



SEYCHELLES TECHNICAL STANDARDS

STS-MET

Aviation Meteorological Standards

Seychelles Technical Standards

STS-MET

Aviation Meteorological Standards

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Aviation Meteorological Standards

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FOREWORD

- 1 STS-MET is derived from Annex III of Commission Implementing Regulation (EU) 2017/373 of 1st March 2017 laying down common requirements for providers of air traffic management/air navigation services and other air traffic management network functions and their oversight, of the European Aviation Safety Agency and the Standards and Recommended Practices of ICAO Annex 3, 11 and 14 as they pertain to the provision of aviation meteorology services. It is intended by these set of requirements that both international and domestic provision of aviation meteorological services follow a common standard.
- 2 The basic organisation of STS-MET (Subparts and technical standard numbers) follows strict conformance with that adopted for other European regulations promulgated by EASA.
- 3 STS-MET will only be distributed electronically by the Authority as a complete document and as such a list of effective pages is not considered necessary.
- 4 Amendments to STS-MET will be in accordance with Chapter 2, 2.4 and 2.5 of the Manual for processing ICAO State Letters and Other Correspondences and Chapter 2, 2.3, 2.4, 2.5 and 2.6 of TP ANS 02, ANS Safety Oversight Manual. Each amendment will be distributed as a complete amending document with deleted text indicated by a strikethrough and new text highlighted in grey, until a subsequent amended issue is published. Each page will also indicate the amendment number and amendment date. For clarity and simplification, all pages of the respective section will have the same amendment status upon amendment of one or more standard. The Amendment Records page will detail each amendment.

AMENDMENT RECORDS

Amendment No.	Subject	Source	Section affected	Entered by (Date)	Effective Date
-	Initial issue				01 July 2017
01	<p>Introduction of SARPs for a space weather information service;</p> <p>The use of the ICAO Meteorological Information Exchange Model (IWXXM) for the exchange of METAR/SPECI, TAF, SIGMETs, AIRMETs, and volcanic ash and tropical cyclone advisory information, in a system-wide information management (SWIM)-compliant environment.</p>	ICAO State Letter AN 10/1.1-18/32: Adoption of amendment 78 to Annex 3	SECTION 2, SUBPART A: MET.2031	Joseph G. Lajoie (19 May 2019)	19 June 2019
02	<p>SIGMET concerning the release of radioactive material in the atmosphere;</p> <p>Improved harmonization of SIGMET information;</p> <p>Space weather advisory information; METAR);</p> <p>Tropical cyclone advisory and related SIGMET;</p> <p>ICAO Meteorological Information Exchange Model (IWXXM);</p> <p>International airways volcano watch (IAVW);</p> <p>World area forecast system (WAFS);</p> <p>Special air-reports on turbulence;</p> <p>QMS;</p> <p>Dissemination of AIRMET and GAMET;</p> <p>Inclusion of heavy dust storms (HVY DS) in special air-reports.</p>	ICAO State Letter AN 10/1.1-20/16: Adoption of amendment 79 to Annex 3	<p>SECTION 1, SUBPART A: MET.1005; MET.1010</p> <p>SUBPART B: MET.1015</p> <p>SECTION 2, SUBPART A: MET.2015; APPENDICES 1 to 6</p>	Joseph G. Lajoie (17 Aug 2020)	01 Nov 2020

SPECIFIC REQUIREMENTS FOR THE PROVISION OF AVIATION METEOROLOGICAL SERVICES

SECTION 1 – GENERAL REQUIREMENTS

SUBPART A — APPLICABILITY AND DEFINITION OF TERMS

MET.1001 Applicability

STS-MET prescribes specific requirements applicable to aviation meteorology service providers providing such services both national and for international air navigation.

MET.1005 Definition of terms

- (a) The following terms shall apply to all subparts of this STS:
- (1) **‘aerodrome’** means 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.
 - (2) **‘aerodrome climatological summary’** means concise summary of specified meteorological elements at an aerodrome, based on statistical data.
 - (3) **‘aerodrome climatological table’** means table providing statistical data on the observed occurrence of one or more meteorological elements at an aerodrome.
 - (4) **‘aerodrome control tower’** means a unit established to provide air traffic control service to aerodrome traffic.
 - (5) **‘aerodrome elevation’** means elevation of the highest point of the landing area.
 - (6) **‘aerodrome meteorological office’** means office designated to provide meteorological service for aerodromes serving international air navigation.
 - (7) **‘aerodrome reference point’** means designated geographical location of an aerodrome.
 - (8) **‘aeronautical fixed service (AFS)’** means 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.
 - (9) **‘aeronautical fixed telecommunication network (AFTN)’** means 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.
 - (10) **‘aeronautical meteorological station’** means station designated to make observations and meteorological reports for use in international air navigation.
 - (11) **‘aeronautical mobile service (RR S1.32)’** means 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.
 - (12) **‘aeronautical telecommunication station’** means station in the aeronautical telecommunication service.
 - (13) **‘aircraft’** means 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.
 - (14) **‘aircraft observation’** means evaluation of one or more meteorological elements made from an aircraft in flight.
 - (15) **‘air-report’** a report from an aircraft in flight prepared in conformity with requirements for position, and operational and/or meteorological reporting.
Note: Details of the AIREP form are given in the PANS-ATM (Doc 4444).
 - (16) **‘air traffic services unit’** is a generic term meaning variously, air traffic control unit, flight information centre or air traffic services reporting office.
 - (17) **‘alternate aerodrome’** means 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.

- (18) **'altitude'** means the vertical distance of a level, a point or an object considered as a point, measured from mean sea level (MSL).
- (19) **'approach control unit'** means unit established to provide air traffic control service to controlled flights arriving at, or departing from, one or more aerodromes.
- (20) **Seychelles Civil Aviation Authority** means the Seychelles Civil Aviation Authority responsible for providing air traffic services in the Seychelles airspace.
- (21) **'area control centre'** means a unit established to provide air traffic control service to controlled flights in control areas under its jurisdiction.
- (22) **'area navigation (RNAV)'** means 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.
- (23) **'automatic dependent surveillance (ADS)'** means a surveillance technique in which aircraft automatically provide, via a data link, data derived from on-board navigation and position-fixing systems, including aircraft identification, four-dimensional position and additional data as appropriate.
- (24) **'briefing'** means oral commentary on existing and/or expected meteorological conditions.
- (25) **'cloud of operational significance'** means a cloud with the height of cloud base below 1 500 m (5 000 ft) or below the highest minimum sector altitude, whichever is greater, or a cumulonimbus cloud or a towering cumulus cloud at any height.
- (26) **'consultation'** means 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.
- (27) **'control area'** means a controlled airspace extending upwards from a specified limit above the earth.
- (28) **'cruising level'** means a level maintained during a significant portion of a flight.
- (29) **'elevation'** means the vertical distance of a point or a level, on or affixed to the surface of the earth, measured from mean sea level.
- (30) **'extended range operation'** means any flight by an aeroplane 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.
- (31) **'flight crew member'** means a licensed crew member charged with duties essential to the operation of an aircraft during a flight duty period.
- (32) **'flight documentation'** means written or printed documents, including charts or forms, containing meteorological information for a flight.
- (33) **'flight information centre'** means a unit established to provide flight information service and alerting service.
- (34) **'flight information region (FIR)'** means an airspace of defined dimensions within which flight information service and alerting service are provided.
- (35) **'flight level'** means a surface of constant atmospheric pressure which is related to a specific pressure datum, 1013.2 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:

- when set to a QNH altimeter setting, will indicate altitude;
- when set to a QFE altimeter setting, will indicate height above the QFE reference datum;

- 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.

- (36) **‘forecast’** means a statement of expected meteorological conditions for a specified time or period, and for a specified area or portion of airspace.
- (37) **‘grid point data in digital form’** means 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.*
- (38) **‘height’** means the vertical distance of a level, a point or an object considered as a point, measured from a specified datum.
- (39) **‘human factors principles’** means 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.
- (40) **‘ICAO meteorological information exchange model (IWXXM)’** means a data model for representing aeronautical meteorological information.
- (41) **‘international airways volcano watch (IAVW)’** means 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.*
- (42) **‘level’** is a generic term relating to the vertical position of an aircraft in flight and meaning variously height, altitude or flight level.
- (43) **‘meteorological authority’** means the authority providing or arranging for the provision of meteorological service for international air navigation on behalf of a Contracting State.
- (44) **‘meteorological bulletin’** means a text comprising meteorological information preceded by an appropriate heading.
- (45) **‘meteorological information’** means meteorological report, analysis, forecast, and any other statement relating to existing or expected meteorological conditions.
- (46) **‘meteorological office’** means an office designated to provide meteorological service for international air navigation.
- (47) **‘meteorological report’** means a statement of observed meteorological conditions related to a specified time and location.
- (48) **‘meteorological satellite’** means an artificial Earth satellite making meteorological observations and transmitting these observations to Earth.
- (49) **‘meteorological watch office (mwo)’** means 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.
- (50) **‘minimum sector altitude’** means the lowest altitude which may be used which will provide a minimum clearance of 300m (1000ft.) above all objects located in an area contained within a sector of a circle of 46km (25NM) radius centred on a radio aid to navigation.
- (51) **‘navigation specification’** means 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.

- (52) **‘observation (meteorological)’** means the evaluation of one or more meteorological elements.
- (53) **‘operational control’** means 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.
- (54) **‘operational flight plan’** means the operator’s plan for the safe conduct of the flight based on considerations of aeroplane performance, other operating limitations and relevant expected conditions on the route to be followed and at the aerodromes concerned.
- (55) **‘operational planning’** means the planning of flight operations by an operator.
- (56) **‘operator’** means a person, organization or enterprise engaged in or offering to engage in an aircraft operation.
- (57) **‘performance-based navigation (PBN)’** means 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.*
- (58) **‘pilot-in-command’** means 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.
- (59) **‘prevailing visibility’** means 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.
- (60) **‘prognostic chart’** means 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.
- (61) **‘quality assurance’** means part of quality management focused on providing confidence that quality requirements will be fulfilled.
- (62) **‘quality control’** means part of quality management focused on fulfilling quality requirements (ISO 9000*).
- (63) **‘regional air navigation agreement’** means agreement approved by the Council of ICAO normally on the advice of a regional air navigation meeting.
- (64) **‘reporting point’** means a specified geographical location in relation to which the position of an aircraft can be reported.
- (65) **‘rescue coordination centre’** means 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.
- (66) **‘runway’** means a defined rectangular area on a land aerodrome prepared for the landing and take-off of aircraft.
- (67) **‘runway visual range (RVR)’** means the range over which the pilot of an aircraft on the centre line of a runway can see the runway surface markings or the lights delineating the runway or identifying its centre line.
- (68) **‘search and rescue services unit’** is a generic term meaning, as the case may be, rescue coordination centre, rescue sub-centre or alerting post.
- (69) **‘SIGMET information’** means 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.
- (70) **‘space weather centre (SWXC)’** means a centre 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 and/or pose a radiation risk to aircraft occupants.
- (71) **‘standard isobaric surface’** means an isobaric surface used on a worldwide basis for representing and analysing the conditions in the atmosphere.
- (72) **‘state volcano observatory’** means 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 centre/flight information centre, meteorological watch office and volcanic ash advisory centre.
- (73) **‘threshold’** means the beginning of that portion of the runway usable for landing.

- (74) **‘touchdown zone’** means the portion of a runway, beyond the threshold, where it is intended landing aeroplanes first contact the runway.
- (75) **‘tropical cyclone’** is a 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.
- (76) **‘tropical cyclone advisory centre (TCAC)’** means a meteorological centre designated by regional air navigation agreement to provide advisory information to meteorological watch offices, world area forecast centres and international OPMET databanks regarding the position, forecast direction and speed of movement, central pressure and maximum surface wind of tropical cyclones.
- (77) **‘upper-air chart’** means a meteorological chart relating to a specified upper-air surface or layer of the atmosphere.
- (78) **‘visibility’** means visibility for aeronautical purposes is the greater of:
- 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;
 - the greatest distance at which lights in the vicinity of 1000 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).

- (79) **‘volcanic ash advisory centre (VAAC)’** means a meteorological centre designated by regional air navigation agreement to provide advisory information to meteorological watch offices, area control centres, flight information centres, world area forecast centres and international OPMET databanks regarding the lateral and vertical extent and forecast movement of volcanic ash in the atmosphere ~~following volcanic eruptions.~~
- (80) **‘volmet’** means 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.
- (81) **‘world area forecast centre (WAFC)’** means a meteorological centre 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~~ using the aeronautical fixed service internet-based services.
- (82) **‘world area forecast system’ (WAFS)’** means a worldwide system by which world area forecast centres provide aeronautical meteorological en-route forecasts in uniform standardized formats.

MET.1006 Terms used with a limited meaning

For the purpose of this STS, the following terms are used with a limited meaning as indicated below:

- (a) to avoid confusion in respect of the term “service” between the meteorological service considered as an administrative entity and the meteorological service which is provided, “Seychelles Meteorological Authority” is used for the former and “service” for the latter;
- (b) “provide” is used solely in connection with the provision of service;
- (c) “issue” is used solely in connection with cases where the obligation specifically extends to sending out the information to a user;
- (d) “make available” is used solely in connection with cases where the obligation ends with making the information accessible to a user; and
- (e) “supply” is used solely in connection with cases where either c) or d) applies.

SUBPART B — ORGANISATION REQUIREMENTS**MET.1010 Objective, determination and provision of meteorological service**

- (a) The objective of meteorological service for international air navigation shall be to contribute towards the safety, regularity and efficiency of international air navigation.
- (b) A provider of meteorological services shall ensure that meteorological information, necessary for the performance of their respective functions and in a form suitable for users, is made available to:
 - (1) operators and flight crew members for pre-flight and in-flight planning;
 - (2) providers of air traffic services and flight information services;
 - (3) search and rescue services units, and
 - (4) aerodromes.
- (c) This STS prescribes the meteorological services to be provided by Seychelles Meteorological Authority as the designated aeronautical service provider to meet the needs of international air navigation. The meteorological services are made in accordance with the provisions of this STS and with due regard to the African/Indian Ocean regional air navigation agreements. It includes the meteorological services to be provided for international air navigation over international waters and other areas which lie outside the territory of Seychelles
- (d) The Seychelles Meteorological Authority shall confirm the level of attainable accuracy of the information distributed for operations, including the source of such information, whilst also ensuring that such information is distributed in a sufficiently timely manner, and updated as required.
- (e) The Seychelles Meteorological Authority shall arrange for the provision of meteorological services for international air navigation.
- (f) The Seychelles Meteorological Authority shall comply with the requirements of the World Meteorological Organisation (WMO) in respect of qualifications, competencies, education and training of meteorological personnel providing services for international air navigation.

MET.1015 Supply, use and quality management of meteorological information

- (a) Close liaison shall be maintained between the Seychelles Meteorological Authority and those concerned with the use of meteorological information referred to in (b) above, on matters which affect the provision of meteorological service for international air navigation.
- (b) In order to meet the objective of meteorological service for international air navigation, the Seychelles Meteorological Authority shall establish and implement a properly organised 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 (b).
- (c) The quality system established in accordance with (c) should be in conformity with the International Organization for Standardization (ISO) 9000 series of quality assurance standards and should be certified by an approved organization.

(Refer to WMO-No. 1100 - Guide to the Implementation of Quality Management Systems for National Meteorological and Hydrological Services and Other Relevant Service Providers for guidance on the establishment and implementation of a quality management.)
- (d) The quality system should 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 should not be supplied to the users unless it is validated with the originator.
- (e) In regard to the exchange of meteorological information for operational purposes, the quality system should include verification and validation procedures and resources for monitoring adherence to the prescribed transmission schedules for individual messages and/or bulletins required to be exchanged, and the times of their filing for transmission. The quality system should be capable of detecting excessive transit times of messages and bulletins received.
- (f) The Seychelles Meteorological Authority shall demonstrate compliance of the quality system applied by internal 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.

- (g) The Seychelles Meteorological Authority shall ensure that 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 is understood by the recipient to be the best approximation of the actual conditions at the time of observation.
- (h) The Seychelles Meteorological Authority shall ensure that 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 is 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.
- (i) The Seychelles Meteorological Authority shall ensure that meteorological information supplied to the users listed in MET.1010, (b) are consistent with Human Factors principles and are in forms which require a minimum of interpretation by these users, as specified in this STS.

MET.1020 Notifications required from operators

- (a) An operator requiring meteorological service or changes in existing meteorological service shall notify, sufficiently in advance, the Seychelles Meteorological Authority. The minimum amount of advance notice required shall be as agreed between the Seychelles Meteorological Authority and the operator.
- (b) The Seychelles Meteorological Authority shall be notified by the operator requiring service when:
 - (1) new routes or new types of operations are planned;
 - (2) changes of a lasting character are to be made in scheduled operations; and
 - (3) other changes, affecting the provision of meteorological service, are planned.
- (c) Such information shall contain all details necessary for the planning of appropriate arrangements by the Seychelles Meteorological Authority.
- (d) The Seychelles Meteorological Authority shall be notified by the operator or a flight crew member:
 - (1) of flight schedules;
 - (2) when non-scheduled flights are to be operated; and
 - (3) when flights are delayed, advanced or cancelled.
- (e) The notification to the Seychelles Meteorological Authority of individual flights shall contain the following information except that, in the case of scheduled flights, the requirement for some or all of this information may be waived by agreement between the Seychelles Meteorological Authority and the operator:
 - (1) aerodrome of departure and estimated time of departure;
 - (2) destination and estimated time of arrival;
 - (3) route to be flown and estimated times of arrival at, and departure from, any intermediate aerodrome(s);
 - (4) alternate aerodromes needed to complete the operational flight plan and taken from the relevant list contained in the regional air navigation plan;
 - (5) cruising level;
 - (6) type of flight, whether under visual or instrument flight rules;
 - (7) type of meteorological information requested for a flight crew member, whether flight documentation and/or briefing or consultation; and
 - (8) time(s) at which briefing, consultation and/or flight documentation are required.

SECTION 2 – TECHNICAL REQUIREMENTS**SUBPART A – GLOBAL SYSTEMS, SUPPORTING CENTRES AND METEOROLOGICAL OFFICES****MET.2001 Objective of the world area forecast system**

The objective of the world area forecast system 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.2005 World area forecast centres

The Seychelles Meteorological Authority is not a world area forecast centre, however, it shall be familiar with the roles and functions of world area forecast centres so as to be able to interact with them and make use of their products/services effectively.

MET.2010 Aerodrome meteorological offices

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

MET.2015 Meteorological watch offices

- (a) The Seychelles Meteorological Authority shall ensure that a meteorological watch office is established on a basis of regional agreement, which shall:
 - (1) maintain continuous watch over meteorological conditions affecting flight operations within its area of responsibility;
 - (2) prepare SIGMET and other information relating to its area of responsibility;
 - (3) supply SIGMET information and, as required, other meteorological information to associated air traffic services units;
 - (4) disseminate SIGMET information;

- (5) 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 the area control centre, as agreed between the Seychelles Meteorological Authority and air traffic services provider, and to its associated VAAC as determined by regional air navigation agreement; and
 - (6) supply information received concerning the release of radioactive materials into the atmosphere, in the area for which it maintains watch or adjacent areas, to the area control centre, as agreed between the Seychelles Meteorological Authority and air traffic services provider, and to aeronautical information service unit, as agreed between the Seychelles Meteorological Authority and air traffic services provider under whose authority aeronautical information service lies. The information shall comprise location, date and time of the release, and forecast trajectories of the radioactive materials.
- (b) The boundaries of the area over which meteorological watch is to be maintained by a meteorological watch office shall be the Seychelles FIR.
 - (c) The meteorological watch office should coordinate SIGMET with neighbouring MWO(s), especially when the en-route weather phenomenon extends or is expected to extend beyond the MWO's specified area of responsibility, in order to ensure harmonized SIGMET provision.

(Refer to ICAO Doc 8896 - Manual of Aeronautical Meteorological Practice for guidance on the bilateral or multilateral coordination between meteorological watch offices of Contracting States for the provision of SIGMET.)

MET.2020 Volcanic ash advisory centres

The Seychelles Meteorological Authority is not a VAAC, however, it shall be familiar with the roles and functions of VAACs so as to be able to interact with them and make use of their products/services effectively.

MET.2025 State volcano observatories

The Seychelles Meteorological Authority does not maintain any volcano observatories however it shall be familiar with the roles and functions of volcano observatories in the region so as to be able to interact with them and make use of their products/services effectively.

MET.2030 Tropical cyclone advisory centres

The Seychelles Meteorological Authority is not a tropical cyclone advisory centre, however it shall be familiar with the roles and functions of tropical cyclone advisory centres so as to be able it to interact with them and make use of their products and services effectively.

MET.2031 Space weather centres (SWXC)

The Seychelles Meteorological Authority is not a space weather centre however it shall be familiar with the roles and functions of space weather centres so as to be able to interact with them and make use of their products/services effectively.

SUBPART B – METEOROLOGICAL OBSERVATIONS AND REPORTS

(See Appendix 3)

MET.2035 Aeronautical meteorological stations and observations

- (a) The Seychelles Meteorological Authority shall establish, at aerodromes, such aeronautical meteorological stations as it determines to be necessary. An aeronautical meteorological station may be a separate station or may be combined with a synoptic station.
- (b) Aeronautical meteorological stations shall make routine observations at fixed intervals. At aerodromes, the routine observations shall be supplemented by special observations whenever specified changes occur in respect of surface wind, visibility, runway visual range, present weather, clouds, air temperature and pressure.
- (c) The Seychelles Meteorological Authority shall arrange for its aeronautical meteorological stations to be inspected at sufficiently frequent intervals to ensure that a high standard of observation is maintained, that instruments and all their indicators are functioning correctly, and that the exposure of the instruments has not changed significantly.
- (d) Where an integrated semi-automatic system is used for the dissemination/display of meteorological information, it shall be capable of accepting the manual insertion of data covering those meteorological elements which cannot be observed by automatic means.
- (e) The observations shall form the basis for the preparation of reports to be disseminated at the aerodrome of origin and of reports to be disseminated beyond the aerodrome of origin.
- (f) 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 to the actual conditions at the time of observation.

MET.2040 Agreement between Seychelles Civil Aviation Authority and Seychelles Meteorological Authority

An agreement between the Seychelles Civil Aviation Authority and Seychelles Meteorological Authority and shall be established to cover, amongst other things:

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

MET.2045 Routine observations and reports

- (a) At the Seychelles International Airport (SIA) meteorological station, routine observations shall be made throughout the 24 hours each day at intervals of one hour.
- (b) Reports of routine observations shall be issued as:
 - (1) local routine reports, only for dissemination at the aerodrome of origin (intended for arriving and departing aircraft); and
 - (2) METAR for dissemination beyond the aerodrome of origin (mainly intended for flight planning).
- (c) SIA is operational throughout 24 hours. METAR shall be issued throughout the 24 hours.

MET.2050 Special observations and reports

- (a) The criteria for special observations established by the Seychelles Meteorological Authority in consultation with the air traffic services provider are specified in Appendix 3.
- (b) Reports of special observations shall be issued as:

- (1) local special reports, only for dissemination at the aerodrome of origin (intended for arriving and departing aircraft); and
 - (2) SPECI for dissemination beyond the aerodrome of origin (mainly intended for flight planning).
- (c) SIA is operational throughout 24 hours. SPECI shall be issued throughout the 24 hours.

MET.2055 Contents of reports

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

MET.2060 Observing and reporting meteorological elements

- (a) SURFACE WIND
- (1) 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) When local routine and special reports are used for departing aircraft, the surface wind observations for these reports shall be representative of conditions along the runway; when local routine and special reports are used for arriving aircraft, the surface wind observations for these reports shall be representative of the touchdown zone.
 - (3) For METAR and SPECI, the surface wind observations shall be representative of conditions above the whole runway where there is only one runway and the whole runway complex where there is more than one runway.
- (b) VISIBILITY
- (1) The visibility as defined in Section 1, Subpart A, shall be measured or observed, and reported in metres or kilometres.
 - (2) When local routine and special reports are used for departing aircraft, the visibility observations for these reports shall be representative of conditions along the runway; when local routine and special reports are used for arriving aircraft, the visibility observations for these reports shall be representative of the touchdown zone of the runway.
 - (3) For METAR and SPECI, the visibility observations shall be representative of the aerodrome.
- (c) PRESENT WEATHER
- (1) 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, mist, fog and thunderstorms (including thunderstorms in the vicinity).

- (2) For local routine and special reports, the present weather information shall be representative of conditions at the aerodrome.
 - (3) For METAR and SPECI, the present weather information shall be representative of conditions at the aerodrome and, for certain specified present weather phenomena, in its vicinity.
- (d) CLOUDS
- (1) 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.
 - (2) Cloud observations for local routine and special reports shall be representative of the runway threshold(s) in use.
 - (3) Cloud observations for METAR and SPECI shall be representative of the aerodrome and its vicinity.
- (e) AIR TEMPERATURE AND DEW-POINT TEMPERATURE
- (1) The air temperature and the dew-point temperature shall be measured and reported in degrees Celsius.
 - (2) Observations of air temperature and dew-point temperature for local routine and special reports and METAR and SPECI shall be representative of the whole runway complex.
- (f) ATMOSPHERIC PRESSURE
- (1) The atmospheric pressure shall be measured, and QNH and QFE values shall be computed and reported in hectopascals.
- (g) SUPPLEMENTARY INFORMATION
- (1) Observations made at aerodromes shall include the available supplementary information concerning significant meteorological conditions, particularly those in the approach and climb-out areas. Where practicable, the information shall identify the location of the meteorological condition.

MET.2065 Reporting meteorological information from automatic observing systems

- (a) METAR and SPECI from automatic observing systems shall be used during non-operational hours of the aerodrome, and during operational hours of the aerodrome as determined by the Seychelles Meteorological Authority in consultation with users based on the availability and efficient use of personnel.
- (b) Local routine and special report from automatic observing systems shall be used during operational hours of the aerodrome as determined by the Seychelles Meteorological Authority in consultation with users based on the availability and efficient use of personnel.
- (c) Local routine and special reports and METAR and SPECI from automatic observing systems shall be identified with the word "AUTO".

MET.2070 Observations and reports of volcanic activity

The Seychelles Meteorological Authority shall ensure that occurrence of pre-eruption volcanic activity, volcanic eruptions and volcanic ash cloud are reported without delay to the air traffic services unit and aeronautical information services unit concerned and the meteorological watch office. The report shall be made in the form of a volcanic activity report comprising the following information in the order indicated:

- (a) message type, VOLCANIC ACTIVITY REPORT;
- (b) station identifier, location indicator or name of station;
- (c) date/time of message;
- (d) location of volcano and name if known; and
- (e) concise description of event including, as appropriate, level of intensity of volcanic activity, occurrence of an eruption and its date and time, and the existence of a volcanic ash cloud in the area together with direction of ash cloud movement and height.

SUBPART C – AIRCRAFT OBSERVATIONS AND REPORTS**MET.2075 Obligations of the Seychelles**

Seychelles Civil Aviation Authority shall arrange, according to the provisions of this subpart, 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.2080 Types of aircraft observations

The following aircraft observations shall be made:

- (a) Routine aircraft observations during en-route and climb-out phases of the flight; and
- (b) Special and other non-routine aircraft observations during any phase of the flight.

MET.2085 Routine aircraft observations - designation

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

MET.2090 Routine aircraft observations — exemptions

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

MET.2095 Special aircraft observations

- (a) Special observations are 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 duststorm or heavy sandstorm; or
 - (7) volcanic ash cloud; or
 - (8) pre-eruption volcanic activity or a volcanic eruption.

MET.2100 Other non-routine aircraft observations

When other meteorological conditions not listed under MET.2095, 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 air traffic services unit as soon as practicable.

MET.2105 Reporting of aircraft observations during flight

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

MET.2110 Relay of air-reports by air traffic services units

The Seychelles Meteorological Authority shall arrange with the appropriate air traffic services provider to ensure that, on receipt by the air traffic services units of:

- (a) special air-reports by voice communications, the air traffic services units relay them without delay to their associated meteorological watch office; and
- (b) routine and special air-reports by data link communications, the air traffic services units relay them without delay to their associated meteorological watch office and world area forecast centres.

MET.2115 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 Seychelles Meteorological Authority, could be affected by volcanic ash clouds.

SUBPART D – FORECASTS**MET.2120 Interpretation and use of forecasts**

- (a) 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 Seychelles Meteorological Authority shall ensure that specific value of any of the elements given in a forecast is 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.
- (b) 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.2125 Aerodrome forecasts

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

MET.2130 Landing forecasts

- (a) A landing forecast shall be prepared by the aerodrome meteorological office, as determined by regional air navigation agreement; such forecasts are intended to meet the requirements of local users and of aircraft within about one hour's flying time from the aerodrome.
- (b) Landing forecasts shall be prepared in the form of a trend forecast.

- (c) A trend forecast shall consist of a concise statement of the expected significant changes in the meteorological conditions at that aerodrome to be appended to a local routine or local special report, or a METAR or SPECI. The period of validity of a trend forecast shall be 2 hours from the time of the report which forms part of the landing forecast.

MET.2135 Forecasts for take-off

- (a) A forecast for take-off shall be prepared by the aerodrome meteorological office, if required by agreement between the Seychelles Meteorological Authority and operators.
- (b) A forecast for take-off shall refer to a specified period of time and shall contain information on expected conditions over the runway complex in regard to surface wind direction and speed and any variations thereof, temperature, pressure (QNH), and any other elements as agreed locally.
- (c) A forecast for take-off shall be supplied to operators and flight crew members on request within the 3 hours before the expected time of departure.
- (d) The aerodrome meteorological office preparing forecasts for take-off shall keep the forecasts under continuous review and, when necessary, shall issue amendments promptly.

SUBPART E – SIGMET INFORMATION, AERODROME WARNINGS AND WIND SHEAR WARNINGS AND ALERTS**MET.2140 SIGMET information**

- (a) SIGMET information shall be issued by the meteorological watch office and shall give a concise description in abbreviated plain language concerning the occurrence and/or expected occurrence of specified en-route weather phenomena, which may affect the safety of aircraft operations, and of the development of those phenomena in time and space.
- (b) SIGMET information shall be cancelled when the phenomena are no longer occurring or are no longer expected to occur in the area.
- (c) The period of validity of a SIGMET message shall be not more than 4 hours. In the special case of SIGMET messages for volcanic ash cloud and tropical cyclones, the period of validity shall be extended up to 6 hours.
- (d) SIGMET messages concerning volcanic ash cloud and tropical cyclones shall be based on advisory information provided by VAACs and TCACs, respectively, designated by regional air navigation agreement.
- (e) Close coordination shall be maintained between the meteorological watch office and the associated area control centre/flight information centre to ensure that information on volcanic ash included in SIGMET and NOTAM messages is consistent.
- (f) 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.2145 Aerodrome warnings

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

MET.2150 Wind shear warnings and alerts

- (a) Wind shear warnings shall be prepared by the aerodrome meteorological office for aerodromes where wind shear is considered a factor, in accordance with local arrangements with the air traffic services provider 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 500m (1600ft) 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 500m (1600ft) above runway level, then 500m (1600ft) shall not be considered restrictive.
- (b) Wind shear warnings for arriving aircraft and/or departing aircraft shall be cancelled when aircraft reports indicate that wind shear no longer exists or, alternatively, after an agreed elapsed time. The criteria for the cancellation of a wind shear warning shall be defined locally for each aerodrome, as agreed between the Seychelles Meteorological Authority, the air traffic services provider and the operators concerned.
- (c) 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 7.5m/s (15kt) 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.
- (d) Wind shear alerts shall be updated at least every minute. The wind shear alert shall be cancelled as soon as the headwind/tailwind change falls below 7.5m/s (15kt).

SUBPART F – AERONAUTICAL CLIMATOLOGICAL INFORMATION**MET.2155 General Provisions**

- (a) 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 Seychelles Meteorological Authority and those users.
- (b) Aeronautical climatological information shall normally be based on observations made over a period of at least five years and the period shall be indicated in the information supplied.
- (c) Climatological data related to sites for new aerodromes and to additional runways at existing aerodromes shall be collected starting as early as possible before the commissioning of those aerodromes or runways.

MET.2160 Aerodrome climatological tables

The Seychelles Meteorological Authority shall arrange for collecting and retaining the necessary observational data and have the capability:

- (a) to prepare aerodrome climatological tables for SIA; and
- (b) to make available such climatological tables to an aeronautical user within a time period as agreed between the Seychelles Meteorological Authority and that user.

MET.2165 Aerodrome climatological summaries

Aerodrome climatological summaries shall follow the procedures prescribed by the World Meteorological Organization. Where computer facilities are available to store, process and retrieve the information, the summaries shall be published or otherwise made available to aeronautical users on request. Where such computer facilities are not available, the summaries shall be prepared using the models specified by the World Meteorological Organization and shall be published and kept up to date as necessary.

MET.2170 Copies of meteorological observational data

Each meteorological service provider, on request and to the extent practicable, shall make available to any other meteorological service 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 G – SERVICE FOR OPERATORS AND FLIGHT CREW MEMBERS**MET.2175 General Provisions**

- (a) The meteorological office shall supply meteorological information to operators and flight crew members for:
- (1) pre-flight planning by operators;
 - (2) in-flight re-planning by operators using centralized operational control of flight operations;
 - (3) use by flight crew members before departure; and
 - (4) aircraft in flight.
- (b) Meteorological information supplied to operators and flight crew members shall cover the flight in respect of time, altitude and geographical extent. Accordingly, the information shall relate to appropriate fixed times, or periods of time, and shall extend to the aerodrome of intended landing, also covering the meteorological conditions expected between the aerodrome of intended landing and alternate aerodromes designated by the operator.
- (c) Meteorological information supplied to operators and flight crew members shall be up to date and include the following information, as established by the Seychelles Meteorological Authority in consultation with operators concerned:
- (1) forecasts of
 - (i) upper wind and upper-air temperature;
 - (ii) upper-air humidity;
 - (iii) geopotential altitude of flight levels;
 - (iv) flight level and temperature of tropopause;
 - (v) direction, speed and flight level of maximum wind; and
 - (vi) SIGWX phenomena;
 - (2) METAR or SPECI (including trend forecasts as issued in accordance with regional air navigation agreement) for the aerodromes of departure and intended landing, and for take-off, en-route and destination alternate aerodromes;
 - (3) TAF or amended TAF for the aerodromes of departure and intended landing, and for take-off, en-route and destination alternate aerodromes;
 - (4) forecasts for take-off;
 - (5) SIGMET information and appropriate special air-reports relevant to the whole route;
 - (6) volcanic ash and tropical cyclone advisory information relevant to the whole route;
 - (7) aerodrome warnings for the local aerodrome;
 - (8) meteorological satellite images;
 - (9) ground-based weather radar information and
 - (10) space weather advisory information relevant to the whole route.
- (d) Forecasts listed under (c) (1) 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 Seychelles Meteorological Authority and the operator concerned.
- (e) When forecasts are identified as being originated by the WAFCs, no modifications shall be made to their meteorological content.
- (f) Charts generated from the digital forecasts provided by the WAFCs shall be made available, as required by operators, for fixed areas of coverage as shown in Appendix 8, Figures A8-1, A8-2 and A8-3.
- (g) When forecasts of upper wind and upper-air temperature listed under (c) (1) (i) are supplied in chart form, they shall be fixed time prognostic charts for flight levels as specified in Appendix 2, 1.2.2 a). When forecasts of SIGWX phenomena listed under (c) (1) (vi) are supplied in chart form, they shall be fixed time prognostic charts for an atmospheric layer limited by flight levels as specified in Appendix 2, 1.3.2 and Appendix 5, 4.3.2.
- (h) The forecasts of upper wind and upper-air temperature and of SIGWX phenomena above flight level 100 requested for pre-flight planning and in-flight re-planning by the operator shall be supplied as soon as they become available, but

not later than 3 hours before departure. Other meteorological information requested for pre-flight planning and in-flight re-planning by the operator shall be supplied as soon as is practicable.

- (i) When necessary, the meteorological service provider of the State providing service for operators and flight crew members shall initiate coordinating action with the meteorological authorities of other States with a view to obtaining from them the reports and/or forecasts required.
- (j) Meteorological information shall be supplied to operators and flight crew members at the location to be determined by the Seychelles Meteorological Authority, after consultation with the operators and at the time to be agreed upon between the aerodrome meteorological office and the operator concerned. The service for pre-flight planning shall be confined to flights originating within the territory of the State concerned. At an aerodrome without an aerodrome meteorological office at the aerodrome, arrangements for the supply of meteorological information shall be as agreed upon between the Seychelles Meteorological Authority and the operator concerned.

MET.2180 Briefing, consultation and display

- (a) The aerodrome meteorological office shall provide, on request, briefing and/or consultation 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 Seychelles Meteorological Authority and the operator, in lieu of flight documentation.
- (b) Meteorological information used for briefing, consultation and display shall include any or all of the information listed in MET.2175 (c).
- (c) If the aerodrome meteorological office expresses an opinion on the development of the meteorological conditions at an aerodrome which differs appreciably from the aerodrome forecast included in the flight documentation, the attention of flight crew members shall be drawn to the divergence. The portion of the briefing dealing with the divergence shall be recorded at the time of briefing and this record shall be made available to the operator.
- (d) The required briefing, consultation, display and/or flight documentation shall normally be provided by the aerodrome meteorological office associated with the aerodrome of departure. At an aerodrome where these services are not available, arrangements to meet the requirements of flight crew members shall be as agreed upon between the Seychelles Meteorological Authority 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.
- (e) The flight crew member or other flight operations personnel for whom briefing, consultation and/or flight documentation has been requested shall visit the aerodrome meteorological office at the time agreed upon between the aerodrome meteorological office and the operator concerned. Where local circumstances at an aerodrome make personal briefing or consultation impracticable, the aerodrome meteorological office shall provide those services by telephone or other suitable telecommunications facilities.

MET.2185 Flight documentation

- (a) The aerodrome meteorological office shall make available flight documentation comprising the information listed under MET.2175 (c) (1), (i) and (vi), (2), (3), (5), (6). However, when agreed between the Seychelles Meteorological Authority and operator concerned, flight documentation for flights of two hours' duration or less, after a short stop or turnaround, shall be limited to the information operationally needed, but in all cases the flight documentation shall at least comprise information on MET.2175 (c) (2), (3), (5), (6).
- (b) Whenever it becomes apparent that the meteorological information to be included in the flight documentation will differ materially from that made available for pre-flight planning and in flight replanning, the operator shall be advised immediately and, if practicable, be supplied with the revised information as agreed between the operator and the aerodrome meteorological office concerned.
- (c) In cases where a need for amendment arises after the flight documentation has been supplied, and before take-off of the aircraft, the aerodrome meteorological office shall, as agreed locally, issue the necessary amendment or updated information to the operator or to the local air traffic services unit, for transmission to the aircraft.
- (d) The Seychelles Meteorological Authority 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.2190 Automated pre-flight information systems for briefing, consultation, flight planning and flight documentation

Where the Seychelles Meteorological Authority 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 MET.2175, MET.2180 and MET.2185.

MET.2195 Information for aircraft in flight

- (a) Meteorological information for use by aircraft in flight shall be supplied by an aerodrome meteorological office or meteorological watch office to its associated air traffic services unit. Meteorological information for planning by the operator for aircraft in flight shall be supplied on request, as agreed between the Seychelles Meteorological Authority or authorities and the operator concerned.
- (b) Meteorological information for use by aircraft in flight shall be supplied to air traffic services units in accordance with the specifications of Subpart H.

SUBPART H – INFORMATION FOR AIR TRAFFIC SERVICES, SEARCH AND RESCUE SERVICES AND AERONAUTICAL INFORMATION SERVICES**MET.2200 Information for air traffic services units**

- (a) The aerodrome meteorological office shall, after coordination with the air traffic services units, supply, or arrange for the supply of, up-to-date meteorological information to the units as necessary for the conduct of their functions.
- (b) The aerodrome meteorological office shall be associated with an aerodrome control tower or approach control unit for the provision of meteorological information.
- (c) The meteorological watch office shall be associated with the area control centre for the provision of meteorological information.
- (d) Any meteorological information requested by an air traffic services unit in connection with an aircraft emergency shall be supplied as rapidly as possible.

MET.2205 Information for search and rescue services units

The aerodrome meteorological office shall supply search and rescue services units with the meteorological information they require in a form established by mutual agreement. For that purpose, the aerodrome meteorological office shall maintain liaison with the search and rescue services unit throughout a search and rescue operation.

MET.2210 Information for the aeronautical information services provider

The Seychelles Meteorological Authority, in coordination with the Seychelles Civil Aviation Authority, shall arrange for the supply of up- to-date meteorological information to the aeronautical information services provider, as necessary, for the conduct of its functions.

SUBPART I – REQUIREMENTS FOR AND USE OF COMMUNICATIONS**MET.2215 Requirements for communications**

- (a) Suitable telecommunications facilities shall be made available to permit aerodrome meteorological office to supply the required meteorological information to aerodrome control towers, approach control unit and the aeronautical telecommunications station serving these aerodromes.
- (b) Suitable telecommunications facilities shall be made available to permit meteorological watch office to supply the required meteorological information to the area control centre, joint rescue coordination centre and the associated aeronautical telecommunications station for which the office is responsible.
- (c) Suitable telecommunications facilities shall be made available to permit world area forecast centres to supply the required world area forecast system products to aerodrome meteorological offices, meteorological authorities and other users.
- (d) Telecommunications facilities between the aerodrome meteorological office and aerodrome control towers or the approach control unit 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.
- (e) Telecommunications facilities between the aerodrome meteorological office or meteorological watch offices and the area control centre, joint rescue coordination centre and aeronautical telecommunications station shall permit:
 - (1) 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; and
 - (2) printed communications, when a record is required by the recipients; the message transit time shall not exceed 5 minutes.
- (f) The telecommunications facilities required in accordance with (d) and (e) shall be supplemented, as and where necessary, by other forms of visual or audio communications, for example, closed-circuit television or separate information processing systems.
- (g) As agreed between the Seychelles Meteorological Authority and operators, provision shall be made to enable operators to establish suitable telecommunications facilities for obtaining meteorological information from aerodrome meteorological office.
- (h) Suitable telecommunications facilities shall be made available to permit the meteorological office to exchange operational meteorological information with other meteorological offices.
- (i) The telecommunications facilities used for the exchange of operational meteorological information shall be the aeronautical fixed service or, for the exchange of non-time critical operational meteorological information, the public internet, subject to availability, satisfactory operation and bilateral/multilateral and/or regional air navigation agreements.

MET.2220 Use of aeronautical fixed service communications and the public Internet - meteorological bulletins

The Seychelles Meteorological Authority shall ensure that meteorological bulletins containing operational meteorological information to be transmitted via the aeronautical fixed service or the public internet are originated by the meteorological office.

MET.2225 Use of aeronautical fixed service communications — world area forecast system products

World area forecast system products in digital form should be transmitted using binary data communications techniques. The method and channels used for the dissemination of the products should be as determined by regional air navigation agreement.

MET.2230 Use of aeronautical mobile service communications

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

SECTION 3 – ACCEPTABLE MEANS OF COMPLIANCE AND INTERPRETATIVE AND EXPLANATORY MATERIAL (AMC & IEM)

1 GENERAL

- 1.1 This Section contains Acceptable Means of Compliance and Interpretative and Explanatory Material that has been agreed for inclusion in STS–MET.
- 1.2 Where a particular STS paragraph does not have an Acceptable Means of Compliance or any Interpretative and Explanatory Material, it is considered that no supplementary material is required.

2 PRESENTATION

- 2.1 The Acceptable Means of Compliance and Interpretative and Explanatory Material are presented in full page width on loose pages, each page being identified by the date of issue [and/or the Amendment number under which it is amended or reissued.]
- 2.2 A numbering system has been used in which the Acceptable Means of Compliance or Interpretative/Explanatory Material uses the same number as the STS paragraph to which it refers. The number is introduced by the letters AMC or IEM to distinguish the material from the STS itself.
- 2.3 The acronyms AMC and IEM also indicate the nature of the material and for this purpose the two types of material are defined as follows:

Acceptable Means of Compliance (AMC) illustrates a means, or several alternative means, but not necessarily the only possible means by which a requirement can be met. It should however be noted that where a new AMC is developed, any such AMC (which may be additional to an existing AMC) will be amended into the document following consultation under the NPA procedure.

Interpretative and Explanatory Material (IEM) helps to illustrate the meaning of a requirement.

- 2.4 Explanatory Notes not forming part of the AMC or IEM text appear in a smaller typeface.
- 2.5 New, amended or corrected text is enclosed within heavy brackets.

ACJ/AMC/IEM A

Reserved