs whose areas of responsibility may be affected;

iii. WAFCs, international OPMET databanks, international NOTAM offices, and centers designated by regional air navigation agreement for the operation of aeronautical fixed service Internet-based services;

iv. Operators requiring the advisory information through the AFTN address provided specifically for this purpose.

(d) Issuing updated advisory information to the MWOs, ACCs, FICs and VAACs referred to in c), as necessary, but at least every six hours until such time as:

i. The volcanic ash "cloud" is no longer identifiable from satellite data and, where available, ground-based and airborne data;

ii. No further reports of volcanic ash are received from the area; and

iii. No further eruptions of the volcano are reported.

(2) VAACs shall maintain a 24-hour watch.

(3) In case of interruption of the operation of a VAAC, its functions shall be carried out by another VAAC or another meteorological center, as designated by the VAAC Provider State concerned.

MET.170 State volcano observatories

If Libya has active or potentially active volcanoes, it shall arrange that volcano observatories monitor these volcanoes and when observing:

(1) Significant pre-eruption volcanic activity, or a cessation thereof;

(2) A volcanic eruption, or a cessation thereof; and/or

(3) Volcanic ash in the atmosphere shall send this information as quickly as practicable to their associated ACC/FIC, MWO and VAAC.

MET.175 Tropical Cyclone Advisory Centers

If having accepted the responsibility for providing a Tropical Cyclone Advisory Center (TCAC), Libya shall arrange for that center to:

(1) Monitor the development of tropical cyclones in its area of responsibility, using geostationary and polar-orbiting satellite data, radar data and other meteorological information.

(2) Issue advisory information concerning the position of the cyclone center, changes in intensity at time of observation, its direction and speed of movement, central pressure and maximum surface wind near the center, in abbreviated plain language to:

(a) MWOs in its area of responsibility;

(b) Other TCACs whose areas of responsibility may be affected; and

(c) WAFCs, international OPMET databanks, and centers designated by regional air navigation agreement for the operation of aeronautical fixed service Internet-based services.

(3) Issue updated advisory information to MWOs for each tropical cyclone, as necessary, but at least every six hours.

MET.180 Space Weather Centers

(1) If, having accepted the responsibility for providing a Space Weather Center (SWXC), Libya shall arrange for that center to monitor and provide advisory information on space weather phenomena in its area of responsibility by arranging for that center to:

(a) Monitor relevant ground-based, airborne and space-based observations to detect, and predict, when possible, the existence of space weather phenomena that have an impact in the following areas:

i. High frequency (HF) radio communications;

ii. Communications via satellite;

iii. GNSS-based navigation and surveillance; and

iv. Radiation exposure at flight levels.

(b) Issue advisory information regarding the extent, severity and duration of the space weather phenomena that have an impact referred to in a);

(c) Supply the advisory information referred to in b) to:

i. Area control centers, flight information centers and aerodrome meteorological offices in its area of responsibility which may be affected;

ii. Other SWXCs; and

iii. International OPMET databanks, international NOTAM offices and aeronautical fixed service Internet-based services.

(2) SWXC shall maintain a 24-hour watch.

(3) In case of interruption of the operation of a SWXC, its functions shall be carried out by another SWXC or another center, as designated by the SWXC Provider.

Subpart D - Meteorological Observations & Reports

MET.185 Aeronautical meteorological stations and observations

(1) 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.

(2) 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.

(3) 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.

(4) 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.

(5) 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.190 Agreement between the meteorological services provider and ATS

This agreement shall be established to cover the following:

(1) The provision in Air traffic services units of displays related to integrated automatic system.

(2) The calibration and maintenance of these displays/instruments.

(3) The use to be made of these displays/instruments by air traffic services personnel.

(4) 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.

(5) Meteorological information obtained from aircraft taking off or landing; (for example, on wind shear).

(6) If available, meteorological information obtained from ground weather radar.

MET.195 Routine observations and reports

(1) 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. At other aeronautical meteorological stations, such observations shall be made as determined by the meteorological authority taking into account the requirements of air traffic services units and aircraft operations.

(2) Reports of routine observations shall be issued as:

(a) Local routine reports, only for dissemination at the aerodrome of origin (intended for arriving and departing aircraft); and

(b) METAR for dissemination beyond the aerodrome of origin (mainly intended for flight planning, VOLMET broadcasts and D-VOLMET).

(3) At aerodromes that are not operational throughout 24 hours in accordance with MET.195 (1), METAR shall be issued prior to the aerodrome resuming operations in accordance with regional air navigation agreement.

MET.200 Special observations and reports

(1) 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.

(2) Reports of special observations shall be issued as:

(a) Local special reports, only for dissemination at the aerodrome of origin (intended for arriving and departing aircraft); and

(b) 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.

(3) At aerodromes that are not operational throughout 24 hours in accordance with following resumption of the issuance of METAR, SPECI shall be issued, as necessary.

MET.205 Contents of reports

(1) Local routine, special reports, METAR and SPECI shall contain the following elements in the order indicated:

(a) Identification of the type of report;

(b) Location indicator;

(c) Time of the observation;

(d) Identification of an automated or missing report, when applicable;

(e) Surface wind direction and speed;

(f) Visibility;

(g) Runway visual range, when applicable;

(h) Present weather;

(i) Cloud amount, cloud type (only for cumulonimbus and towering cumulus clouds) and height of cloud base or, where vertical visibility measured.

(j) Air temperature and dew-point temperature; and

(k) QNH and, when applicable, QFE (QFE included only in local routine and special reports).

(2) Optional elements included under supplementary information shall be included in METAR and SPECI in accordance with regional air navigation agreement.

MET.210 Observing and reporting meteorological elements

(1) 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.

(2) Visibility - The visibility as defined shall be measured or observed, and reported in meters or kilometers.

(3) Runway Visual Range - Runway Visual Range shall be assessed on all runways intended for Category II and III instrument approach and landing operations.

(a) Runway Visual Range, assessed with (3), shall be reported in meters throughout periods when either the visibility or the Runway Visual Range is less than 1500 m.

(b) 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.

(c) 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.

(4) 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).

(5) 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.

(6) Air temperature and dew-point temperature - The air temperature and the dew-point temperature shall be measured and reported in degrees Celsius.

(7) Atmospheric pressure - The atmospheric pressure shall be measured, and QNH and QFE values shall be computed and reported in hectopascals.

(8) Local routine, special reports, METAR and SPECI from automatic observing systems shall be identified with the word “AUTO.

MET.215 Reporting meteorological information from automatic observing systems

Local routine reports, local special reports, METAR and SPECI from automatic observing systems shall be identified with the word “AUTO”.

Subpart E - Aircraft observations and reports

MET.220 Obligation of the State

Libya shall arrange, according to the provision of this regulation, for observations to be made by aircraft of its registry operating on international air routes and for the recording and reporting of these observations.

MET.225 Types of aircraft observations

The following aircraft observations shall be made:

(1) Routine aircraft observations during en-route and climb-out phases of the flight for aircraft equipped with air-ground data link; and

(2) Special and other non-routine aircraft observations during any phase of the flight.

MET.230 Routine aircraft observations – designation

(1) When air-ground data link is used and Automatic Dependent Surveillance - Contract (ADS-C) 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.

(2) 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 (1). The designation procedures shall be subject to regional air navigation agreement.

(3) 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 (1).

MET.235 Routine aircraft observations – Exemptions

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

MET.240 Special aircraft observations

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

(1) Moderate or severe turbulence; or

(2) Moderate or severe icing; or

(3) Severe mountain wave; or

(4) Thunderstorms, without hail, that are obscured, embedded, widespread or in squall lines; or

(5) Thunderstorms, with hail, that are obscured, embedded, widespread or in squall lines; or

(6) Heavy dust storm or heavy sandstorm; or

(7) Volcanic ash cloud; or

(8) Pre-eruption volcanic activity or a volcanic eruption;

(9) Runway braking action encountered is not as good as reported.

MET.245 Other non-routine aircraft observations

When other meteorological conditions not listed under MET.240, e.g. wind shear, 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.250 Reporting of aircraft observations during flight

(1) 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.

(2) Aircraft observations shall be reported during flight at the time the observation is made or as soon thereafter as is practicable.

(3) Aircraft observations shall be reported as air-reports.

MET.255 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:

(1) Special air-reports by voice communications, the ATS units relay them without delay to their associated meteorological watch office; and

(2) Routine and special air-reports by data link communications, the ATS units relay them without delay to their associated meteorological watch office, the WAFCs and the centers designated by regional air navigation agreement for the operation of aeronautical fixed service Internet-based services.

MET.260 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

Subpart F - Forecasts

MET.265 Use of forecasts

The issue of a new forecast by an aerodrome meteorological office, such as a routine aerodrome forecast, shall be understood to cancel automatically any forecast of the same type previously issued for the same place and for the same period of validity or part thereof.

MET.270 Aerodrome forecast

(1) 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.

(2) 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.

(3) Aerodrome forecasts and amendments thereto shall be issued as TAF and include the following information in the order indicated:

(a) Identification of the type of forecast;

(b) Location indicator;

(c) Time of issue of forecast;

(d) Identification of a missing forecast, when applicable;

(e) Date and period of validity of forecast;

(f) Identification of a cancelled forecast, when applicable;

(g) Surface wind;

(h) Visibility;

(i) Weather;

(j) Cloud;

(k) Expected significant changes to one or more of these elements during the period of validity; and

(l) Optional elements shall be included in TAF in accordance with regional air navigation agreement.

(4) 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.

(5) TAF that cannot be kept under continuous review shall be cancelled.

(6) 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.

(7) When issuing TAF, meteorological offices shall ensure that no more than one TAF is valid at an aerodrome at any given time.

MET.275 Landing forecasts

(1) 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.

(2) Landing forecasts shall be prepared in the form of a trend forecast.

(3) 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.280 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.285 Area forecasts for low-level flights

(1) 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.

(2) 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.

(3) 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.290 SIGMET information

(1) 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.

(2) SIGMET information shall be cancelled when the phenomena are no longer occurring or are no longer expected to occur in the area.

(3) 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.

(4) 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.

(5) 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.295 AIRMET information

(1) 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.

(2) AIRMET information shall be cancelled when the phenomena are no longer occurring or are no longer expected to occur in the area.

(3) The period of validity of an AIRMET message shall be not more than 4 hours.

MET.300 Aerodrome warnings

(1) 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.

(2) Aerodrome warnings shall be cancelled when the conditions are no longer occurring and/or no longer expected to occur at the aerodrome.

MET.305 Wind shear warnings and alerts

(1) 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.

(2) 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.310 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.315 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.320 General provisions

(1) Meteorological information shall be supplied to operators and flight crew members for:

(a) Pre-flight planning by operators;

(b) In-flight re-planning by operators using centralized operational control of flight operations;

(c) Use by flight crew members before departure; and

(d) Aircraft in flight.

(2) 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.

(3) 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:

(a) 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;

vi. SIGWX phenomena; and

vii. Cumulonimbus clouds, icing and turbulence.

(b) 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;

(c) TAF or amended TAF for the aerodromes of departure and intended landing, and for take-off, en-route and destination alternate aerodromes;

(d) Forecasts for take-off;

(e) SIGMET information and appropriate special air-reports relevant to the whole route;

(f) Volcanic ash and tropical cyclone advisory information relevant to the whole route;

(g) 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;

(h) Aerodrome warnings for the local aerodrome;

(i) Meteorological satellite images;

(j) ground-based weather radar information; and

(k) Space weather advisory information relevant to the whole route.

(4) 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.

(5) When forecasts are identified as being originated by the WAFCs, no modifications shall be made to their meteorological content.

(6) 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.

(7) 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.

(8) 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.

(9) 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.

(10) 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 Libya. 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.325 Briefing, consultation and display

(1) 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.

(2) Meteorological information used for briefing, consultation and display shall include any or all of the information listed in paragraph MET.320 paragraph 3.

(3) 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.

(4) 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.330 Flight documentation

(1) Flight documentation to be made available shall comprise information listed under Regulation MET.320 Para (3) (a-i) and vi), (b),(c),(e),(f) and, if appropriate, (g) and (k). However, flight documentation for flights of two hours' duration or less, after a short stop or turnaround, shall be limited to the information operationally needed, as agreed between the meteorological authority and the operator concerned, but, in all cases, it shall at least comprise information on MET.320 (b),(c),(e),(f) and, if appropriate, (g) and (k).

(2) 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.

(3) 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.335 Automated pre-flight information systems for briefing, consultation, flight planning and flight documentation

(1) 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.315, to MET.330 inclusive.

(2) 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 Paragraph MET.135.

MET.340 Information for aircraft in flight

(1) 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.

(2) Meteorological information for use by aircraft in flight shall be supplied to ATS units in accordance with Subpart J.

(3) 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.345 Information for ATS units

(1) 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.

(2) A meteorological watch office shall be associated with a flight information center or an area control center for the provision of meteorological information.

(3) Any meteorological information requested by an ATS unit in connection with an aircraft emergency shall be supplied as rapidly as possible.

MET.350 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.355 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.360 Requirements for communications

(1) 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.

(2) 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.

(3) 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.

(4) 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, the speed with which the communications can be established being such that the required points may normally be contacted within approximately 15 seconds.

(5) Suitable telecommunications facilities shall be made available to permit meteorological offices to exchange operational meteorological information with other meteorological offices.

MET.365 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.370 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.375 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.380 Use of aeronautical broadcasting service-contents of VOLMET broadcasts

(1) Continuous VOLMET broadcasts, normally on very high frequencies (VHF), shall contain current METAR and SPECI, together with trend forecasts where available.

(2) 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.