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SUBPART A – GENERAL

§ 179.1 Applicability.

This part prescribes –

(a) Rules governing the provision of meteorological (MET) services for air navigation in the Kingdom of Saudi Arabia (KSA) within the Jeddah FIR by a certified MET service provider that holds or is required to hold an Air Navigation Service Certificate (ANSC) under General Authority of Civil Aviation Regulation (GACAR) Part 170; and

(b) Rules governing aircraft operators requiring meteorological service or changes in existing meteorological services.

§ 179.3 Restrictions on a certified MET Service Provider.

(a) Except as provided in GACAR § 170.1(d), no person may provide MET services in the KSA for air navigation and within the Jeddah FIR unless the person complies with the provisions of this Part and has been certificated by the President under GACAR Part 170 to provide such services.

(b) Except as provided in GACAR Part 170, the certified MET service provider must comply with the limitations and provisions of their certificate, operations specifications and manual prepared under Subpart C during the provision of meteorological service as defined by the President.

(c) The certification of a MET service provider must be considered as a formal arrangement between the President and the provider in the provision of defined meteorological services.

(d) The certified MET service provider must describe the arrangements for the provision of meteorological services within the Jeddah FIR in the KSA Aeronautical Information Publication (KSA AIP).

§ 179.5 Objectives of MET Services for Air Navigation.

(a) The objective of meteorological service for air navigation must be to contribute towards the safety, regularity and efficiency of air navigation.

(b) The certified MET service provider must achieve this objective by supplying the following

users: operators, flight crew members, air traffic services units, search and rescue services units, aerodrome managements and others concerned with the conduct or development of air navigation, with the meteorological information necessary for the performance of their respective functions as specified by the President.

(c) Close liaison must 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 national and international air navigation.

§ 179.7 Notifications Required from Operators.

(a) An operator requiring meteorological service or changes in existing meteorological service must notify, sufficiently in advance, the certified MET service provider(s) concerned. The minimum amount of advance notice required must be as agreed between the certified MET service provider(s) and the operator.

(b) The certified MET service provider(s) must 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.

Such information must contain all details necessary for the planning of appropriate arrangements by the certified MET service provider.

(c) The certified MET service provider must make arrangements and coordination procedures with aircraft operators and users to:

(1) establish suitable telecommunications facilities for obtaining meteorological information from aerodrome meteorological offices or other appropriate sources.

(2) notify the aerodrome meteorological office concerned:

(i) of flight schedules;

(ii) when non-scheduled flights are to be operated; and

(iii) when flights are delayed, advanced or cancelled.

(d) The notification to the aerodrome meteorological office of individual flights must contain the following information except that, in the case of scheduled flights, the requirement for some or all of this information may be waived as agreed between the aerodrome meteorological office and the operator concerned:

(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.

(e) The President must be notified of all arrangements and coordination procedures between the certified MET service provider and all aircraft operators and users. The President must also be notified when operators require new or changes to existing meteorological services.

§ 179.9 Coordination Requirements.

The certified MET service provider must establish systems and procedures for ensuring coordination between each of the following agencies:

(a) General Authority of Civil Aviation (GACA);

(b) Each aeronautical telecommunication service provider operating in accordance with General Authority of Civil Aviation Regulation (GACAR) Part 173;

(c) Each aeronautical information service (AIS) provider operating in accordance with GACAR Part 175;

(d) Each air traffic service provider (ATS) operating in accordance with GACAR Part 171;

(e) Each search and rescue (SAR) authority operating in accordance with GACAR Part 177;

(f) Aircraft operators;

(g) The Saudi Arabian Armed Forces; and

(h) Each civil aerodrome operator in the KSA.

§ 179.11 Regional Air Navigation Agreements.

The certified MET service provider must coordinate with GACA when interacting with foreign States or foreign MET providers and when there are implications for Regional Air Navigation Agreements for which the KSA is a party.

§ 179.13 Applicability of the Standards of the International Civil Aviation Organization and the World Meteorological Organization.

(a) The certified MET service provider must provide services in full compliance with this Part and the applicable standards of:

(1) International Civil Aviation Organization (ICAO) Annex 3 Meteorological Service for International Air Navigation;

(2) World Meteorological Organization (WMO) Technical Regulation, Volume I, General Meteorological Standards and Recommended Practices, (WMO-No 49, Vol. I); and

(3) World Meteorological Organization Technical Regulation, Volume III, Meteorological Service for International Air Navigation, (WMO-No 49, Vol. III)

(b) In respect of qualifications, competencies, education and training of meteorological personnel providing service for national and international air navigation, the certified MET service provider must adopt:

(1) the training and qualification requirements defined in WMO Implementation of Education and Training Standards in Meteorology and Hydrology, Volume I – Meteorology (WMO-No 1083); and

(2) the WMO Technical Regulations Volume I — General Meteorological Standards and Recommended Practices, (WMO-No. 49, Vol I):

(i) Part V — Qualifications and Competencies of Personnel Involved in the Provision of Meteorological (Weather and Climate) and Hydrological Services; and

(ii) Part VI — Education and Training of Meteorological Personnel; and

(iii) Appendix A — Basic Instruction Packages.

§ 179.15 Human Factors.

(a) The certified MET service provider must ensure that the meteorological information supplied to the users is consistent with Human Factors principles and must be in forms which require a minimum of interpretation by these users.

Note.— Guidance material on the application of Human Factors principles can be found in the ICAO Human Factors Training Manual (Doc 9683).

(b) The certified MET service provider must ensure that the meteorological information supplied to the users listed in §179.5 is provided through information services.

Note 1.— In the context of system-wide information management (SWIM), the notion of information service addresses machine-to-machine interaction in a service-oriented architecture.
Note 2.— Procedures on information services are contained in the Procedures for Air Navigation Services — Information Management (PANS-IM, Doc 10199).
Note 3.— Guidance material on information services can be found in the Manual on System-wide Information Management Implementation (Doc 10039).

§179.17 Site Requirements.

The certified MET service provider must ensure that:

(a) Each of its aerodrome meteorological offices and facilities is:

(1) Sited and configured in accordance with security measures designed to prevent unlawful or accidental interference; and

(2) Provided with suitable power supplies and means to ensure appropriate continuity of service.

(b) Each weather observing station is installed and maintained in a technically appropriate position to ensure that the facility provides an accurate representation of the local meteorological conditions. These observations must meet the operational desirable accuracy of measurement and observation as per Attachment A of ICAO Annex 3.

§179.19 Verification, Validation, Periodic Inspection, Testing and Calibration.

(a) The certified MET service provider must establish procedures for:

(1) routine verification of meteorological information obtained and provided by the certified MET service provider;

(2) periodic inspection of each of its aerodrome meteorological offices;

(3) periodic inspection, testing and calibration of each of its facilities; and

(4) validating information, bulletins and messages that are exchanged internationally to ensure accuracy, integrity, formatting and timeliness requirements.

(b) The procedures required under GACAR §179.19 (a) must ensure that:

(1) the systems required for the routine verification of meteorological information have the capability and integrity necessary for verifying the meteorological information;

(2) appropriate inspection equipment and systems are available to personnel for the

inspection of each aerodrome meteorological office;

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

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

(5) all meteorological observing facilities are calibrated and configured so that the environmental sensors fitted or incorporated yield, as far as possible, reliable, accurate and representative of meteorological information.

§ 179.20 Inspections.

The certified MET service provider must allow the President to make any inspections, at any time, in order to allow the President to determine compliance with the requirements of this Part.

SUBPART B – PERSONNEL

§ 179.21 Personnel Requirements.

The certified MET service provider must employ, contract, or otherwise engage—

(a) A senior person, acceptable to the President, identified for the purposes of this part as the Director of Meteorological Services, who:

(1) has the authority within the organization to ensure that all activities undertaken by the organization can be financed and carried out to meet applicable operational requirements; and

(2) is responsible for ensuring that the organization complies with the requirements of this Part.

(b) A senior person or persons, acceptable to the President, responsible to the Director of Meteorological Services for ensuring that the organization:

(1) complies with its manual; and

(2) establishes and implements a properly organized quality system.

(c) Sufficient technical personnel to inspect, supervise, and maintain the facilities listed in the manual.

§ 179.23 Meteorological Personnel Qualifications.

(a) The certified MET service provider must ensure that each person assigned duties as meteorological personnel is competent and holds appropriate qualifications to perform the duties which they are assigned.

(b) The certified MET service provider must ensure that each person assigned duties as meteorological personnel has:

(1) successfully completed an appropriate training program that is approved by the President; and

(2) has been assessed as competent through a formal process by a person who is qualified.

(c) The certified MET service provider must provide each person assigned duties as meteorological personnel a certificate containing the following:

(1) name of the meteorological personnel;

(2) a description of the functions that the person is authorized to perform; and

(3) a description of the period during which the certificate is effective and valid.

(d) The certified MET service provider must ensure that the training organized for the delivery of the certificate comprises:

(1) a theory part as defined by the WMO; and

(2) a practical part which must include on-the-job training where the trainee is under the supervision of a certified and experienced meteorological observer or forecaster in order to:

(i) enable observing and forecast techniques to be practiced; and

(ii) allow the trainee's competence to be assessed to meet the competency requirements for Aeronautical Meteorological Personnel as defined by the WMO Technical Regulations (WMO-No. 49).

(e) The certified MET service provider must develop a periodic and comprehensive recurrent training program approved by the President to ensure that each person assigned duties as meteorological personnel maintains the appropriate level of qualification. The established period must not exceed 12 months.

(f) The certified MET service provider must develop and publish job descriptions for all technical staff assigned to provide MET services.

Note.— The meteorological personnel qualifications must be based on the standards and recommended practices of ICAO and the WMO as defined under § 179.13.

§ 179.25 Staffing Levels and Training.

The certified MET service provider must –

(a) Establish arrangements that define the person responsible and the process to be followed to ensure an adequate number of suitably trained and qualified staff are available in respect of MET services.

(b) Define the method by which staffing levels are determined in relation to the MET services to be provided.

(c) Establish arrangements that define the management responsibilities and process for ensuring adequate staff supervision. Arrangements must include the mechanisms that ensure only trained and competent staff undertake the provision of MET services.

§ 179.27 Human Performance.

The certified MET service provider must ensure that Human Factors and performance are applied in the provision of MET services. The following activities must be conducted:

(a) Mandating Human Factors input to specific tasks/projects;

(b) Raising awareness of Human Factors and initiating Human Factors training across all concerned departments in an appropriate manner;

(c) Keeping abreast of developments within Human Factors and applying this knowledge as appropriate.

(d) Considering Human Factors aspects in incident investigation.

Note.— Guidance material on the application of Human Factors principles can be found in ICAO Human Factors Training Manual (Doc 9683).

SUBPART C – MANUAL REQUIREMENTS

§ 179.31 General.

This subpart prescribes requirements for the certified MET service provider to prepare and maintain a manual covering all meteorological services provided in accordance with this Part and with the following WMO standards, recommended practices, and guidance:

(a) Technical Regulation, Volume I, General Meteorological Standards and Recommended Practices, (WMO-No 49, Vol. I);

(b) Technical Regulation, Volume III, Meteorological Service for International Air Navigation, (WMO-No 49, Vol. III); and

(C) Implementation of Education and Training Standards in Meteorology and Hydrology, Volume I – Meteorology (WMO-No. 1083).

§ 179.33 Manual Contents.

(a) The certified MET service provider must provide the President with a manual containing:

(1) a statement signed by the Director of Meteorological Services, on behalf of the organization confirming that:

(i) the manual defines the organization and demonstrates its means and methods for ensuring ongoing compliance with this Part; and

(ii) the manual, and all associated manuals, operating, and maintenance instructions, must be complied with by the organization’s personnel at all times.

(2) an organization chart showing lines of responsibility of the senior persons;

(3) a summary of the organization’s staffing structure at each location listed under paragraph (a)(4);

(4) a list of each type of MET facility to be operated under the authority of the certified MET service provider;

(5) a summary of the scope of activities at each location where the organization's personnel are based for the purpose of providing MET services under paragraph (a)(4);

(6) a description of the initial training, qualifications and certification of meteorological personnel;

(7) the detailed procedures required under §179.19 for verification, validation, periodic inspection, testing and calibration, §179.185 for users and customer feedback and § 179.183 regarding the quality management system; and

(8) detailed procedures to control, amend, and distribute the manual.

(b) Each manual, and all of its revisions, must be acceptable to the President.

(c) The certified MET service provider must:

(1) ensure that its manual is amended, as required, to maintain an up-to-date description of The certified MET service provider organization, services, and facilities;

(2) ensure that any amendments made to its manual meet the applicable requirements of this Part;

(3) comply with the manual amendment procedure contained in its manual;

(4) ensure that each amendment to its manual is accepted by the President; and

(5) make such amendments to its manual as the President may consider necessary in the interests of aviation safety.

§ 179.35 Local observing and reporting procedures.

The certified MET service provider must ensure that local observing and reporting procedures:

(a) Are established for each aerodrome meteorological observation;

(b) Include the way in which observations are conducted, recorded, and disseminated both within and beyond the aerodrome, including any necessary backup arrangements;

(c) Include working arrangements to ensure that observers obtain full information regarding the weather to be expected during the period of their duty/watch. This may be accomplished by a study of forecasts and charts routinely supplied by the designated watch office; and

(d) Include a description of recurrent training to maintain the competency of assigned meteorological personnel.

SUBPART D – GLOBAL SYSTEMS, SUPPORTING CENTERS AND METEOROLOGICAL OFFICES

§ 179.41 Applicability

This Subpart prescribes the requirements related to the World Area Forecast System, Aerodrome Meteorological services, Meteorological Watch Office services, advisory information on volcanic ash and tropical cyclones, and space weather phenomena.

§ 179.43 Objective of the World Area Forecast System (WAFS).

The objective of the world area forecast system is to supply meteorological authorities and other users with global aeronautical meteorological en-route forecasts in digital form. This objective is 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.

§ 179.45 World Area Forecast Centers (WAFC).

(a) The certified MET service provider must collect the required information and data from the associated WAFC and make available forecasts of:

(1) upper wind;

(2) upper-air temperature and humidity;

(3) geopotential altitude of flight levels;

(4) flight level and temperature of tropopause;

(5) direction, speed and flight level of maximum wind;

(6) cumulonimbus clouds;

(7) icing;

(8) turbulence; and

(9) significant weather (SIGWX) phenomena.

(b) The certified MET service provider must disseminate the forecasts referred to in (a) in digital form to the users;

(c) The certified MET service provider must ensure that information concerning the accidental release of radioactive materials into the atmosphere is received and processed in accordance with the national nuclear and radiological emergency response plan. This information must be included in the information in SIGWX forecasts; and

(d) The certified MET service provider must establish and maintain contact with the associated WAFC for the collection of information on volcanic activity in order to make available information on volcanic eruptions in SIGWX forecasts to the users.

§ 179.47 Aerodrome Meteorological Offices.

(a) The certified MET service provider must have aerodrome meteorological offices which must be adequate for the provision of the meteorological service required to satisfy the needs of air navigation.

(b) An aerodrome meteorological office must 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 must be related to the local availability and use of en-route and aerodrome forecast material received from other aerodrome meteorological 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 watch office as agreed between the meteorological, aeronautical information service provider and air traffic service provider.

(c) The aerodrome meteorological offices at which flight documentation is required, as well as the areas to be covered, must be described in the KSA eAIP.

(d) The aerodromes for which landing forecasts are required will be determined by regional air navigation agreement.

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

(1) the certified MET service provider must designate one or more aerodrome meteorological offices to supply meteorological information as required; and

(2) the certified MET service provider must establish means by which such information can be supplied to the aerodromes concerned.

§ 179.49 Meteorological Watch Offices (MWOs).

(a) The certified MET service provider must establish one or more meteorological watch offices (MWO) within the flight information regions or control areas for which they have been assigned MET responsibilities by the President.

(b) Each meteorological watch office must:

(1) maintain 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) when required by regional air navigation agreements:

(i) prepare AIRMET information related to its area of responsibility;

(ii) supply AIRMET information to associated air traffic services units; and

(iii) disseminate AIRMET information;

(c) 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 MET and the ATS service provider, and to its associated VAAC as determined by regional air navigation agreement;

(d) Supply information received concerning the 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 MET and the ATS service provider, and to the AIS provider, as agreed between the MET and the AIS service provider. The information must comprise location, date and time of the release, and forecast trajectories of the radioactive materials;

(e) Maintain a continuous watch, however in areas with a low density of traffic, the watch may be restricted to the period relevant to expected flight operations;

(f) Each meteorological watch office must coordinate SIGMET with neighboring 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

Note.— Guidance on the bilateral or multilateral coordination between MWOs of Contracting States for the provision of SIGMET can be found in the Manual of Aeronautical Meteorological Practice (Doc 8896).

§ 179.51 Volcanic Ash Advisory Centers (VAAC).

The certified MET service provider must:

(a) Ensure that any received notification on volcanic eruptions or volcanic ash is made available to the users.

(b) Disseminate any received advisory information regarding the extent and forecast movement of the volcanic ash cloud to:

(1) meteorological watch offices, area control centers and flight information centers;

(2) international NOTAM offices, and centers designated in KSA eAIP for the operation of aeronautical fixed service Internet-based services; and

(3) airlines requiring the advisory information through the AFTN address provided specifically for this purpose.

(c) Disseminate any received updated advisory information to the meteorological watch offices, area control centers, and flight information centers.

§ 179.53 Tropical Cyclone Advisory Centers.

The certified MET service provider must:

(a) Ensure any received information on the development of tropical cyclones is made available to the users.

(b) Disseminate any received 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:

(1) meteorological watch offices, and;

(2) centers designated by regional air navigation agreement for the operation of aeronautical fixed service satellite distribution systems.

(c) Disseminate any received updated advisory information to meteorological watch offices for each tropical cyclone, as necessary, but at least every six hours.

§ 179.55 Space Weather Centers.

The certified MET service provider must:

(a) Ensure that any received advisory information on space weather phenomena affecting the Jeddah FIR is made available to the users.

(b) Disseminate any received advisory information regarding the extent, severity and duration of the space weather phenomena that have an impact in the following areas:

(1) high frequency (HF) radio communications;

(2) communications via satellite;

(3) GNSS-based navigation and surveillance; and

(4) radiation exposure at flight levels.

(c) Ensure that the advisory information referred to in (a) is disseminated to:

(1) area control centers, flight information centers and aerodrome meteorological offices which may be affected; and

(2) international NOTAM offices and centers designated by regional air navigation agreement for the operation of aeronautical fixed service Internet-based services.

Note 1.— Guidance on the provision of space weather advisory information, including the ICAO-designated provider(s) of space weather advisory information, is provided in the Manual on Space Weather Information in Support of International Air Navigation (Doc 10100).

Note 2. — Guidance on spatial ranges and resolutions for space weather advisory information is given in Attachment E of Annex 3.

SUBPART E – METEOROLOGICAL OBSERVATIONS AND REPORTS

§ 179.61 Applicability

This Subpart prescribes the requirements for meteorological observations and reports. It incorporates and adopts by reference the following ICAO Annex 3 provisions:

(a) Standards and Recommended Practices related to meteorological observations and reports contained in Appendix 3; and

(b) Guidance on the operationally desirable accuracy of measurements or observations given in Attachment C.

§ 179.63 Aeronautical Meteorological Stations and Observations.

(a) The certified MET service provider must establish, where necessary, aerodrome aeronautical meteorological stations. An aeronautical meteorological station may be a separate station or may be combined with a synoptic station.

Note.— Aeronautical meteorological stations may include sensors installed outside the aerodrome, where considered justified, by the certified MET service provider to ensure the compliance of meteorological service for air navigation with the provisions of this Part.

(b) The certified MET service provider must establish, or arrange for the establishment of, aeronautical meteorological stations on offshore structures or at other points of significance in support of rotorcraft operations to offshore structures, if required by regional air navigation agreement.

(c) Aeronautical meteorological stations must make routine observations at fixed intervals. At aerodromes, the routine observations must 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.

(d) The certified MET service provider must 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.

(e) At aerodromes with runways intended for Category II and 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 must be installed to support approach and landing and takeoff operations. These devices must be integrated automatic systems for acquisition, processing, dissemination and display in real time of the meteorological parameters affecting landing and takeoff operations. The design of integrated automatic systems must observe Human Factors principles and include back-up procedures.

(f) Unless otherwise approved by the President, at aerodromes with runways intended for Category I 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 must be installed to support approach and landing and takeoff operations. These devices must 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 must observe Human Factors principles and include back-up procedures.

(g) Where an integrated semi-automatic system is used for the dissemination/display of meteorological information, it must be capable of accepting the manual insertion of data covering those meteorological elements which cannot be observed by automatic means.

(h) The observations must 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.

(i) 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 must be understood by the recipient to be the best approximation to the actual conditions at the time of observation.

(j) 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 must 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 must be understood to be the most probable time.

§ 179.65 Agreement Between the certified MET Service Provider and the ATS Service Provider

(a) An agreement between the certified MET service provider and the ATS service provider must be established to cover, at least the following items:

(1) the provision in air traffic services units of displays related to integrated automatic systems;

(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 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;

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

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

(b) The agreement between the certified MET service provider and the ATS service provider must be complemented by local agreements signed between the aerodrome meteorological office or station and the ATS Unit providing services at the aerodrome. The template of the local agreement is defined by an Advisory Circular (to support effective implementation of a local agreement between an aerodrome MET Office and an ATS Unit where ATS is provided).

Note.— Guidance on the subject of coordination between the certified MET service provider and the ATS service provider is contained in the Manual on Coordination between Air Traffic Services, Aeronautical Information Services and Aeronautical Meteorological Services (ICAO Doc. 9377).

§ 179.67 Routine Observations and Reports.

(a) At aerodromes, routine observations must be made throughout the 24 hours each day, except as otherwise agreed between the certified MET service provider, the ATS service provider and the operators concerned. Such observations must be made at intervals of one hour or at intervals of one half-hour as described in the KSA eAIP. At other aeronautical meteorological stations, such observations must be made as determined by the certified MET service provider taking into account the requirements of air traffic services units and aircraft operations. The President must be notified on any agreement for the provision of routine observations.

(b) Reports of routine observations must be issued as:

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

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

(c) At aerodromes that are not operational throughout 24 hours in accordance with (a), METAR must be issued prior to the aerodrome resuming operations in accordance with regional air navigation agreement.

§ 179.69 Special Observations and Reports.

(a) A list of criteria for special observations must be established by the certified MET service provider, the ATS service provider, operators and others concerned. The list of criteria for special observations must be reported to the President for acceptance.

(b) Reports of special observations must be issued as:

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

(2) SPECI for dissemination beyond the aerodrome of origin (mainly intended for flight planning, VOLMET broadcasts and D-VOLMET) unless METAR are issued at half-hourly intervals.

(c) At aerodromes that are not operational throughout 24 hours, following the resumption of the issuance of METAR, SPECI must be issued, as necessary.

§ 179.71 Contents of Reports.

(a) Local routine and special reports and METAR and SPECI must contain the following elements in the order indicated:

(1) identification of the type of report (e.g. METAR);

(2) location indicator;

(3) time of the observation in UTC;

(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 paragraph (a), local routine and special reports and METAR and SPECI must contain supplementary information to be placed after element (a)(11).

(c) Optional elements included under supplementary information must be included in METAR and SPECI.

§ 179.73 Use of CAVOK

When the following conditions occur simultaneously at the time of observation:

(1) visibility, 10 km or more, and the lowest visibility is not reported;

(2) no cloud of operational significance; and

(3) no weather of significance to aviation.

then the information on visibility, runway visual range, present weather and cloud amount, cloud type and height of cloud base must be replaced in all meteorological reports by the term "CAVOK".

Note 1.— In local routine and special reports, visibility refers to the value(s) to be reported in accordance with §179.71(b); in METAR and SPECI, visibility refers to the value(s) to be reported in accordance with the requirements of Appendix 3 of ICAO Annex 3.

Note 2.— Visibility refers to "prevailing visibility" except in the case where only the lowest visibility is reported in accordance with the requirements of Appendix 3 of ICAO Annex 3.

§ 179.75 Observing and Reporting Meteorological Elements.

(a) Surface wind.

(1) the mean direction and the mean speed of the surface wind must be measured, as well as significant variations of the wind direction and speed, and reported in degrees true and kilometers per hour (or knots), respectively.

(2) when local routine and special reports are used for departing aircraft, the surface wind observations for these reports must 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 must be representative of the touchdown zone.

(3) for METAR and SPECI, the surface wind observations must 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 must be measured or observed and reported in meters or kilometers.

(2) when local routine and special reports are used for departing aircraft, the visibility observations for these reports must be representative of conditions along the runway; when local routine and special reports are used for arriving aircraft, the visibility observations for these reports must be representative of the touchdown zone of the runway.

(3) for METAR and SPECI, the visibility observations must be representative of the aerodrome.

Note.— Guidance on the conversion of instrument readings into visibility is given in ICAO Annex 3, Attachment D

(c) Runway visual range.

(1) runway visual range must be assessed on all runways intended for Category II and III instrument approach and landing operations.

(2) runway visual range must be assessed on all runways intended for use during periods of reduced visibility, including:

(i) precision approach runways intended for Category I instrument approach and landing operations; and

(ii) runways used for takeoff and having high-intensity edge lights and/or center line lights.

(3) the runway visual range, assessed in accordance with (c)(2), must be reported in meters throughout periods when either the visibility or the runway visual range is less than 1500 m.

(4) runway visual range assessments must 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.

(5) the units providing air traffic service and aeronautical information service for an aerodrome must be kept informed without delay of changes in the serviceability status of the automated equipment used for assessing runway visual range.

Note.— The Human Observed Runway Visual range must be based on ICAO Manual of Runway Visual Range Observing and reporting Practices – Doc 9328, Chapter 10.

(d) Present weather.

(1) the present weather occurring at the aerodrome and/or its vicinity must be observed and reported as necessary. The following present weather phenomena must 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).

(2) for local routine and special reports, the present weather information must be representative of conditions at the aerodrome.

(3) for METAR and SPECI, the present weather information must be representative of conditions at the aerodrome and, for certain specified present weather phenomena, in its vicinity.

(e) Clouds.

(1) cloud amount, cloud type and height of cloud base must be observed and reported as necessary to describe the clouds of operational significance. When the sky is obscured, vertical visibility must 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 must be reported in meters (or feet).

(2) cloud observations for local routine and special reports must be representative of the runway threshold(s) in use.

(3) cloud observations for METAR and SPECI must be representative of the aerodrome and its

vicinity.

(f) Air temperature and dew-point temperature.

(1) the air temperature and the dew-point temperature must 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 must be representative of the whole runway complex.

(g) Atmospheric pressure. The atmospheric pressure must be measured, and QNH and QFE values must be computed and reported in hectopascals.

(h) Supplementary information. Observations made at aerodromes must include the available supplementary information concerning significant meteorological conditions, particularly those in the approach and climb-out areas. Where practicable, the information must identify the location of the meteorological condition.

§ 179.77 Reporting Meteorological Information from Automatic Observing Systems.

(a) METAR and SPECI from automatic observing systems must be used by the certified MET service provider in a position to do so during non-operational hours of the aerodrome, and during operational hours of the aerodrome in consultation with users based on the availability and efficient use of personnel. METAR and SPECI from automatic observing systems must be approved by the President.

(b) Local routine and special reports from automatic observing systems may be used during operational hours of an aerodrome as authorized by the President and in consultation with users based on the availability and efficient use of meteorological personnel.

Note.— Guidance on the use of automatic meteorological observing systems is given in the Manual on Automatic Meteorological Observing Systems at Aerodromes (ICAO Doc. 9837).

(c) METAR and SPECI from automatic observing systems must be identified with the word —AUTO.

§ 179.79 Observations and Reports of Volcanic Activity.

The occurrence of pre-eruption volcanic activity, volcanic eruptions and volcanic ash cloud must be reported without delay to the associated air traffic services unit, aeronautical information services unit and meteorological watch office. The report must 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 F – AIRCRAFT OBSERVATIONS AND REPORTS

§ 179.81 Applicability

This subpart prescribes the requirements for aircraft observations and reports. It incorporates and adopts by reference the Standards and Recommended Practices contained in Appendix 4 of ICAO Annex 3.

§ 179.83 Relay of Air-Reports by ATS Units.

(a) The certified MET service provider must make arrangements with ATS provider to ensure that, on receipt by the ATS units of:

(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 and WAFCs.

(b) The arrangements related to air-reports must be reported to the President for acceptance.

§ 179.85 Recording and Post-Flight Reporting of Aircraft Observations of Volcanic Activity.

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

(b) The President must be notified on any volcanic ash clouds in the opinion of the certified MET service provider could impact Jeddah FIR.

SUBPART G – FORECASTS

§ 179.91 Applicability.

This subpart prescribes the requirements for aerodrome forecasts and area forecasts for low-level flights. It incorporates and adopts by reference the following ICAO Annex 3 provisions:

(a) Standards and Recommended Practices contained in Appendix 5;

(b) Guidance on the operationally desirable accuracy of forecasts contained in Attachment B.

§ 179.93 Interpretation and Use of Forecasts.

(a) The issue of a new forecast by an aerodrome meteorology office, such as a routine aerodrome forecast, must 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.

(b) An aerodrome forecast must be prepared, in accordance with regional air navigation agreement, by the aerodrome meteorological office designated by the certified MET service provider.

Note.— The aerodromes for which aerodrome forecasts are to be prepared and the period of validity of these forecasts are listed in ICAO MID Air Navigation Plan, Vol II, Facilities And Services Implementation Document (FASID) (Doc 9708).

§ 179.95 Aerodrome Forecasts.

(a) The certified MET service provider must prepare aerodrome forecasts as prescribed in this subpart.

(b) An aerodrome forecast must 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 must 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.

(12) Optional elements must be included in TAF in accordance with regional air navigation agreement.

(d) The certified MET service provider preparing TAF must keep the forecasts under continuous review and, when necessary, must issue amendments promptly. The length of the forecast messages and the number of changes indicated in the forecast must be kept to a minimum.

(e) TAF that cannot be kept under continuous review must be cancelled.

(f) The period of validity of a routine TAF must be not less than 6 hours nor more than 30 hours; the period of validity must be determined by regional air navigation agreement. Routine TAF valid for less than 12 hours must be issued every 3 hours and those valid for 12 to 30 hours must be issued every 6 hours.

(g) When issuing TAF, aerodrome meteorological offices must ensure that not more than one TAF is valid at an aerodrome at any given time.

§ 179.97 Landing Forecasts.

(a) The certified MET service provider must prepare a landing forecast; 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 must be prepared in the form of a trend forecast.

(c) A trend forecast must 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 METAR or SPECI. The period of validity of a trend forecast must be 2 hours from the time of the report which forms part of the landing forecast.

§ 179.99 Forecasts for Takeoff.

(a) The certified MET service provider must prepare a takeoff forecast if required by agreement between the certified MET service provider and operators. A copy of this agreement must be reported to the President.

(b) The forecast for takeoff must refer to a specified period of time and must 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 takeoff must be supplied to operators and flight crew members on request within the 3 hours before the expected time of departure.

(d) Aerodrome meteorological offices preparing forecasts for takeoff must keep the forecasts under continuous review and, when necessary, issue amendments promptly.

§ 179.101 Area Forecasts for Low-Level Flights.

(a) When the density of traffic operating below flight level 100 (or up to flight level 150 in mountainous areas, or higher, where necessary) warrants the routine issue and dissemination of area forecasts for such operations, the frequency of issue, the form and the fixed time or period of validity of those forecasts and the criteria for amendments thereto must be determined by the certified MET service provider in consultation with the users. The agreement on the validity of the area forecasts and the criteria for amendments must be reported to the President for acceptance.

(b) When the density of traffic operating below flight level 100 warrants the issuance of AIRMET information in accordance with (a), area forecasts for such operations must be prepared in a format agreed upon between the Meteorological authorities concern. When abbreviated plain language is used, the forecast must be prepared as a GAMET area forecast, employing approved ICAO abbreviations and numerical values; when chart form is used, the forecast must be prepared as a combination of forecasts of upper wind and upper-air temperature, and of SIGWX phenomena. The area forecasts must 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 must contain information on en-route weather phenomena hazardous to low-level flights, in support of the issuance of AIRMET information, and additional information required by low-level flights.

(c) Area forecasts for low-level flights prepared in support of the issuance of AIRMET information must 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 H – SIGMET AND AIRMET INFORMATION, AERODROME WARNINGS AND WIND SHEAR WARNINGS AND ALERTS

§ 179.111 Applicability.

This Subpart prescribes the requirements for SIGMET, AIRMET information, aerodrome warnings, and wind shear warnings and alerts. It incorporates and adopts by reference the Standards and Recommended Practices contained in Appendix 6 of ICAO Annex 3.

§ 179.113 SIGMET Information.

(a) SIGMET information must be issued by meteorological watch office and must 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 must 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 must be not more than 4 hours. In the special case of SIGMET messages for volcanic ash cloud and tropical cyclones, the period of validity must be extended up to 6 hours.

(d) SIGMET messages concerning volcanic ash cloud and tropical cyclones must be based on advisory information provided by VAACs and TCACs, respectively.

(e) The certified MET service provider must ensure close coordination is maintained between 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.

(f) SIGMET messages must 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 must 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 must be updated at least every 6 hours.

§ 179.115 AIRMET Information.

(a) AIRMET information must be issued by 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 must 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 Section I of the area forecast for low-level flights issued in accordance with subpart G and which may affect the safety of low-level flights, and of the development of those phenomena in time and space.

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

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

§ 179.117 Aerodrome Warnings.

(a) Aerodrome warnings must be issued by the aerodrome meteorological office operated under the certified MET service provider and must 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 must be cancelled when the conditions are no longer occurring and/or no longer expected to occur at the aerodrome.

§ 179.119 Wind Shear Warnings and Alerts.

(a) Wind shear warnings must be prepared by the aerodrome meteorological office of the certified MET service provider for aerodromes where wind shear is considered a factor, in accordance with local arrangements with the ATS unit and operators concerned.

(b) Wind shear warnings must give concise information on the observed or expected existence of wind shear which could adversely affect aircraft on the approach path or takeoff path or during circling approach between runway level and 500 m (1 600 ft) above that level and aircraft on the runway during the landing roll or takeoff run. Where local topography has been shown to produce significant wind shears at heights in excess of 500 m (1 600 ft) above runway level, then

500 m (1 600 ft) must not be considered restrictive.

(c) Wind shear warnings for arriving aircraft and/or departing aircraft must 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 must be defined locally for each aerodrome, as agreed between the certified MET service provider, the ATS service provider and the operators concerned. These criteria must be reported to the President for acceptance.

(d) 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 must be issued. Wind shear alerts must give concise, up-to-date information related to the observed existence of wind shear involving a headwind/tailwind change of 27 km/h (15 kt) or more which could adversely affect aircraft on the final approach path or initial takeoff path and aircraft on the runway during the landing roll or takeoff run.

(e) Wind shear alerts must be updated at least every minute. The wind shear alert must be cancelled as soon as the headwind/tailwind change falls below 7.5 m/s (15 kt).

SUBPART I – AERONAUTICAL CLIMATOLOGICAL INFORMATION

§ 179.121 Applicability.

This Subpart prescribes the requirements for aeronautical climatological information. It incorporates and adopts by reference the Standards and Recommended Practices contained in Appendix 7 of ICAO Annex 3.

§ 179.123 General.

(a) In cases where it is impracticable to meet the requirements for aeronautical climatological information on a national basis, the collection, processing and storage of observational data may be effected through computer facilities available for international use, and the responsibility for the preparation of the required aeronautical climatological information may be delegated by agreement between the meteorological authorities concerned.

(b) Aeronautical climatological information required for the planning of flight operations must be prepared in the form of aerodrome climatological tables and aerodrome climatological summaries. Such information must be supplied to aeronautical users as agreed between the certified MET service provider and those users. The agreements between the certified MET service provider and the users of aeronautical climatological information must be reported to the President.

(c) Aeronautical climatological information must normally be based on observations made over a period of at least five years and the period must be indicated in the information supplied.

(d) Climatological data related to sites for new aerodromes and to additional runways at existing aerodromes must be collected starting as early as possible before the commissioning of those aerodromes or runways.

§ 179.125 Aerodrome Climatological Tables & Summaries.

(a) The certified MET service provider must make arrangements for collecting and retaining the necessary observational data and have the capability:

(1) to prepare aerodrome climatological tables for each civil aerodrome within the KSA; and

(2) to make available such climatological tables to an aeronautical user within a time period

as agreed between the certified MET service provider and that user.

(b) The certified MET service provider must prepare aerodrome climatological summaries in accordance with the procedures prescribed by the WMO. Where computer facilities are used to store, process and retrieve the information, the summaries must be published or otherwise made available to aeronautical users on request. Where such computer facilities are not available, the summaries must be prepared using the models specified by the WMO and must be published and kept up to date as necessary.

§ 179.127 Copies of Meteorological Observational Data.

The certified MET service provider, on request and to the extent practicable, must make available to operators and to others concerned with the application of meteorology to air navigation, meteorological observational data required for research, investigation or operational analysis.

SUBPART J – SERVICE FOR OPERATORS AND FLIGHT CREW MEMBERS

§ 179.131 Applicability

This Subpart prescribes the requirements for meteorological information that must be provided to aircraft operators and flight crew members. It incorporates and adopts by reference the following ICAO Annex 3 requirements:

(a) Standards and Recommended Practices related to flight documentation – Model charts and forms contained in Appendix 1;

(b) Technical specifications and detailed criteria related to service for operators and flight crew members contained in Appendix 8.

§ 179.133 General.

(a) The certified MET service provider must 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 must cover the flight in respect of time, altitude and geographical extent. Accordingly, the information must relate to appropriate fixed times, or periods of time, and must 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 must be up to date and include the following information, as established by the certified MET service provider in

consultation with operators concerned:

(1) forecasts of:

(i) upper wind and upper-air temperature;

(ii) upper-air humidity;

(iii) geopotential altitude of flight levels;

(iv) flight level and temperature of tropopause;

(v) direction, speed and flight level of maximum wind;

(vi) SIGWX phenomena; and

(vii) cumulonimbus clouds, icing and turbulence.

Note.— Forecasts of upper-air humidity and geopotential altitude of flight levels are used only in automatic flight planning and need not be displayed.

(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 takeoff, en-route and destination alternate aerodromes;

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

(4) forecasts for takeoff;

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

Note.— Appropriate special air-reports will be those not already used in the preparation of SIGMET.

(6) volcanic ash and tropical cyclone advisory information relevant to the whole route:

(7) subject to regional air navigation agreement, GAMET area forecast and/or area forecasts for low-level flights in chart form prepared in support of the issuance of AIRMET information, and AIRMET information for low-level flights relevant to the whole route

(8) aerodrome warnings for the local aerodrome;

(9) meteorological satellite images;

(10) ground-based weather radar information; and

(11) space weather advisory information relevant to the whole route.

(d) Forecasts listed under (c)(1) must 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 certified MET service provider and the operator concerned.

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

(f) Charts generated from the digital forecasts provided by the WAFCs must be made available, as required by operators, for fixed areas of coverage as shown in ICAO Annex 3, 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 must be fixed time prognostic charts for flight levels as specified in ICAO Annex 3, Appendix 2, paragraph 1.2.2 a). When forecasts of SIGWX phenomena listed under (c)(1)(vi) are supplied in chart form, they must be fixed time prognostic charts for an atmospheric layer limited by flight levels as specified in ICAO Annex 3, Appendix 2, paragraph 1.3.2 and Appendix 5, paragraph 4.3

(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 must be supplied as soon as they become available, but not later than 3 hours before departure. Other meteorological information requested for preflight planning and in-flight re-planning by the operator must be supplied as soon as is practicable.

(i) When necessary, the certified MET service provider providing service for operators and flight crew members must 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 must be supplied to operators and flight crew members at the location to be determined by the certified MET service 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 must be confined to flights originating within the territory of the KSA. At an aerodrome without an aerodrome meteorological office, arrangements for the supply of meteorological information must be as agreed upon between the certified MET service provider and the operator concerned.

(k) The arrangements and the contents of Meteorological information supplied to operators and flight crew members must be reported to the President.

§ 179.135 Briefing, Consultation and Display.

Note.— The requirements for the use of automated pre-flight information systems in providing briefing, consultation and display are given in § 179.139.

(a) Briefing and/or consultation must be provided, on request, to flight crew members and/or other flight operations personnel. Its purpose must 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 certified MET service provider and the operator, in lieu of flight documentation.

(b) Meteorological information used for briefing, consultation and display must include all of the information listed in § 179.133(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 must be drawn to the divergence. The portion of the briefing dealing with the divergence must be recorded at the time of briefing and this record must be made available to the operator

(d) The required briefing, consultation, display and/or flight documentation must 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 must be as agreed upon between the certified MET service provider and the operator concerned. In exceptional circumstances, such as an undue delay, the aerodrome meteorological office associated with the aerodrome must 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 and/or other flight operations personnel for whom briefing, consultation and/or flight documentation has been requested must visit the aerodrome meteorological office at the time agreed 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 must provide those services by telephone or other suitable telecommunications facilities.

(f) The arrangements related to the Meteorological information used for briefing, consultation and display must be reported to the President for acceptance.

§ 179.137 Flight Documentation.

Note.— The requirements for the use of automated pre-flight information systems in providing flight documentation are given in § 179.139.

(a) Flight documentation to be made available must comprise information listed under § 179.133(c)(I and vi), (c)(2), (c)(3), (c)(5) and, if appropriate, (c)(6) and (11). However, when agreed between the certified MET service provider and operator concerned, flight documentation for flights of two hours' duration or less, after a short stop or turnaround, must be limited to the information operationally needed, but in all cases the flight documentation must at least comprise information on § 179.133(c)(2), (c)(3), (c)(5) and, if appropriate, (c)(6) and (11).

(b) Whenever it becomes apparent that the meteorological information to be included in the flight documentation will differ materially from that made available for pre-flight planning and in-flight re-planning, the operator must 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 takeoff of the aircraft, the aerodrome meteorological office must issue the necessary

amendment or updated information to the operator or to the local air traffic services unit, for transmission to the aircraft.

§ 179.139 Automated Pre-Flight Information Systems for Briefing, Consultation, Flight Planning and Flight Documentation.

(a) Where the certified MET service 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 must comply with the relevant provisions in § 179.133 to 179.137 inclusive.

(b) Where automated pre-flight information systems are used to provide for a harmonized, common point of access to meteorological information and aeronautical information services information by operators, flight crew members and other aeronautical personnel concerned, the certified MET service provider must:

(1) establish arrangement with AIS service provider to supply regular and timely up- to-date meteorological information to ensure continuous updating of the automated pre-flight information systems database used for self-briefing, flight planning and flight information service in accordance with the requirements of GACAR Part 175 §175.147.

(2) remain responsible for the quality control and quality management of meteorological information provided by means of such systems.

Note.— The responsibilities relating to aeronautical information services information are addressed under GACAR Part 175.

§ 179.141 Information for Aircraft in Flight.

(a) Meteorological information for use by aircraft in flight must be supplied by an aerodrome meteorological office or meteorological watch office to its associated air traffic services 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 must be supplied on request, as agreed between the certified MET service provider and the operator concerned.

(b) Meteorological information for use by aircraft in flight must be supplied to air traffic services units in accordance with the specifications of Subpart K.

(c) Meteorological information must be supplied through D-VOLMET or VOLMET broadcasts in accordance with the specifications of Subpart L.

SUBPART K – INFORMATION FOR AIR TRAFFIC SERVICES, SEARCH AND RESCUE SERVICES AND AERONAUTICAL INFORMATION SERVICES

§ 179.151 Applicability

This Subpart prescribes the requirements for meteorological information that must be provided to air traffic services, search and rescue services and aeronautical information services. It incorporates and adopts by reference the Standards and Recommended Practices contained in Appendix 9 of ICAO Annex 3.

§ 179.153 Information for ATS Units.

(a) The certified MET service provider must designate an aerodrome meteorological office or meteorological watch office to be associated with each air traffic services unit. The associated aerodrome meteorological office or meteorological watch office must, after coordination with the air traffic services unit, supply, or arrange for the supply of, up-to-date meteorological information to the unit as necessary for the conduct of its functions.

(b) An aerodrome meteorological office must be associated with an aerodrome control tower or approach control unit for the provision of meteorological information.

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

(d) Where, owing to local circumstances, it is convenient for the duties of an associated aerodrome meteorological office or meteorological watch office to be shared between two or more aerodrome meteorological offices or meteorological watch offices, the division of responsibility must be determined by the certified MET service provider in consultation with the ATS provider.

(e) Any meteorological information requested by an air traffic services unit in connection with an aircraft emergency must be supplied as rapidly as possible.

§ 179.155 Information for SAR Units.

The certified MET service provider must supply SAR services units with the meteorological information they require in a form established by mutual agreement. For that purpose, the certified MET service provider must maintain liaison with the search and rescue services units throughout

a search and rescue operation.

§ 179.157 Information for AIS provider.

The certified MET service provider must supply up- to-date meteorological information to relevant AIS provider, as necessary, for the conduct of their functions.

SUBPART L – REQUIREMENTS FOR AND USE OF COMMUNICATIONS

§ 179.161 Applicability

This Subpart prescribes the requirements for and use of telecommunications facilities supporting the provision of aeronautical meteorological services. It incorporates and adopts by reference the Standards and Recommended Practices contained in Appendix 10 of ICAO Annex 3.

§ 179.163 Requirements for Communications.

(a) Suitable telecommunications facilities must be made available to permit aerodrome meteorological offices and, as necessary, aeronautical meteorological stations to supply the required meteorological information to air traffic services 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 telecommunications stations serving these aerodromes.

(b) Suitable telecommunications facilities must be made available to permit meteorological watch offices to supply the required meteorological information to air traffic services 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 telecommunications stations.

(c) Suitable telecommunications facilities must be made available to permit world area forecast centers to supply the required world area forecast system products to the certified MET service provider and other users.

(d) Telecommunications facilities between aerodrome meteorological offices and, as necessary, aeronautical meteorological stations and aerodrome control towers or approach control units must 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 aerodrome meteorological offices or meteorological watch offices and flight information centers, area control centers, rescue coordination centers must 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 must not exceed 5 minutes.

(f) The telecommunications facilities required in accordance with § 179.163 (d) and § 179.163 (e) can 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) Suitable telecommunications facilities must be made available to permit aerodrome meteorological offices to exchange operational meteorological information with other aerodrome meteorological offices.

(h) The telecommunications facilities used for the exchange of operational meteorological information must 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.

Note.— In Paragraph (d) and (e), "approximately 15 seconds" refers to telephony communications involving switchboard operation and "5 minutes" refers to printed communications involving retransmission.

§ 179.165 Use of Aeronautical Fixed Service Communications – Meteorological Bulletins in Alphanumeric Format.

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

§ 179.167 Use of Aeronautical Fixed Service Communications – WAFS Products.

World area forecast system products in digital form must be transmitted as determined by regional air navigation agreement.

§ 179.169 Use of Aeronautical Mobile Service Communications.

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

§ 179.171 Use of Aeronautical Data Link Service – Contents of D-VOLMET.

D-VOLMET must 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.

§ 179.173 Use of Aeronautical Broadcasting Service – Contents of VOLMET Broadcasts.

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

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

SUBPART M – QUALITY MANAGEMENT SYSTEM

§ 179.181 Applicability

This subpart prescribes the requirements for quality management system to be implemented by the certified MET provider.

Note. — The following reference material provides information that may be used in the development of a quality management system:

(a) Manual on the Quality Management System for the Provision of Meteorological Service for International Air Navigation ICAO Doc. 9873;

(b) WMO Guide to the Implementation of Quality Management Systems for National Meteorological and Hydrological Services and Other Relevant Service Provider (WMO-No. 1100);

(c) The International Organization for Standardization (ISO) 9000 series of quality assurance standards.

§ 179.183 Quality Management System.

(a) The certified MET service provider must establish and maintain a properly organized quality management system containing procedures, processes and resources necessary to implement quality management for all MET services provided under this part.

(b) The quality system must be in conformity with the International Organization for Standardization (ISO) 9000 series of quality assurance standards and certified by an approved organization.

(c) Within the context of the certified MET service provider quality system, the skills and knowledge required for each function must be identified and personnel assigned to perform those functions must be appropriately trained.

(d) The certified MET service provider must ensure that personnel possess the skills and competencies required to perform specific assigned functions, and appropriate records must be

maintained so that the qualifications of personnel can be confirmed. Initial and periodic assessments must be established that require personnel to demonstrate the required skills and competencies. Periodic assessments of personnel must be used as a means to detect and correct shortfalls.

(e) The quality system must 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 must not be supplied to the users unless it is validated with the originator.

(f) In regard to the exchange of meteorological information for operational purposes, the quality system must 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 must be capable of detecting excessive transit times of messages and bulletins received.

(g) Demonstration of compliance of the quality system applied must be by audit. If nonconformity of the system is identified, action must be initiated to determine and correct the cause. All audit observations must be evidenced and properly documented.

(h) Within the quality management system, if nonconformity is identified, initiating action to correct its cause must be determined and taken as follows -

(1) the procedure required for corrective action must specify how:

(i) to correct an existing quality problem; and

(ii) to follow up a corrective action to ensure the action is effective; and

(iii) to amend any procedure required under this Part as a result of a corrective action; and

(iv) management will measure the effectiveness of any corrective action taken.

(2) the procedure required for preventive action must specify how:

(i) to correct a potential quality problem; and

(ii) to follow-up a preventive action to ensure the action is effective; and

(iii) to amend any procedure required under this Part as a result of a preventive action; and

(iv) management will measure the effectiveness of any preventive action taken.

§ 179.185 Customer Forum.

The certified MET service provider must hold an annual forum, consultation or survey with its customers in order to determine the quality of the service provided and to ascertain whether or not it meets their requirements. GACA must be informed, in advance, and may attend any meetings as an observer.

§ 179.187 Users and Customer Feedback.

The certified MET service provider must address and respond to all customer feedback. Customers will have the right to address feedback to the President on issues when an issue raised remains open or not resolved.

§ 179.189 Meteorological Information Check after Aircraft Accident or Serious Incident.

(a) The certified MET service provider must establish procedures for:

(1) a full non-routine observation at the time of an aircraft accident on or in the vicinity of the aerodrome to ensure that complete details of the weather at the time of the incident will be available to an investigation.

(2) 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 aircraft accident or serious incident.

(b) The procedures must ensure that:

(1) the checks are carried out as soon as practicable after notification to the certified MET service provider of such an aircraft accident or serious incident; and

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

§ 179.191 Malfunctions and Erroneous Information.

The certified MET service provider must:

(a) Identify, record, investigate, and rectify any report of erroneous meteorological information;

(b) Identify, record, notify, investigate, and rectify any detected malfunction in the facilities and meteorological services that may result in the supply of erroneous meteorological information;

(c) Notify without delay all users that have received the erroneous meteorological information; and

(d) Submit reports to the President as prescribed under GACAR § 179.195; and

(e) Notify the President, within 12 hours, of those facility malfunctions that cannot be remedied within 72 hours.

SUBPART N – RECORDS AND REPORTS

§ 179.193 Document Retention.

(a) The certified MET service provider must 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 must be made available to the President and the KSA National Transport Safety Center, on request, for inquiries or investigations and, for these purposes, must be retained until the inquiry or investigation is completed.

(b) The certified MET service provider must retain qualification and training records for at least the last three years for all active meteorological personnel qualified and trained under Subpart B.

(c) The certified MET service provider must retain the records or erroneous meteorological information required under GACAR §179.191 for at least the last one year unless a longer period is prescribed by the President.

§ 179.195 Promulgated Information Incident Reports.

(a) The certified MET service provider must submit a promulgated information incident report to the President within 24 hours of the promulgated information incident.

(b) The report must include the following information;

(1) date and time of the incident;

(2) brief description of events;

(3) details to identify the meteorological information that was promulgated;

(4) details relating to the meteorological information that gave rise to the incident;

(5) name, organization, and contact details of the person notifying the incident.