

CIVIL AVIATION REGULATIONS

SURINAME

PART 19 - METEOROLOGICAL SERVICES

VERSION 1.0

DECEMBER

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19.1 APPLICABILITY

19.1.1 Applicability :

1. These Regulations shall apply to the meteorological services provider.
2. These Regulations do not apply to:
 - (a) a person who is providing a meteorological service in the course of his or her duties for the Military; or
 - (b) any meteorological service provided by the Military.

19.2 GENERAL PROVISIONS

19.2.1 Objective, determination and provision of meteorological service

- 19.2.1.1 The objective of meteorological service for air navigation shall be to contribute towards the safety, regularity and efficiency of national and international air navigation.
- 19.2.1.2 This objective shall be achieved by supplying the following users: operators, flight crew members, air traffic services units, search and rescue services units, airport managements and others concerned with the conduct or development of national and international air navigation, with the meteorological information necessary for the performance of their respective functions.
- 19.2.1.3 The meteorological authority shall determine the meteorological service which it will provide to meet the needs of national and international air navigation. This determination shall be made in accordance with the provisions of these regulations and with due regard to regional air navigation agreements; it shall include the determination of the meteorological service to be provided for air navigation over international waters and other areas which lie outside the territory of Suriname.
- 19.2.1.4 The meteorological service of the Ministry of Public Works shall provide or arrange for the provision of meteorological service for national and international air navigation on its behalf. Details of the meteorological service so designated is included in the Suriname aeronautical information publication GEN 3.5
- 19.2.1.5 The meteorological authority shall comply with the requirements of the World Meteorological Organization in respect of qualifications and training of meteorological personnel providing service for national and international air navigation.
- 19.2.1.6 Meteorological services for air navigation shall be provided in accordance with the Standards specified in:
 - (a) Annex 3 to the Convention including its appendices and attachments;
 - (b) the manual of Standards and Procedures for Aviation Weather Forecasts; and
 - (c) the manual of Surface Weather Observation

19.2.2 Supply, quality assurance and use of meteorological information

- 19.2.2.1 Close liaison shall be maintained between those concerned with the supply and those concerned with the use of meteorological information on matters which affect the provision of meteorological service for air navigation.
- 19.2.2.2 In order to meet the objective of meteorological service for air navigation, the meteorological authority referred to in 19.2.1.4 shall establish and implement a properly organized quality system comprising procedures, processes and resources necessary to provide for the quality management of the meteorological information to be supplied to the users listed in 19.2.1.2.

19.2.2.3 Audits shall be conducted to determine compliance of the quality system applied. 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.

19.2.2.4 The meteorological information supplied to the users listed in 19.2.1.2 shall be consistent with Human Factors principles and shall be in forms which require a minimum of interpretation by these users, as specified in the following chapters.

19.2.3 Notifications required from operators

19.2.3.1 An operator requiring meteorological service or changes in existing meteorological service shall notify, sufficiently in advance, the meteorological authority or the meteorological office concerned. The minimum amount of advance notice required shall be as agreed between the meteorological authority or meteorological office and the operator.

19.2.3.2 The meteorological authority shall be notified by the operator requiring service when:

- a) new routes or new types of operations are planned;
- b) changes of a lasting character are to be made in scheduled operations; and
- c) other changes, affecting the provision of meteorological service, are planned.

Such information shall contain all details necessary for the planning of appropriate arrangements by the meteorological services.

19.2.3.3 The aerodrome meteorological office, or the meteorological office concerned, shall be notified by the operator or a flight crew member:

- (a) of flight schedules;
- (b) when non-scheduled flights are to be operated; and
- (c) when flights are delayed, advanced or cancelled.

19.2.3.4 The notification to the aerodrome meteorological office, or the meteorological office concerned, 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 meteorological office and the operator:

- a) aerodrome of departure and estimated time of departure;
- b) destination and estimated time of arrival;
- c) route to be flown and estimated times of arrival at, and departure from, any intermediate aerodrome(s);
- d) alternate aerodromes needed to complete the operational flight plan and taken from the relevant list contained in the regional air navigation plan;
- e) cruising level;
- f) type of flight, whether under the visual or the instrument flight rules;
- g) type of meteorological information requested for a flight crew member, whether flight documentation and/or briefing or consultation; and
- h) time(s) at which briefing, consultation and/or flight documentation are required.

19.3 WORLD AREA FORECAST SYSTEM AND METEOROLOGICAL OFFICES

19.3.1 The world area forecast system

When providing aeronautical meteorological services, Suriname shall make the necessary effort to achieve the objectives of the world area forecast system which is to supply meteorological authorities and other users with forecasts of global upper aeronautical meteorological en-route

forecasts in digital form through a comprehensive, integrated, worldwide and, as far as practicable, uniform system, and in a cost-effective manner, taking full advantage of evolving technologies.

19.3.2 World area forecast centers

19.3.2.1 When having accepted the responsibility for providing a WAFC within the framework of the world area forecast system on behalf of Suriname, the meteorological authority shall arrange for that centre:

- a) to prepare for grid points for all required levels global forecasts of:
 - 1) upper winds;
 - 2) upper-air temperatures and humidity;
 - 3) geopotential altitude of flight levels;
 - 4) flight levels heights and temperature of tropopause; and
 - 5) direction, speed and flight level of maximum wind
- b) to prepare global forecasts of significant weather phenomena in digital form;
- c) to issue the forecasts referred to in a) and b) in digital form to meteorological authorities and other users in its service area;
- d) to receive information concerning the accidental release of radioactive materials into the atmosphere from its associated WMO regional specialized meteorological centre (RSMC) for the provision of transport model products for radiological environmental emergency response, in order to include the information in SIGWX forecasts; and
- e) to establish and maintain contact with VAACs for the exchange of information on volcanic activity in order to coordinate the inclusion of information on volcanic eruptions in significant weather forecasts.

19.3.2.2 In case of interruption of the operation of a WAFC, its functions shall be carried out by the other WAFC.

19.3.3 Meteorological offices

19.3.3.1 The 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 air navigation.

19.3.3.2 An aerodrome meteorological office shall carry out all or some of the following functions as necessary to meet the needs of flight operations at the aerodrome:

- a) prepare and/or obtain forecasts and other relevant information for flights with which it is concerned; the extent of its responsibilities to prepare forecasts shall be related to the local availability and use of en-route and aerodrome forecast material received from other offices;
- b) prepare and/or obtain forecasts of local meteorological conditions;
- c) maintain a continuous survey of meteorological conditions over the aerodromes for which it is designated to prepare forecasts;
- d) provide briefing, consultation and flight documentation to flight crew members and/or other flight operations personnel;
- e) supply other meteorological information to aeronautical users;
- f) display the available meteorological information;
- g) exchange meteorological information with other meteorological offices; and
- h) 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 and ATS authorities concerned.

- 19.3.3.3 The aerodrome meteorological offices at which flight documentation is required, as well as the areas to be covered, shall be determined by the meteorological authority in agreement with air navigation services provider.
- 19.3.3.4 The aerodromes for which landing forecasts are required shall be determined by the meteorological authority in agreement with air navigation services provider.
- 19.3.3.5 For aerodromes without meteorological offices:
- a) the meteorological authority concerned shall designate one or more meteorological offices to supply meteorological information as required; and
 - b) the competent authorities shall establish means by which such information can be supplied to the aerodromes concerned.

19.3.4 Meteorological watch offices

- 19.3.4.1 One or more meteorological watch offices shall be established where air traffic services within a flight information region or a control area is provided.
- 19.3.4.2 A meteorological watch office shall:
- a) maintain watch over meteorological conditions affecting flight operations within its area of responsibility;
 - b) prepare SIGMET and other information relating to its area of responsibility;
 - c) supply SIGMET information and, as required, other meteorological information to associated air traffic services units;
 - d) disseminate SIGMET information;
 - e) when required by regional air navigation agreement, in accordance with 19.7.2.1:
 - 1) prepare AIRMET information related to its area of responsibility;
 - 2) supply AIRMET information to associated air traffic services units; and
 - 3) disseminate AIRMET information;
 - f) supply information received on pre-eruption volcanic activity, a volcanic eruption and volcanic ash cloud for which a SIGMET has not already been issued, to its associated ACC/FIC, as agreed between the meteorological and ATS authorities concerned, and to its associated VAAC as determined by regional air navigation agreement; and
 - g) supply information received concerning the accidental release of radioactive materials into the atmosphere, in the area for which it maintains watch or adjacent areas, to its associated ACC/FIC, as agreed between the meteorological and ATS authorities concerned, and to aeronautical information service units, as agreed between the meteorological and appropriate civil aviation authorities concerned. The information shall comprise location, date and time of the accident release, and forecast trajectories of the radioactive materials.

19.3.5 Tropical cyclone advisory centers

- 19.3.5.1 When having accepted, by regional air navigation agreement, the responsibility for providing a TCAC on behalf of Suriname, the Meteorological Authority shall arrange for that centre to:
- a) monitor the development of tropical cyclones in its area of responsibility, using geostationary and polar-orbiting satellite data, radar data and other meteorological information;
 - b) issue advisory information concerning the position of the cyclone centre, its direction and speed of movement, central pressure and maximum surface wind near the centre; in abbreviated plain language to:
 - c) meteorological watch offices in its area of responsibility;

- d) other TCACs whose areas of responsibility may be affected; and
- e) world area forecast centers, international OPMET data banks, and centers designated by regional air navigation agreement for the operation of aeronautical fixed service satellite distribution systems; and
- f) issue updated advisory information to meteorological watch offices for each tropical cyclone, as necessary, but at least every six hours.

19.4 METEOROLOGICAL OBSERVATIONS AND REPORTS

19.4.1 Aeronautical meteorological stations and observations

- 19.4.1.1 Meteorological authority shall establish, at aerodromes in its territory, 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.
- 19.4.1.2 Aeronautical meteorological stations shall make routine observations at fixed intervals. At aerodromes, the routine observations shall be supplemented by special observations whenever specified changes occur in respect of surface wind, visibility, runway visual range, present weather, clouds and/or air temperature.
- 19.4.1.3 The aeronautical meteorological stations shall be inspected by CASAS 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.
- 19.4.1.4 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 shall be installed to support approach and landing and takeoff operations. These devices shall be integrated automatic systems for acquisition, processing, dissemination and display in real time of the meteorological parameters affecting landing and take-off operations. The design of integrated automatic systems shall observe Human Factors principles and include back-up procedures
- 19.4.1.5 The observations shall form the basis for the preparation of reports to be disseminated at the aerodrome of origin and for reports to be disseminated beyond the aerodrome of origin.
- 19.4.1.6 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.

19.4.2 Agreement between air traffic services authorities and meteorological authorities

- 19.4.2.1 An agreement between the meteorological authority and the appropriate ATS authority 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); and
- f) if available, meteorological information obtained from ground weather radar.

19.4.3 Routine observations and reports

- 19.4.3.1 At aerodromes, routine observations shall be made throughout the 24 hours each day, except as otherwise agreed between the meteorological authority, the appropriate ATS authority and the operator concerned. Such observations shall be made at intervals of one hour or, if so determined by regional air navigation agreement, at intervals of one half-hour. At other aeronautical meteorological stations, such observations shall be made as determined by the meteorological authority taking into account the requirements of air traffic services units and aircraft operations.
- 19.4.3.2 Reports of routine observations shall be issued as:
- a) local routine reports, only for dissemination at the aerodrome of origin, (intended for arriving and departing aircraft); and
 - b) METAR for dissemination beyond the aerodrome of origin (mainly intended for flight planning, VOLMET broadcasts and D-VOLMET).
- 19.4.3.3 At aerodromes that are not operational throughout 24 hours in accordance with 19.4.3.1, METAR shall be issued prior to the aerodrome resuming operations in accordance with regional air navigation agreement.

19.4.4 Special observations and reports

- 19.4.4.1 A list of criteria for special observations shall be established by the meteorological authority, in consultation with the appropriate ATS authority, operators and others concerned.
- 19.4.4.2 Reports of special observations shall be issued as:
- a) local special reports, only for dissemination at the aerodrome of origin, (intended for arriving and departing aircraft); and
 - b) SPECI for dissemination beyond the aerodrome of origin (mainly intended for flight planning, VOLMET broadcasts and DVOLMET) unless METAR are issued at half-hourly intervals.
- 19.4.4.3 At aerodromes that are not operational throughout 24 hours in accordance with 19.4.3.1, following the resumption of the issuance of METAR, SPECI shall be issued, as necessary.

19.4.5 Contents of reports

- 19.4.5.1 Local routine and special reports and METAR and SPECI shall contain the following elements in the order indicated:
- a) identification of the type of report;
 - b) location indicator;
 - c) time of the observation;
 - d) identification of an automated or missing report, when applicable;
 - e) surface wind direction and speed;
 - f) visibility;
 - g) runway visual range, when applicable;
 - h) present weather;

- i) cloud amount, cloud type (only for cumulonimbus and towering cumulus clouds) and height of cloud base or, where measured, vertical visibility;
 - j) air temperature and dew-point temperature; and
 - k) QNH and, when applicable, QFE (QFE included only in local routine and special reports).
- 19.4.5.3 Optional elements included under supplementary information shall be included in METAR and SPECI in accordance with regional air navigation agreement.

19.4.6 Observing and reporting meteorological elements

19.4.6.1 Surface wind

- (a) 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 meters per second (or knots), respectively.
- (b) Sensors for surface wind observations for local routine and special reports shall be sited to give the best practicable indication of conditions along the runway and touchdown zone. Additional sensors shall be provided at aerodromes where topography or prevalent weather conditions cause significant differences in surface wind at various sections of the runway.

19.4.6.2 Visibility

The visibility shall be measured or observed, and reported in meters or kilometers.

19.4.6.3 Runway visual range

- (a) Runway visual range shall be assessed on all runways intended for Category II and III instrument approach and landing operations.
- (b) The runway visual range, assessed in accordance with 19.4.6.3 (a), shall be reported in meters throughout periods when either the visibility or the runway visual range is less than 1 500 m.
- (c) Runway visual range assessments shall be representative of:
 - i) the touchdown zone of the runway intended for non-precision or Category I instrument approach and landing operations;
 - ii) the touchdown zone and the mid-point of the runway intended for Category II instrument approach and landing operations; and
 - iii) the touchdown zone, the mid-point and stop-end of the runway intended for Category III instrument approach and landing operations.
- (d) The units providing air traffic service and aeronautical information service for an aerodrome shall be kept informed without delay of changes in the serviceability status of the automated equipment used for assessing runway visual range.

19.4.6.4 Present weather

The present weather occurring at the aerodrome and/or its vicinity shall be observed and reported as necessary. The following present weather phenomena shall be identified as a minimum: precipitation and freezing precipitation (including intensity thereof), fog, freezing fog and thunderstorms (including thunderstorms in the vicinity).

19.4.6.5 Clouds

Cloud amount, cloud type and height of cloud base shall be observed, and reported as necessary to describe the clouds of operational significance. When the sky is obscured, vertical visibility shall be

observed and reported, where measured, in lieu of cloud amount, cloud type and height of cloud base. The height of cloud base and vertical visibility shall be reported in meters (or feet).

- 19.4.6.6 Air temperature and dew-point temperature
The air temperature and the dew-point temperature shall be measured and reported in degrees Celsius.
- 19.4.6.7 Atmospheric pressure
The atmospheric pressure shall be measured, and QNH and QFE values shall be computed and reported in hectopascals.
- 19.4.6.8 Supplementary information
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.

19.4.7 Reporting of meteorological information from automatic observing systems

METAR and SPECI from automatic observing systems shall be identified with the word "AUTO".

19.4.8 Observations and reports of volcanic activity

The occurrence of pre-eruption volcanic activity, volcanic eruptions and volcanic ash cloud shall be reported without delay to the associated air traffic services unit, aeronautical information services unit and 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.

19.5 AIRCRAFT OBSERVATIONS AND REPORTS

19.5.1 Obligations

Meteorological authority shall arrange, according to the provisions of this chapter, for observations to be made by aircraft operating on air routes and for the recording and reporting of these observations.

19.5.2 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.

19.5.3 Routine aircraft observations - designation

19.5.3.1 When voice communications are used, routine observations shall be made during the enroute phase in relation to those air traffic services reporting points or intervals:

- a) at which the applicable air traffic services procedures require routine position reports; and
- b) which are those separated by distances corresponding most closely to intervals of one hour of flying time.

19.5.3.2 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 19.5.3.1, as appropriate. The designation procedures shall be subject to regional air navigation agreement.

19.5.3.3 In the case of the requirement to report during the climb-out phase, an aircraft shall be designated, at approximately hourly intervals, at each aerodrome to make routine observations.

19.5.4 Routine aircraft observations - exemptions

When voice communications are used, an aircraft shall be exempted from making the routine observations specified in 19.5.3.1 when:

- a) the aircraft is not equipped with RNAV equipment; or
- b) the flight duration is 2 hours or less; or
- c) the aircraft is at a distance equivalent to less than one hour of flying time from the next intended point of landing; or
- d) the altitude of the flight path is below 1 500 m (5 000 ft).

19.5.5 Special aircraft observations

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

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

19.5.6 Other non-routine aircraft observations

When other meteorological conditions not listed under 19.5.5 (Special aircraft observations), 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.

19.5.7 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, 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.

19.5.8 Relay of air-reports by ATS units

The meteorological authority concerned shall make arrangements with the appropriate ATS authority to ensure that, on receipt by the ATS units of:

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

19.5.9 Recording and post-flight reporting of aircraft observations of volcanic activity

Special aircraft observations of pre-eruption volcanic activity, a volcanic eruption or volcanic ash cloud shall be recorded on the special air-report of volcanic activity form.

A copy of the form shall be included with the flight documentation provided to flights operating on routes which, in the opinion of the meteorological authority concerned, could be affected by volcanic ash clouds.

19.6 FORECASTS

19.6.1 Interpretation and use of forecasts

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

19.6.1.2 The issue of a new forecast by a 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.

19.6.2 Aerodrome forecasts

19.6.2.1 An aerodrome forecast shall be prepared by the meteorological office designated by the meteorological authority concerned.

19.6.2.2 An aerodrome forecast shall be issued at a specified time and consist of a concise statement of the expected meteorological conditions at an aerodrome for a specified period.

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

- a) identification of the type of forecast;
- b) location indicator;
- c) time of issue of forecast;
- d) identification of a missing forecast, when applicable;
- e) date and period of validity of forecast;
- f) identification of a cancelled forecast, when applicable;
- g) surface wind;
- h) visibility;
- i) weather;
- j) cloud; and
- k) 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.

19.6.2.4 Meteorological offices preparing TAF shall keep the forecasts under continuous review and, when necessary, shall issue amendments promptly. The length of the forecast messages and the number of changes indicated in the forecast shall be kept to a minimum.

19.6.2.5 TAF that cannot be kept under continuous review shall be cancelled.

19.6.2.6 When issuing TAF, meteorological offices shall ensure that not more than one TAF is valid at an aerodrome at any given time.

19.6.3 Landing forecasts

19.6.3.1 A landing forecast shall be prepared by the meteorological office designated by the meteorological authority concerned as determined by regional air navigation agreement; such forecasts are intended to meet requirements of local users and of aircraft within about one hour's flying time from the aerodrome.

19.6.3.2 Landing forecasts shall be prepared in the form of a trend forecast.

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

19.6.4 Forecasts for take-off

19.6.4.1 A forecast for take-off shall be prepared by the meteorological office designated by the meteorological authority concerned.

19.6.5 Area forecasts for low-level flights

19.6.5.1 When the density of traffic operating below flight level 100 (or up to flight level 150 in mountainous areas, or higher, where necessary) warrants the routine issue and dissemination of area forecasts for such operations, the frequency of issue, the form and the fixed time or period of validity of those forecasts and the criteria of amendments thereto shall be determined by the meteorological authority in consultation with the users.

- 19.6.5.2 When the density of traffic operating below flight level 100 warrants the issuance of AIRMET information in accordance with 19.7.2.1, area forecasts for such operations shall be prepared in a format agreed upon between the meteorological authorities concerned. When abbreviated plain language is used, the forecast shall be prepared as a GAMET area forecast, employing approved ICAO abbreviations and numerical values; when chart form is used, shall be prepared as a combination of forecast of upper wind and upper-air temperature, and of SIGWX phenomena. The area forecasts shall be issued to cover the layer between the ground and flight level 100 (or up to flight level 150 in mountainous areas, or higher, where necessary) and shall contain information on en-route weather phenomena hazardous to low-level flights, in support of the issuance of AIRMET information, and additional information required by low-level flights.
- 19.6.5.3 Area forecasts for low-level flights prepared in support of the issuance of AIRMET information shall be issued every 6 hours for a period of validity of 6 hours and transmitted to meteorological offices concerned not later than one hour prior to the beginning of their validity period.

19.7 SIGMET AND AIRMET INFORMATION, AERODROME WARNINGS AND WIND SHEAR WARNINGS

19.7.1 SIGMET information

- 19.7.1.1 SIGMET information shall be issued by a meteorological watch office and shall give a concise description in abbreviated plain language concerning the occurrence and/or expected occurrence of specified en-route weather phenomena, which may affect the safety of aircraft operations, and of the development of those phenomena in time and space.
- 19.7.1.2 SIGMET information shall be cancelled when the phenomena are no longer occurring or are no longer expected to occur in the area.
- 19.7.1.3 The period of validity of a SIGMET message shall be not more than 4 hours. In the special case of SIGMET messages for volcanic ash cloud and tropical cyclones, the period of validity shall be extended up to 6 hours.
- 19.7.1.5 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.
- 19.7.1.6 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 or 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.

19.7.2 AIRMET information

- 19.7.2.1 AIRMET information shall be issued by a meteorological watch office in accordance with regional air navigation agreement, taking into account the density of air traffic operating below flight level 100. AIRMET information shall give a concise description in abbreviated plain language concerning the occurrence and/or expected occurrence of specified en-route weather phenomena, which have not been included in Section I of the area forecast for low-level flights issued in accordance with 19.6.5 and which may affect the safety of low-level flights, and of the development of those phenomena in time and space.

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

19.7.2.3 The period of validity of an AIRMET message shall be not more than 4 hours.

19.7.3 Aerodrome warnings

Aerodrome warnings shall be issued by the meteorological office designated by the meteorological authority concerned 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.

19.7.4 Wind shear warnings and alerts

19.7.4.1 Wind shear warnings shall be prepared by the meteorological office designated by the meteorological authority concerned for aerodromes where wind shear is considered a factor, in accordance with local arrangements with the appropriate ATS unit and operators concerned. Wind shear warnings shall give concise information on the observed or expected existence of wind shear which could adversely affect aircraft on the approach path or take-off path or during circling approach between runway level and 500 m (1 600 ft) 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 500 m (1 600 ft) above runway level, then 500 m (1 600 ft) shall not be considered restrictive.

19.7.4.2 At aerodromes where wind shear is detected by automated, ground-based, wind shear remote-sensing or detection equipment, wind shear alerts generated by these systems shall be issued. Wind shear alerts shall give concise, up-to-date information related to the observed existence of wind shear involving a headwind/tailwind change of 30 km/h (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.

19.8 AERONAUTICAL CLIMATOLOGICAL INFORMATION

19.8.1 General provisions

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

19.8.2 Aerodrome climatological tables

Meteorological authority shall make arrangements for collecting and retaining the necessary observational data and have the capability:

- a) to prepare aerodrome climatological tables for each regular and alternate international aerodrome within its territory; and
- b) to make available such climatological tables to an aeronautical user within a time period as agreed between the meteorological services and that user.

19.8.3 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.

19.8.4 Copies of meteorological observational data

The meteorological authority, on request and to the extent practicable, shall make available to any other meteorological authority, 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.

19.9 SERVICE FOR OPERATORS AND FLIGHT CREW MEMBERS

19.9.1 General provisions

19.9.1.1 Meteorological information shall be supplied to operators and flight crew members for:

- a) pre-flight planning by operators;
- b) in-flight re-planning by operators using centralized operational control of flight operations;
- c) use by flight crew members before departure; and
- d) aircraft in flight.

19.9.1.2 Meteorological information supplied to operators and flight crew members shall cover the flight in respect of time, altitude and geographical extent. Accordingly, the information shall relate to appropriate fixed times, or periods of time, and shall extend to the aerodrome of intended landing, also covering the meteorological conditions expected between the aerodrome of intended landing and one alternate aerodrome designated by the operator.

19.9.1.3 Meteorological information supplied to operators and flight crew members shall be up to date and include the following information, as established by meteorological authority in consultation with operators concerned:

- a) forecasts of
 - 1) upper wind and upper-air temperature;
 - 2) upper-air humidity;
 - 3) geopotential altitude of flight levels;
 - 4) flight level and temperature of tropopause;
 - 5) direction, speed and flight level of maximum wind; and
 - 6) SIGWX phenomena;
- b) METAR or SPECI (including trend forecasts as issued in accordance with regional air navigation agreement) for the aerodromes of departure and intended landing, and for take-off, en-route and destination alternate aerodromes;
- c) TAF or amended TAF for the aerodromes of departure and intended landing, and for take-off, en-route and destination alternate aerodromes;
- d) forecasts for take-off;
- e) SIGMET information and appropriate special air-reports, relevant to the whole route;
- f) 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 insurance of AIRMET information, and AIRMET information for low-level flights relevant to the whole route;
- g) aerodrome warnings for the local aerodrome;
- h) meteorological satellite images; and

- i) ground-based weather radar information.
- 19.9.1.4 When forecasts are identified as being originated by the WAFCs, no modifications shall be made to their meteorological content.
- 19.9.1.5 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 Implementing Standards 19.9.1.5, figures A8-1, A8-2 and A8-3.
- 19.9.1.6 When forecasts of upper wind and upper-air temperature listed under 19.9.1.3 a) 1) are supplied in chart form, they shall be fixed time prognostic charts for flight levels as specified in Implementing Standards 19.9.1.6. When forecasts of SIGWX phenomena listed under 19.9.1.3 a) 6) are supplied in chart form they shall be fixed time prognostic charts for an atmospheric layer limited by flight levels as specified Implementing Standards 19.9.1.6.(a) and 19.9.1.6.(b).
- 19.9.1.7 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 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 practicable.
- 19.9.1.8 Where necessary, the meteorological authority 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.
- 19.9.1.9 Meteorological information shall be supplied to operators and flight crew members at the location to be determined by the meteorological authority , after consultation with the operators and at the time to be agreed upon between the meteorological office and the operator concerned. The service for pre-flight planning shall be confined to flights originating within the territory of Suriname. At an aerodrome without a meteorological office, arrangements for the supply of meteorological information shall be as agreed upon between the meteorological authority and the operator concerned.
- 19.9.2 Briefing, consultation and display**
- 19.9.2.1 Briefing and/or consultation shall be provided, on request, to flight crew members and/or other flight operations personnel. Its purpose shall be to supply the latest available information on existing and expected meteorological conditions along the route to be flown, at the aerodrome of intended landing, alternate aerodromes and other aerodromes as relevant, either to explain and amplify the information contained in the flight documentation or, if so agreed between the meteorological authority and the operator, in lieu of flight documentation.
- 19.9.2.2 Meteorological information used for briefing, consultation and display shall include any or all of the information listed in 19.9.1.3.
- 19.9.2.3 If the 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.
- 19.9.2.4 The required briefing, consultation, display and/or flight documentation shall normally be provided by the 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 meteorological authority and the operator concerned. In exceptional circumstances, such as an undue delay, the 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.

19.9.3 Flight documentation

- 19.9.3.1 Flight documentation to be made available shall comprise information listed under 19.9.1.3 a), 1) and 6), b), c), e), and, if appropriate, f). However, when agreed between the 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 19.9.1.3 b), c), e), and, if appropriate, f).
- 19.9.3.2 Whenever it becomes apparent that the meteorological information to be included in the flight documentation will differ materially from that made available for pre-flight planning and in-flight re-planning, the operator shall be advised immediately and, if practicable, be supplied with the revised information as agreed between the operator and the meteorological office concerned.
- 19.9.3.3 The 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.

19.9.4 Automated pre-flight information systems for briefing, consultation, flight planning and flight documentation

- 19.9.4.1 Where the 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 19.9.1 to 19.9.4 inclusive.
- 19.9.4.2 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, the meteorological authority shall remain responsible for the quality control and quality management of meteorological information provided by means of such systems.

19.9.5 Information for aircraft in flight

- 19.9.5.1 Meteorological information for use by aircraft in flight shall be supplied by a meteorological 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 shall be supplied on request, as agreed between the meteorological authority or authorities and the operator concerned.
- 19.9.5.2 Meteorological information for use by aircraft in flight shall be supplied to air traffic services units in accordance with the specifications of 19.10.
- 19.9.5.3 Meteorological information shall be supplied through D-VOLMET or VOLMET broadcasts in accordance with the specifications of 19.11.

19.10 INFORMATION FOR AIR TRAFFIC SERVICES, SEARCH AND RESCUE SERVICES, AERONAUTICAL INFORMATION SERVICES AND AIRCRAFT ACCIDENT AND INCIDENT INVESTIGATION AUTHORITY.

19.10.1 Information for air traffic services units

19.10.1.1 The meteorological authority shall designate a meteorological office to be associated with each air traffic services unit. The associated meteorological office shall, 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.

19.10.1.2 The associated meteorological office for an aerodrome control tower or approach control unit shall be an aerodrome meteorological office.

19.10.1.3 The associated meteorological office for a flight information centre or an area control centre shall be a meteorological watch office.

19.10.1.4 Where, owing to local circumstances, it is convenient for the duties of an associated meteorological office to be shared between two or more meteorological offices, the division of responsibility shall be determined by the meteorological services in consultation with the appropriate ATS authority.

19.10.1.5 Any meteorological information requested by an air traffic services unit in connection with an aircraft emergency shall be supplied as rapidly as possible.

19.10.2 Information for search and rescue services units

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

19.10.3 Information for aeronautical information services units

The meteorological authority, in coordination with the appropriate civil aviation authority, shall arrange for the supply of up-to-date meteorological information to relevant aeronautical information services units, as necessary, for the conduct of their functions.

19.10.4 Information for aircraft accident and incident investigation authority

Any meteorological information requested by an investigator in connection with an aircraft accident or incident shall be supplied as rapidly as possible.

19.11 REQUIREMENTS FOR AND USE OF COMMUNICATIONS

19.11.1 Requirements for communications

19.11.1.1 Suitable telecommunications facilities shall be made available to permit aerodrome meteorological offices and, as necessary, aeronautical meteorological stations to supply the required meteorological information to air traffic services units on the aerodromes for which those offices and stations are

responsible, and in particular to aerodrome control towers, approach control offices and the aeronautical telecommunications stations serving these aerodromes.

- 19.11.1.2 Suitable telecommunications facilities shall 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.
- 19.11.1.3 Suitable telecommunications facilities shall be made available to permit world area forecast centers to supply the required world area forecast system products to meteorological offices, meteorological authorities and other users.
- 19.11.1.4 Telecommunications facilities between meteorological offices and, as necessary, aeronautical meteorological stations and aerodrome control towers or approach control offices 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.
- 19.11.1.5 Suitable telecommunications facilities shall be made available to permit meteorological Offices to exchange operational meteorological information with other meteorological offices.
- 19.11.2 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 shall be originated by the appropriate meteorological office or aeronautical meteorological station.

19.11.3 Use of aeronautical mobile service communications

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

19.11.4 Use of aeronautical data link service - contents of D-VOLMET

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

19.11.5 Use of aeronautical broadcasting service - contents of VOLMET broadcasts

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

19.12 METEOROLOGICAL SERVICE PROVIDER TRAINING PROGRAM

19.12.1 Training Program

A meteorological service provider shall establish procedures and programs for the training and assessment of all newly appointed and current technical staff.

19.12.2 The training and education programme shall be governed by the following criteria:

- a) Training and education shall be in accordance to guidelines of WMO;
- b) Aeronautical Meteorological Forecaster (AMF) and Aeronautical Meteorological Technician (AMT) shall have continuing education and training at a minimum frequency of once every 3 years and once every 5 years respectively;
- c) The programme shall include a training plan detailing and prioritizing the type of training to be provided in a certain period.

19.12.3 Training Syllabus

An meteorological service provider shall establish procedures to ensure that the training programs for each course shall be comprehensive and facilitate achievement of training goals through a syllabus, which reflects required competencies. The syllabus must ensure compliance with relevant national and international requirements.

19.12.4 Training Delivery and Assessment

Training courses for staff of the meteorological service provider shall use a method of delivery consistent with using facilities and instructors, or training officers, with current expertise and identified qualifications appropriate to achieving the goals of the course.

The method of assessment, both theoretical and practical, shall be qualified assessors and appropriate processes and facilities.

19.12.5 Training Records

Training records of the staff of the Meteorological Service Provider shall be maintained to show what competences technical staff possess, and to show what training has been carried out, and the results of that training.

19.12.6 Refresher Training

Refresher training for the staff of the Meteorological Service Provider involves periodic training and assessment of individuals performing functions in meteorological services in those competencies (knowledge and skills) which are essential, but infrequently or rarely used. The content and periodicity of refresher training shall be sufficient to ensure competency.

19.12.7 On-going Training

The training program shall provide for on-going training of the technical staff of the Meteorological Service Provider, as necessary, to ensure that staff are competent in the use of new or emerging standards, procedures, techniques, facilities and equipment identified as essential to task performance.

19.12.8 Remedial Training

The training program for the technical staff of the Meteorological Service Provider shall have a process which identifies deficiencies in knowledge or application, and must have a process to ensure these deficiencies are rectified.

19.12.9 Qualifications of Trainers and Checkers

Persons carrying out training and/or checking functions as part of the Meteorological Service Provider's training programme shall be appropriately qualified for these functions.

**CIVIL AVIATION REGULATIONS
SURINAME**

PART 19 - IMPLEMENTING STANDARDS

VERSION 1.0

DECEMBER 2010

For ease of reference, the number assigned to each implementing standard corresponds to its associated regulation. For example, IS: 19.9.1.6 would reflect a standard required in subsection 19.9.1.6

IS: 19.9.1.5 WAFS forecast in chart form

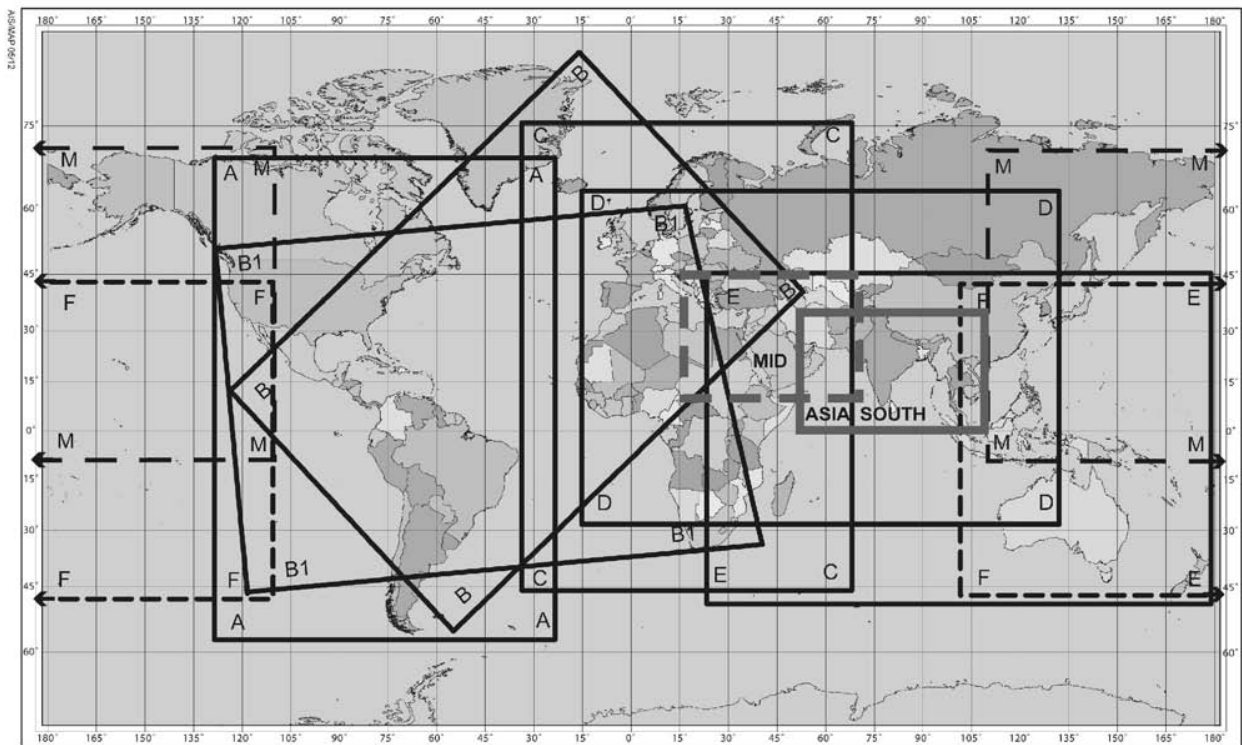
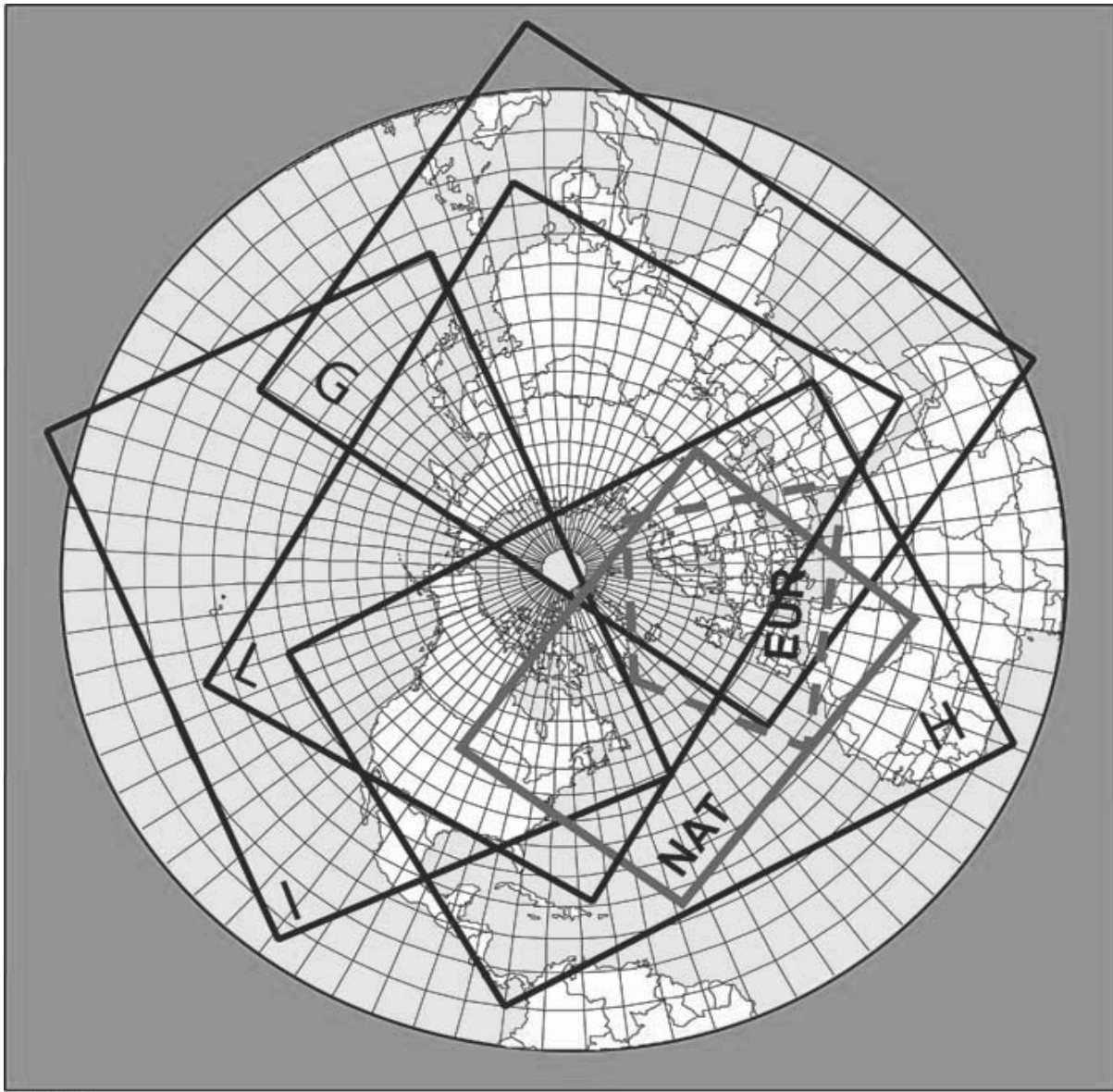


Figure A8-1. Fixed areas of coverage of WAFS forecasts in chart form — Mercator projection

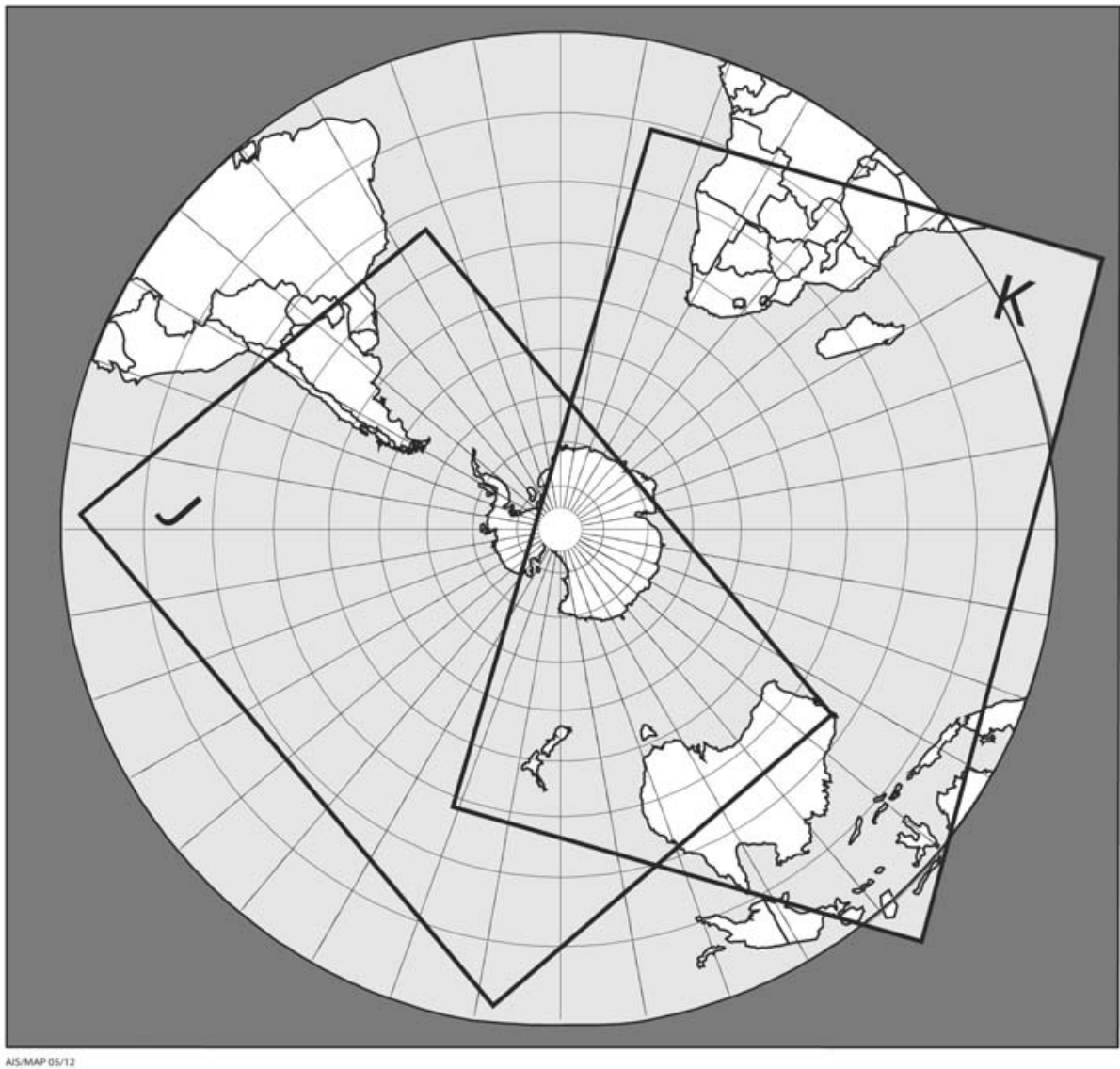
CHART	LATITUDE	LONGITUDE	CHART	LATITUDE	LONGITUDE
A	N7000	W12500	D	N6500	W01500
A	N7000	W02500	D	N6500	E13200
A	S5500	W02500	D	S2800	E13200
A	S5500	W12500	D	S2800	W01500
ASIA	N3600	E05300	E	N4500	E02500
ASIA	N3600	E10800	E	N4500	E18000
ASIA	0000	E10800	E	S4700	E18000
ASIA	0000	E05300	E	S4700	E02500
B	N8500	W01500	F	N4230	W11000
B	N4330	E05300	F	S4730	W11000
B	S5200	W05000	F	S4730	E10000
B	N1500	W12500	F	N4230	E10000
B1	N5000	W12800	M	S1000	E11000
B1	N6000	E01500	M	N7200	E11000
B1	S3500	E04000	M	N7200	W11000
B1	S4600	W10800	M	S1000	W11000
C	N7600	W03230	MID	N4400	E01700
C	N7600	E07000	MID	N4400	E07000
C	S4500	E07000	MID	N1000	E07000
C	S4500	W03230	MID	N1000	E07000



AIS/MAP 05/12

Figure A8-2. Fixed areas of coverage of WAFS forecasts in chart form — Polar stereographic projection (northern hemisphere)

CHART	LATITUDE	LONGITUDE	CHART	LATITUDE	LONGITUDE
EUR	N5830	E06800	I	N0200	W11000
EUR	N2600	E03145	I	N4000	W03953
EUR	N2100	W02130	I	N2000	E13000
EUR	N4700	W05800	I	S0500	E18000
G	S1000	E11000	L	N1205	E11449
G	S0530	E04515	L	N1518	E4500
G	N3500	W02000	L	N2020	E6900
G	N2000	E16500	L	N1413	E14338
H	N0230	W00500	NAT	N4454	W10130
H	N2500	E05600	NAT	N1953	E00945
H	N3000	W14500	NAT	N1721	W05354
H	N0500	W08000	NAT	N5047	E06004



AIS/MAP 05/12

Figure A8-3. Fixed areas of coverage of WAFS forecasts in chart form — Polar stereographic projection (southern hemisphere)

CHART	LATITUDE	LONGITUDE
J	S2305	W03700
J	S2245	E11322
J	S0616	E17245
J	S0722	W09347
K	S1000	E00500
K	S2845	W16730
K	N0500	E12800
K	N1200	E05500

IS: 19.9.1.6 THE GRID POINT FORECASTS

The grid point forecasts prepared by a WAFC shall comprise:

- a) wind and temperature data for flight levels 50 (850 hPa), 100 (700 hPa), 140 (600 hPa), 180 (500 hPa), 240 (400 hPa), 300 (300 hPa), 340 (250 hPa), 390 (200 hPa), 450 (150 hPa), and 530 (100 hPa);

IS: 19.9.1.6(a) TYPES OF SIGWX FORECASTS

Types of SIGWX forecasts

SIGWX forecasts shall be issued as:

- a) high-level SIGWX forecasts for flight levels between 250 and 630; and
- b) medium-level SIGWX forecasts for flight levels between 100 and 250 for limited geographical areas, as determined by regional air navigation agreement.

IS: 19.9.1.6(b)

Content of area forecasts for low-level flights in chart form

When chart form is used for area forecasts for low-level flights, the forecast of SIGWX phenomena shall be issued as low-level SIGWX forecast for flight levels up to 100 (or up to flight level 150 in mountainous areas, or higher, where necessary).

Low-level SIGWX forecasts shall include the following items:

- a) the phenomena warranting the issuance of a SIGMET which are expected to affect low-level flights; and
- b) the elements in area forecasts for low-level flights except elements concerning:
 - 1) upper winds and temperatures; and
 - 2) forecast QNH.