BELIZE

DEPARTMENT OF

CIVIL AVIATION

BELIZE CIVIL AVIATION REGULATIONS
AERONAUTICAL METEOROLOGICAL SERVICES
BCAR AMS

First Issue
Revision: 0
Date: 10/03/2013

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Issue and Revision System

AMMENDMENTS TO THIS RULE WILL BE INDICATED BY A VERTICAL BAR IN THE LEFT MARGIN NEXT TO THE LINE, SECTION OR FIGURE THAT IS BEING AFFECTED. AN ISSUE WILL BE THE REPLACEMENT OF THE ENTIRE DOCUMENT BY ANOTHER.

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Preamble

The BCAR AMS was emitted on May 2013 and it was developed based on ICAO's Annex 03, seventeenth edition of July 2010, this edition incorporates all amendments adopted by the Council prior to 23 February 2010 and supersedes, on 18 November 2010, all previous editions of Annex 3.

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List of effective pages

PAGE NUMBER	REVISION NUMBER	DATE
Front Cover	First issue	10/03/2013
IRS-1	First issue	10/03/2013
RR-1	First issue	10/03/2013
RR-2	First issue	10/03/2013
P-1	First issue	10/03/2013
P-2	First issue	10/03/2013
LEP-1	First issue	10/03/2013
TC-1	First issue	10/03/2013
TC-2	First issue	10/03/2013
TC-3	First issue	10/03/2013
SECTION 1		
1-0-1	First issue	10/03/2013
1-0-2	First issue	10/03/2013
Subpart A		
1-A-1	First issue	10/03/2013
1-A-2	First issue	10/03/2013
1-A-3	First issue	10/03/2013
1-A-4	First issue	10/03/2013
1-A-5	First issue	10/03/2013
Subpart B		
1-B-1	First issue	10/03/2013
1-B-2	First issue	10/03/2013
1-B-3	First issue	10/03/2013
1-B-4	First issue	10/03/2013
Subpart C		
1-C-1	First issue	10/03/2013
1-C-2	First issue	10/03/2013
1-C-3	First issue	10/03/2013
Subpart D		
1-D-1	First issue	10/03/2013
1-D-2	First issue	10/03/2013
1-D-3	First issue	10/03/2013
1-D-4	First issue	10/03/2013
1-D-5	First issue	10/03/2013
Subpart E		
1-E-1	First issue	10/03/2013
1-E-2	First issue	10/03/2013
Subpart F		
1-F-1	First issue	10/03/2013
1-F-2	First issue	10/03/2013
Subpart G		
1-G-1	First issue	10/03/2013
1-G-2	First issue	10/03/2013
Subpart H		
1-H-1	First issue	10/03/2013

PAGE NUMBER	REVISION NUMBER	DATE
Subpart I		
1-I-1	First issue	10/03/2013
1-I-2	First issue	10/03/2013
1-I-3	First issue	10/03/2013
Subpart J		
1-J-1	First issue	10/03/2013
Subpart K		
1-K-1	First issue	10/03/2013
1-K-2	First issue	10/03/2013
SECTION 2		
2-0-1	First issue	10/03/2013
2-0-2	First issue	10/03/2013
Subpart A		
2-A-1	First issue	10/03/2013
2-A-2	First issue	10/03/2013
Subpart B		
2-B-1	First issue	10/03/2013
2-B-2	First issue	10/03/2013
Subpart C		
2-C-1	First issue	10/03/2013
2-C-2	First issue	10/03/2013
Subpart D		
2-D-1	First issue	10/03/2013
2-D-2	First issue	10/03/2013
Subpart E		
2-E-1	First issue	10/03/2013
Subpart F		
2-F-1	First issue	10/03/2013
Subpart G		
2-G-1	First issue	10/03/2013
Subpart H		
2-H-1	First issue	10/03/2013
Subpart I		
2-I-1	First issue	10/03/2013
Subpart J		
2-J-1	First issue	10/03/2013
Subpart K		
2-K1	First issue	10/03/2013

Table of Contents

SECTION 1-REQUIREMENTS

Presentation and generalities

1 PRESENTATION

1.1 Section one of BCAR AMS is presented in double columns. Each page is identified by its edition or amendment date that was incorporated.

1.2 This section Font is arial 10.

2 INTRODUCTION

2.1.1 This document contains the requirements for the development and applicability of the Aeronautical Meteorological Services.

2.2 This document is based on ICAO's Annex 03 text, seventeenth edition of July 2010, issued and published by the International Civil Aviation Organization (ICAO).

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SUBPART A AERONAUTICAL METEOROLOGICAL SERVICES

CHAPTER 1- DEFINITIONS
(See IEM AMS CHAPTER 1)

BCAR AMS 1.1 Definitions

When the following terms are used in this regulation, they have the following meanings:

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

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

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

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

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

Aerodrome meteorological office. An office, located at an aerodrome, designated to provide meteorological service for international air navigation.

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

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

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

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

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

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

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

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

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

Air-report. A report from an aircraft in flight prepared in conformity with requirements for position, and operational and/or meteorological reporting.
(See IEM AMS 1.0)

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

Alternate aerodrome. An aerodrome to which an aircraft may proceed when it becomes either

impossible or inadvisable to proceed to or to land at the aerodrome of intended landing. Alternate aerodromes include the following:
(See IEM AMS 1.0)

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

En-route alternate aerodrome: An aerodrome at which an aircraft would be able to land after experiencing an abnormal or emergency condition while en route.

ETOPS en-route alternate aerodrome: A suitable and appropriate alternate aerodrome at which an aeroplane would be able to land after experiencing an engine shutdown or other abnormal or emergency condition while en route in an ETOPS operation.

Destination alternate aerodrome: An alternate aerodrome to which an aircraft may proceed should
it become either impossible or inadvisable to land at the aerodrome of intended landing.
(See IEM AMS 1.0)

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

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

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

Area control centre. A unit established to provide air traffic control service to controlled flights in control areas under its jurisdiction.

Area navigation (RNAV). A method of navigation which permits aircraft operation on any desired flight path within the coverage of ground- or space-based navigation aids or within the limits of the capability of self-contained aids, or a combination of these.
(See IEM AMS 1.0)

Automatic dependent surveillance (ADS). A surveillance technique in which aircraft automatically provide, via a data link, data derived from on-board navigation and position-fixing systems, including aircraft identification, four-dimensional position and additional data as appropriate.

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

Cloud of operational significance. A cloud with the height of cloud base below 1 500 m (5 000 ft) or below the highest minimum sector altitude, whichever is greater, or a cumulonimbus cloud or a towering cumulus cloud at any height.

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

Control area. A controlled airspace extending upwards from a specified limit above the earth.

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

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

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

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

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

Flight information centre. A unit established to provide flight information service and alerting service.

Flight information region. An airspace of defined dimensions within which flight information service

and alerting service are provided.

Flight level. A surface of constant atmospheric pressure which is related to a specific pressure datum, 1013.2 hectopascals (hPa), and is separated from other such surfaces by specific pressure intervals.
(See IEM AMS 1.0)

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

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

Grid point data in digital form. Computer processed meteorological data for a set of regularly spaced points on a chart,for transmission from a meteorological computer to another computer in a code form suitable for automated use.
(See IEM AMS 1.0)

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

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

International airways volcano watch (IAVW). International arrangements for monitoring and providing warnings to aircraft of volcanic ash in the atmosphere.
(See IEM AMS 1.0)

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

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

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

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

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

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

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

Minimum sector altitude. The lowest altitude which may be used which will provide a minimum clearance of 300 m(1 000 ft) above all objects located in an area contained within a sector of a circle of 46 km (25 NM) radius centred on a radio aid to navigation.

Navigation specification. A set of aircraft and flight crew requirements needed to support performance-based navigation operations within a defined airspace. There are two kinds of navigation specifications:
(See IEM AMS 1.0)

Required navigation performance (RNP) specification. A navigation specification based on area navigation that includes the requirement for performance monitoring and alerting, designated by the prefix RNP, e.g. RNP 4, RNP APCH.

Area navigation (RNAV) specification. A navigation specification based on area navigation that does not include the requirement for performance monitoring and alerting, designated by the prefix RNAV, e.g. RNAV 5, RNAV 1.

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

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

the regularity and efficiency of the flight.

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

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

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

Performance-based navigation (PBN). Area navigation based on performance requirements for aircraft operating along an ATS route, on an instrument approach procedure or in a designated airspace.
(See IEM AMS 1.0)

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

Prevailing visibility. The greatest visibility value, observed in accordance with the definition of "visibility", which is reached within at least half the horizon circle or within at least half of the surface of the aerodrome. These areas could comprise contiguous or non-contiguous sectors.
(See IEM AMS 1.0)

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

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

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

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

Regional air navigation agreement. Agreement approved by the Council of ICAO normally on the advice of a regional air navigation meeting.

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

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

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

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

Search and rescue services unit. A generic term meaning, as the case may be, rescue coordination centre, rescue subcentre or alerting post.

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

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

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

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

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

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

maximum surface wind of tropical cyclones.

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

Visibility. Visibility for aeronautical purposes is the greater of:
(See IEM AMS 1.0)

a) the greatest distance at which a black object of suitable dimensions, situated near the ground, can be seen and recognized when observed against a bright background;
b) the greatest distance at which lights in the vicinity of 1 000 candelas can be seen and identified against an unlit background.

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

VOLMET. Meteorological information for aircraft in flight.

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

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

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

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

BCAR AMS 1.2 Terms used with a limited meaning

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

a) to avoid confusion in respect of the term “service” between the meteorological service considered as an administrative entity and the service which is provided, “meteorological authority” is used for the former and “service” for the latter;

b)“provide” is used solely in connection with the provision of service;

c)“issue” is used solely in connection with cases where the obligation specifically extends to sending out thenformation to a user;

d)“make available” is used solely in connection with cases where the obligation ends with making the information accessible to a user; and

e) “supply” is used solely in connection with cases where either c) or d) applies.

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SUBPART B

CHAPTER 2 - GENERAL PROVISIONS

(See IEM AMS CHAPTER 2)

2.1 Objective, determination and provision of meteorological service

BCAR AMS 2.1.1 The objective of meteorological service for international air navigation shall be to contribute towards the safety, regularity and efficiency of international air navigation

BCAR AMS 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 international air navigation, with the meteorological information necessary for the performance of their respective functions.

BCAR AMS 2.1.3 The State of Belize is determined to be the National Meteorological Service of Belize which provides to meet the needs of international air navigation. This determination shall be made in accordance with the provisions of this BCAR and with due regard to regional air navigation agreements; it shall include the determination of the meteorological service to be provided for international air navigation over international waters and other areas which lie outside the territory of the State concerned.

BCAR AMS 2.1.4 The State of Belize designated as the National Meteorological Service of Belize is the meteorological authority, which shall provide or arrange for the provision of meteorological service for international air navigation on its behalf. Details of the National Meteorological Service of Belize are included in the State Aeronautical Information Publication, in accordance with BCAR 15, Appendix 1, GEN 1.1.

BCAR AMS 2.1.5 The State of Belize shall ensure that the designated meteorological authority complies with the requirements of the World Meteorological Organization in respect of qualifications and training of meteorological personnel providing service for international air navigation.

(See IEM AMS 2.1.5)

2.2 Supply, use and quality management of meteorological information

BCAR AMS 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 international air navigation.

BCAR AMS 2.2.2 Reserved

BCAR AMS 2.2.3 The State of Belize shall ensure that the designated meteorological authority referred to in BCAR AMS 2.1.4 establishes and implements 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 BCAR AMS 2.1.2.

BCAR AMS 2.2.4 The quality system established in accordance with BCAR AMS 2.2.2 should be in conformity with the International Organization for Standardization (ISO) 9000 series of quality assurance standards and should be certified by an approved organization.
(See IEM AMS 2.2.4)

BCAR AMS 2.2.5 The quality system should provide the users with assurance that the meteorological information supplied complies with the stated requirements in terms of the geographical and spatial coverage, format and content, time and frequency of issuance and period of validity, as well as the accuracy of measurements, observations and forecasts. When the quality system indicates that meteorological information to be supplied to the users does not comply with the stated requirements, and automatic error correction procedures are not appropriate, such information should not be supplied to the users unless it is validated with the originator.

(See IEM AMS 2.2.5)

BCAR AMS 2.2.6 In regard to the exchange of meteorological information for operational purposes, the quality system should include verification and validation procedures and resources for monitoring adherence to the prescribed transmission schedules for individual messages

and/or bulletins required to be exchanged, and the times of their filing for transmission. The quality system should be capable of detecting excessive transit times of messages and bulletins received.

(See IEM AMS 2.2.6)

BCAR AMS 2.2.7 Demonstration of compliance of the quality system applied should be by audit. If nonconformity of the system is identified, action should be initiated to determine and correct the cause. All audit observations should be evidenced and properly documented.

BCAR AMS 2.2.8 The meteorological information supplied to the users listed in BCAR AMS 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.
(See IEM AMS 2.2.8)

2.3 Notifications required from operators

BCAR AMS 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(s) concerned. The minimum amount of advance notice required shall be as agreed between the meteorological authority or meteorological office(s) and the operator.

BCAR AMS 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 authority.

BCAR AMS 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.

BCAR AMS 2.3.4 The notification to the aerodrome meteorological office, or the meteorological office concerned, of individual flights should 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 he regional air navigation plan;

e) cruising level;

f) type of flight, whether under visual or instrument flight rules;

g) type of meteorological information requested for a flight crew member, whether flight documentation and/orbriefing or consultation; and

h) time(s) at which briefing, consultation and/or flight documentation are required.

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SUBPART C
CHAPTER 3 - METEOROLOGICAL OFFICES
(See IEM AMS CHAPTER 3.)

3.1 Reserved

3.2 Reserved

3.3 Meteorological offices

BCAR AMS 3.3.1 The State of Belize has been established in Philip S.W. Goldson International Airport (PGIA) meteorological offices which are adequate for the provision of the meteorological service required to satisfy the needs of international air navigation.

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.

BCAR AMS 3.3.3 The aerodromes for which landing forecasts are required shall be determined by regional air navigation agreement.

BCAR AMS 3.3.4 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.

3.4 Meteorological watch offices

BCAR AMS 3.4.1 The State of Belize is responsible for providing air traffic services within a flight information region or a control area, has established, on the basis of regional air navigation agreement, one or more meteorological watch offices, or arranged for another Contracting State to do so.

BCAR AMS 3.4.2 A meteorological watch office shall:
(See IEM AMS 3.4.2)

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

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

c) supply SIGMET information and, as required, other meteorological information to associated air traffic services units;

d) disseminate SIGMET information;

e) when required by regional air navigation agreement, in accordance with BCAR AMS 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, and forecast trajectories of the radioactive materials.

BCAR AMS 3.4.3 The boundaries of the area over which meteorological watch is to be maintained by a meteorological watch office should be coincident with the boundaries of a flight information region or a control area or a combination of flight information regions and/or control areas.

3.5 Volcanic ash advisory centres

BCAR AMS 3.5.1 The State of Belize has, by regional air navigation agreement, the responsibility for providing a VAAC within the framework of the international airways volcano watch, has arranged for that centre to respond to a notification that a volcano has erupted, or is expected to erupt or volcanic ash is reported in its area of responsibility, by arranging for that centre to:
(See IEM AMS 3.5.1)

a) monitor relevant geostationary and polar-orbiting satellite data to detect the existence and extent of volcanic ash in the atmosphere in the area concerned;

b) activate the volcanic ash numerical trajectory/dispersion model in order to forecast the movement of any ash “cloud”which has been detected or reported;

c) issue advisory information regarding the extent and forecast movement of the volcanic ash “cloud” to:

1) meteorological watch offices, area control centres and flight information centres serving flight information regions in its area of responsibility which may be affected;

2) other VAACs whose areas of responsibility may be affected;

3) world area forecast centres, international OPMET databanks, international NOTAM offices, and centres designated by regional air navigation agreement for the operation of aeronautical fixed service satellite distribution systems; and

4) airlines requiring the advisory information through the AFTN address provided specifically for this purpose; and

d) issue updated advisory information to the meteorological watch offices, area control centres, flight information centres and VAACs referred to in c), as necessary, but at least every six hours until such time as the volcanic ash “cloud” is no longer identifiable from satellite data, no further reports of volcanic ash are received from the area, and no further eruptions of the volcano are reported.

BCAR AMS 3.5.2 Volcanic ash advisory centres shall maintain a 24-hour watch.

BCAR AMS 3.5.3 In case of interruption of the operation of a VAAC, its functions shall be carried out by another VAAC or another meteorological centre, as designated by the VAAC Provider State concerned.
(See IEM AMS 3.5.3)

3.6 State volcano observatories

The State of Belize maintains volcano observatories monitoring active volcanoes and has arranged that selected State volcano observatories, as designated by regional air navigation agreement, observing:
(See IEM AMS 3.6)

a) significant pre-eruption volcanic activity, or a cessation thereof;

b) a volcanic eruption, or a cessation thereof; and/or

c) volcanic ash in the atmosphere

shall send this information as quickly as practicable to their associated ACC, MWO and VAAC.

3.7 Tropical cyclone advisory centres

The State of Belize is, by regional air navigation agreement, responsible for providing a TCAC and has arranged 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:

1) meteorological watch offices in its area of responsibility;

2) other TCACs whose areas of responsibility may be affected; and

3) world area forecast centres, international OPMET databanks, and centres designated by regional air navigation agreement for the operation of aeronautical fixed service satellite distribution systems; and

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

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SUBPART D

CHAPTER 4 - METEOROLOGICAL OBSERVATIONS AND REPORTS

(See IEM AMS CHAPTER 4.)

4.1 Aeronautical meteorological stations and observations

BCAR AMS 4.1.1 The State of Belize has established, 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.
(See IEM AMS 4.1.1)

BCAR AMS 4.1.2 The State of Belize will establish, or arrange for the establishment of, aeronautical meteorological stations on offshore structures or at other points of significance in support of helicopter operations to offshore structures, if required by regional air navigation agreement.

BCAR AMS 4.1.3 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.

BCAR AMS 4.1.4 The State of Belize has arranged for its aeronautical meteorological stations inspections at sufficiently frequent intervals to ensure that a high standard of observation is maintained, that instruments and all their indicators are unctioning correctly, and that the exposure of the instruments has not changed significantly.
(See IEM AMS 4.1.4)

BCAR AMS 4.1.5 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 take-off 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.
(See IEM AMS 4.1.5)

BCAR AMS 4.1.6 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 should be installed to support approach and landing and take-off operations. These devices should 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 should observe Human Factors principles and include back-up procedures.

BCAR AMS 4.1.7 Where an integrated semi-automatic system is used for the dissemination/display of meteorological information, it should be capable of accepting the manual insertion of data covering those meteorological elements which cannot be observed by automatic means.

BCAR AMS 4.1.8 The observations shall form the basis for the preparation of reports to be disseminated at the aerodrome of origin and of reports to be disseminated beyond the aerodrome of origin.

BCAR AMS 4.1.9 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.
(See IEM AMS 4.1.9)

4.2 Agreement between air traffic services authorities and meteorological authorities

An agreement between the meteorological authority and the appropriate ATS authority should be established to cover, amongst other things:
(See IEM AMS 4.2)

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.

4.3 Routine observations and reports

BCAR AMS 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.

BCAR AMS 4.3.2 Reports of routine observations shall be issued as:
(See IEM AMS 4.3.2)

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).

BCAR AMS 4.3.3 At aerodromes that are not operational throughout 24 hours in accordance with BCAR AMS 4.3.1, METAR shall be issued prior to the aerodrome resuming operations in accordance with regional air navigation agreement.

4.4 Special observations and reports

BCAR AMS 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.

BCAR AMS 4.4.2 Reports of special observations shall be issued as:
(See IEM AMS 4.4.2)

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

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

BCAR AMS 4.4.3 At aerodromes that are not operational throughout 24 hours in accordance with BCAR AMS 4.3.1, following the resumption of the issuance of METAR, SPECI shall be issued, as necessary.

4.5 Contents of reports

BCAR AMS 4.5.1 Local routine and special reports and METAR and SPECI shall contain the following elements in the order indicated:
(See IEM AMS 4.5.1)

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).

BCAR AMS 4.5.2 In addition to elements listed under BCAR AMS 4.5.1 a) to k), local routine and special reports and METAR and SPECI should contain supplementary information to be placed after element k).

BCAR AMS 4.5.3 Optional elements included under supplementary information shall be included in METAR and SPECI in accordance with regional air navigation agreement.

4.6 Observing and reporting meteorological elements

BCAR AMS 4.6.1 Surface wind

BCAR AMS 4.6.1.1 The mean direction and the mean speed of the surface wind shall be measured, as well as significant variations of the wind direction and speed, and reported in degrees true and metres per second (or knots), respectively.

BCAR AMS 4.6.1.2 When local routine and special reports are used for departing aircraft, the surface wind observations for these reports should 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 should be representative of the touchdown zone.

BCAR AMS 4.6.1.3 For METAR and SPECI, the surface wind observations should 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.

BCAR AMS 4.6.2 Visibility

BCAR AMS 4.6.2.1 The visibility as defined in Chapter 1 shall be measured or observed, and reported in metres or kilometres.
(See IEM AMS 4.6.2.1)

BCAR AMS 4.6.2.2 When local routine and special reports are used for departing aircraft, the visibility observations for these reports should be representative of conditions along the runway; when local routine and special reports are used for arriving aircraft, the visibility observations for these reports should be representative of the touchdown zone of the runway.

BCAR AMS 4.6.2.3 For METAR and SPECI, the visibility observations should be representative of the aerodrome.

BCAR AMS 4.6.3 Runway visual range
(See IEM AMS 4.6.3)

BCAR AMS 4.6.3.1 Runway visual range as defined in Chapter 1 shall be assessed on all runways intended for Category II and III instrument approach and landing operations.

BCAR AMS 4.6.3.2 Runway visual range as defined in Chapter 1 should be assessed on all runways intended for use during periods of reduced visibility, including:
(See IEM AMS 4.6.3.2)

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

b) runways used for take-off and having high-intensity edge lights and/or centre line lights.

BCAR AMS 4.6.3.3 The runway visual range, assessed in accordance with BCAR AMS 4.6.3.1 and BCAR AMS 4.6.3.2, shall be reported in metres throughout periods when either the visibility or the runway visual range is less than 1 500 m.

BCAR AMS 4.6.3.4 Runway visual range assessments shall be representative of:

a) the touchdown zone of the runway intended for non-precision or Category I instrument approach and landing operations;

b) the touchdown zone and the mid-point of the runway intended for Category II instrument approach and landing operations; and

c) the touchdown zone, the mid-point and stop-end of the runway intended for Category III instrument approach and landing operations.

BCAR AMS 4.6.3.5 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.

BCAR AMS 4.6.4 Present weather

BCAR AMS 4.6.4.1 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).

BCAR AMS 4.6.4.2 For local routine and special reports, the present weather information should be representative of conditions at the aerodrome.

BCAR AMS 4.6.4.3 For METAR and SPECI, the present weather information should be representative of conditions at the aerodrome and, for certain specified present weather phenomena, in its vicinity.

BCAR AMS 4.6.5 Clouds

BCAR AMS 4.6.5.1 Cloud amount, cloud type and height of cloud base shall be observed and reported as necessary to describe the clouds of operational significance. When the sky is obscured, vertical visibility shall be observed and reported, where measured, in lieu of cloud amount, cloud type and height of cloud base. The height of cloud base and vertical visibility shall be reported in metres (or feet).

BCAR AMS 4.6.5.2 Cloud observations for local routine and special reports should be representative of the approach area.

BCAR AMS 4.6.5.3 Cloud observations for METAR and SPECI should be representative of the aerodrome and its vicinity.

BCAR AMS 4.6.6 Air temperature and dew-point temperature

BCAR AMS 4.6.6.1 The air temperature and the dew-point temperature shall be measured and reported in degrees Celsius.

BCAR AMS 4.6.6.2 Observations of air temperature and dew-point temperature for local routine and special reports and METAR and SPECI should be representative of the whole runway complex.

BCAR AMS 4.6.7 Atmospheric pressure

The atmospheric pressure shall be measured, and QNH and QFE values shall be computed and reported in hectopascals

BCAR AMS 4.6.8 Supplementary information

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

4.7 Reporting meteorological information from automatic observing systems

BCAR AMS 4.7.1 METAR and SPECI from automatic observing systems should be used by States in a position to do so during non-operational hours of the aerodrome, and during operational hours of the aerodrome as determined by the meteorological authority in consultation with users based on the availability and efficient use of personnel.
(See IEM AMS 4.7.1)

BCAR AMS 4.7.2 Local routine and special reports from automatic observing systems should be used by States in a position to do so during operational hours of the aerodrome as determined by the meteorological authority in consultation with users based on the availability and efficient use of personnel.

BCAR AMS 4.7.3 Local routine and special reports and METAR and SPECI from automatic observing systems shall be identified with the word “AUTO”.

4.8 Observations and reports of volcanic activity
(See IEM AMS 4.8)

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

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SUBPART E

CHAPTER 5
AIRCRAFT OBSERVATIONS AND REPORTS

(See IEM AMS CHAPTER 5.)

5.1 Obligations of States

The State of Belize has arranged, according to the provisions of this chapter, for observations to be made by aircraft of its registry operating on international air routes and for the recording and reporting of these observations.

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.

5.3 Routine aircraft observations — designation

BCAR AMS 5.3.1 When air-ground data link is used and automatic dependent surveillance (ADS) or secondary surveillance radar (SSR) Mode S is being applied, automated routine observations should be made every 15 minutes during the en-route phase and every 30 seconds during the climb-out phase for the first 10 minutes of the flight.

BCAR AMS 5.3.2 For helicopter operations to and from aerodromes on offshore structures, routine observations should be made from helicopters at points and times as agreed between the meteorological authorities and the helicopter operators concerned.

BCAR AMS 5.3.3 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 BCAR AMS 5.3.1. The designation procedures shall be subject to regional air navigation agreement.

BCAR AMS 5.3.4 In the case of the requirement to report during the climb-out phase, an aircraft shall be designated, at approximately hourly intervals, at each aerodrome to make routine observations in accordance with BCAR AMS 5.3.1.

5.4 Routine aircraft observations — exemptions

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

5.5 Special aircraft observations

(See IEM AMS 5.5)

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

a) moderate or severe turbulence; or

b) moderate or severe icing; or

c) severe mountain wave; or

d) thunderstorms, without hail, that are obscured, embedded, widespread or in squall lines; or

e) thunderstorms, with hail, that are obscured, embedded, widespread or in squall lines; or

f) heavy duststorm or heavy sandstorm; or

g) volcanic ash cloud; or

h) pre-eruption volcanic activity or a volcanic eruption.

5.6 Other non-routine aircraft observations

When other meteorological conditions not listed under 5.5, 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.

(See IEM AMS 5.6)

5.7 Reporting of aircraft observations during flight

BCAR AMS 5.7.1 Aircraft observations shall be reported by air-ground data link. Where air-ground data link is not available or appropriate, special and other non-routine aircraft observations during flight shall be

reported by voice communications.

BCAR AMS 5.7.2 Aircraft observations shall be reported during flight at the time the observation is made or as soon thereafter as is practicable.

BCAR AMS 5.7.3 Aircraft observations shall be reported as air-reports.

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

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

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.

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SUBPART F

CHAPTER 6 – FORECASTS

(See IEM AMS CHAPTER 6)

6.1 Interpretation and use of forecasts

BCAR AMS 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.
(See IEM AMS 6.1.1)

BCAR AMS 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.

6.2 Aerodrome forecasts

BCAR AMS 6.2.1 An aerodrome forecast shall be prepared, on the basis of regional air navigation agreement, by the meteorological office designated by the meteorological authority concerned.
(See IEM AMS 6.2.1)

BCAR AMS 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.

BCAR AMS 6.2.3 Aerodrome forecasts and amendments thereto shall be issued as TAF and include the following information in the order indicated:
(See IEM AMS 6.2.3)

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 ccordance with regional air navigation agreement.

BCAR AMS 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.
(See IEM AMS 6.2.4)

BCAR AMS 6.2.5 TAF that cannot be kept under continuous review shall be cancelled.

BCAR AMS 6.2.6 The period of validity of a routine TAF should be not less than 6 hours nor more than 30 hours; the period of validity should be determined by regional air navigation agreement. Routine TAF valid for less than 12 hours should be issued every 3 hours and those valid for 12 to 30 hours should be issued every 6 hours.

BCAR AMS 6.2.7 When issuing TAF, meteorological offices shall ensure that not more than one TAF is valid at an aerodrome at any given time.

6.3 Landing forecasts

BCAR AMS 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 the requirements of local users and of aircraft within about one hour's flying time from the aerodrome.

BCAR AMS 6.3.2 Landing forecasts shall be prepared in the form of a trend forecast.

BCAR AMS 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.

6.4 Forecasts for take-off

BCAR AMS 6.4.1 A forecast for take-off shall be prepared by the meteorological office designated by the meteorological authority concerned.

BCAR AMS 6.4.2 A forecast for take-off should refer to a specified period of time and should 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.

BCAR AMS 6.4.3 A forecast for take-off should be supplied to operators and flight crew members on request within the 3 hours before the expected time of departure.

BCAR AMS 6.4.4 Meteorological offices preparing forecasts for take-off should keep the forecasts under continuous review and, when necessary, should issue amendments promptly.

6.5 Area forecasts for low-level flights

BCAR AMS 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 for amendments thereto shall be determined by the meteorological authority in consultation with the users.

BCAR AMS 6.5.2 When the density of traffic operating below flight level 100 warrants the issuance of AIRMET information in accordance with BCAR AMS 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, the forecast shall be prepared as a combination of forecasts of upper wind and upper-air temperature, and of SIGWX phenomena. The area forecasts shall be issued to cover the layer between the ground and flight level 100 (or up to flight level 150 in mountainous areas, or higher, where necessary) and shall contain information on en-route weather phenomena hazardous to low-level flights, in support of the issuance of AIRMET information, and additional information required by low-level flights.

BCAR AMS 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.

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SUBPART G

CHAPTER 7 - SIGMET AND AIRMET INFORMATION, AERODROME WARNINGS AND WIND SHEAR WARNINGS AND ALERTS

(See IEM AMS CHAPTER 7)

7.1 SIGMET information

BCAR AMS 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.

BCAR AMS 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.

BCAR AMS 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.

BCAR AMS 7.1.4 SIGMET messages concerning volcanic ash cloud and tropical cyclones should be based on advisory information provided by VAACs and TCACs, respectively, designated by regional air navigation agreement.

BCAR AMS 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.

BCAR AMS 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 and tropical cyclones, these messages shall be issued as soon as practicable but not more than 12 hours before the commencement of the period of validity. SIGMET messages for volcanic ash and tropical cyclones shall be updated at least every 6 hours.

7.2 AIRMET information

BCAR AMS 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 Chapter 6, Section 6.5 and which may affect the safety of low-level flights, and of the development of those phenomena in time and space.

BCAR AMS 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.

BCAR AMS 7.2.3 The period of validity of an AIRMET message shall be not more than 4 hours.

7.3 Aerodrome warnings

BCAR AMS 7.3.1 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.

BCAR AMS 7.3.2 Aerodrome warnings should be cancelled when the conditions are no longer occurring and/or no longer expected to occur at the aerodrome.

7.4 Wind shear warnings and alerts

(See IEM AMS 7.4)

BCAR AMS 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.

BCAR AMS 7.4.2 Wind shear warnings for arriving aircraft and/or departing aircraft should 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 should be defined locally for each aerodrome, as agreed between the meteorological authority, the appropriate ATS authority and the operators concerned.

BCAR AMS 7.4.3 At aerodromes where wind shear is detected by automated, ground-based, wind shear remote-sensing or detection equipment, wind shear alerts generated by these systems shall be issued. Wind shear alerts shall give concise, up-to-date information related to the observed existence of wind shear involving a headwind/tailwind change of 7.5 m/s (15 kt) 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.

BCAR AMS 7.4.4 Wind shear alerts should be updated at least every minute. The wind shear alert should be cancelled as soon as the headwind/tailwind change falls below 7.5 m/s (15 kt).

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SUBPART H

CHAPTER 8 – AERONAUTICAL CLIMATOLOGICAL INFORMATION

(See IEM AMS CHAPTER 8)

8.1 General provisions

(See IEM AMS 8.1)

BCAR AMS 8.1.1 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.
(See IEM AMS 8.1.1)

BCAR AMS 8.1.2 Aeronautical climatological information should normally be based on observations made over a period of at least five years and the period should be indicated in the information supplied.

BCAR AMS 8.1.3 Climatological data related to sites for new aerodromes and to additional runways at existing aerodromes should be collected starting as early as possible before the commissioning of those aerodromes or runways.

8.2 Aerodrome climatological tables

The State of Belize 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 authority and that user.

8.3 Aerodrome climatological summaries

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

8.4 Copies of meteorological observational data

Each 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.

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SUBPART I

CHAPTER 9 - SERVICE FOR OPERATORS AND FLIGHT CREW MEMBERS

(See IEM AMS CHAPTER 9)

9.1 General provisions

BCAR AMS 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.

BCAR AMS 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 alternate aerodromes designated by the operator.

BCAR AMS 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 the meteorological authority in consultation with operators concerned:
(See IEM AMS 9.1.3)

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) volcanic ash and tropical cyclone advisory information relevant to the whole route;

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

h) aerodrome warnings for the local aerodrome;

i) meteorological satellite images; and

j) ground-based weather radar information

BCAR AMS 9.1.4 Forecasts listed under BCAR AMS 9.1.3 a) shall be generated from the digital forecasts provided by the WAFCs whenever these forecasts cover the intended flight path in respect of time, altitude and geographical extent, unless otherwise agreed between the meteorological authority and the operator concerned.

BCAR AMS 9.1.5 When forecasts are identified as being originated by the WAFCs, no modifications shall be made to their meteorological content.

BCAR AMS 9.1.6 Charts generated from the digital forecasts provided by the WAFCs shall be made available, as required by operators, for fixed areas of coverage as shown in Appendix 8, Figures A8-1, A8-2 and A8-3, of ICAO Annex 3.

BCAR AMS 9.1.7 When forecasts of upper wind and upper-air temperature listed under BCAR AMS 9.1.3 a) 1) are supplied in chart form, they shall be fixed time prognostic charts for flight levels as specified in Appendix 2, 1.2.2 a) of ICAO Annex 3. When forecasts of SIGWX phenomena listed under BCAR AMS 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 in Appendix 2, 1.3.2 and Appendix 5, 4.3.2 of ICAO Annex 3.

BCAR AMS 9.1.8 The forecasts of upper wind and upper-air temperature and of SIGWX phenomena above flight level 100 requested for pre-flight planning and in-flight re-planning by the operator shall be supplied as soon as they become available, but not later than 3 hours before departure. Other meteorological information requested for pre-flight planning and in-flight re-planning by the operator shall be supplied as soon as is practicable.

BCAR AMS 9.1.9 When necessary, the meteorological authority of the State providing service for operators and flight crew members shall initiate coordinating action with the meteorological authorities of other States with a view to obtaining from them the reports and/or forecasts required.

BCAR AMS 9.1.10 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 the State concerned. 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.

9.2 Briefing, consultation and display
(See IEM AMS 9.2)

BCAR AMS 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.

BCAR AMS 9.2.2 Meteorological information used for briefing, consultation and display shall include any or all of the information listed in BCAR AMS 9.1.3.

BCAR AMS 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.

BCAR AMS 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.

BCAR AMS 9.2.5 The flight crew member or other flight operations personnel for whom briefing, consultation and/or flight documentation has been requested should visit the meteorological office at the time agreed upon between the meteorological office and the operator concerned. Where local circumstances at an aerodrome make personal briefing or consultation impracticable, the meteorological office should provide those services by telephone or other suitable telecommunications facilities.

9.3 Flight documentation
(See IEM AMS 9.3)

BCAR AMS 9.3.1 Flight documentation to be made available shall comprise information listed under BCAR AMS 9.1.3 a) 1) and 6), b), c), e), f) and, if appropriate, g). 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 BCAR AMS 9.1.3 b), c), e), f) and, if appropriate, g).

BCAR AMS 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.

BCAR AMS 9.3.3 In cases where a need for amendment arises after the flight documentation has been supplied, and before take-off of the aircraft, the meteorological office should, as agreed locally, issue the necessary amendment or updated information to the operator or to the local air traffic services unit, for transmission to the aircraft.

BCAR AMS 9.3.4 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.

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

BCAR AMS 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 BCAR AMS 9.1 to BCAR AMS 9.3 inclusive.

BCAR AMS 9.4.2 Automated pre-flight information systems providing 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 should be established by an agreement between the meteorological authority and the relevant civil aviation authority or the agency to which the authority to provide service has been delegated in accordance with BCAR 15, BCAR 15 3.1.1 c).
(See IEM AMS 9.4.2)

BCAR AMS 9.4.3 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 meteorological authority concerned shall remain responsible for the quality control and quality management of meteorological information provided by means of such systems in accordance with Chapter 2, BCAR AMS 2.2.2.
(See IEM AMS 9.4.3)

9.5 Information for aircraft in flight

BCAR AMS 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.

BCAR AMS 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 Chapter 10.

BCAR AMS 9.5.3 Meteorological information shall be supplied through D-VOLMET or VOLMET broadcasts in accordance with the specifications of Chapter 11.

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SUBPART J

CHAPTER 10 - INFORMATION FOR AIR TRAFFIC SERVICES, SEARCH AND RESCUE SERVICES AND AERONAUTICAL INFORMATION SERVICES

(See IEM AMS CHAPTER 10)

10.1 Information for air traffic services units

BCAR AMS 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.

BCAR AMS 10.1.2 The associated meteorological office for an aerodrome control tower or approach control unit should be an aerodrome meteorological office.

BCAR AMS 10.1.3 The associated meteorological office for a flight information centre or an area control centre shall be a meteorological watch office.

BCAR AMS 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 should be determined by the meteorological authority in consultation with the appropriate ATS authority.

BCAR AMS 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.

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.

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.

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SUBPART K

CHAPTER 11 - REQUIREMENTS FOR AND USE OF COMMUNICATIONS

(See IEM AMS CHAPTER 11)

11.1 Requirements for communications

BCAR AMS 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 units and the aeronautical telecommunications stations serving these aerodromes.

BCAR AMS 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 centres, area control centres and rescue coordination centres and the associated aeronautical telecommunications stations.

BCAR AMS 11.1.3 Suitable telecommunications facilities shall be made available to permit world area forecast centres to supply the required world area forecast system products to meteorological offices, meteorological authorities and other users.

BCAR AMS 11.1.4 Telecommunications facilities between meteorological offices and, as necessary, aeronautical meteorological stations and aerodrome control towers or approach control units shall permit communications by direct speech, the speed with which the communications can be established being such that the required points may normally be contacted within approximately 15 seconds.

BCAR AMS 11.1.5 Telecommunications facilities between meteorological offices and flight information centres, area control centres, rescue coordination centres and aeronautical telecommunications stations should permit:
(See IEM AMS 11.1.5)

a) 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

b) printed communications, when a record is required by the recipients; the message transit time should not exceed 5 minutes.

BCAR AMS 11.1.6 The telecommunications facilities required in accordance with BCAR AMS 11.1.4 and BCAR AMS 11.1.5 should be supplemented, as and where necessary, by other forms of visual or audio communications, for example, closed-circuit television or separate information processing systems.

BCAR AMS 11.1.7 As agreed between the meteorological authority and operators, provision should be made to enable operators to establish suitable telecommunications facilities for obtaining meteorological information from aerodrome meteorological offices or other appropriate sources.

BCAR AMS 11.1.8 Suitable telecommunications facilities shall be made available to permit meteorological offices to exchange operational meteorological information with other meteorological offices.

BCAR AMS 11.1.9 The telecommunications facilities used for the exchange of operational meteorological information should 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.
(See IEM AMS 11.1.9)

11.2 Use of aeronautical fixed service communications and the public Internet — meteorological bulletins

Meteorological bulletins containing operational meteorological information to be transmitted via the aeronautical fixed service or the public Internet shall be originated by the appropriate meteorological office or aeronautical meteorological station.
(See IEM AMS 11.2)

11.3 Use of aeronautical fixed service communications — world area forecast system products

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

11.4 Use of aeronautical mobile service communications

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

11.5 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.
(See IEM AMS 11.5)

11.6 Use of aeronautical broadcasting service — contents of VOLMET broadcasts

BCAR AMS 11.6.1 Continuous VOLMET broadcasts, normally on very high frequencies (VHF), shall contain current METAR and SPECI, together with trend forecasts where available.

BCAR AMS 11.6.2 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.

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SECTION 2
IEM

SECTION 2 - ADVISORY CIRCULARS

1. GENERAL

1.1. If a specific parragraph does not have an IEM, it means that the parragraph does not need one.

2. PRESENTATION

2.1 The sequence after the abreviation IEM indicates the parragraph number of the refering BCAR-AMS.

2.2 The abreviations are defined as follows:

Interpretative and Explanatory Material (IEM) shows the ways or alternatives, but not necessarily the only posible way to comply with a specific paragraph of the BCAR-AMS.

SUBPART A AERONAUTICAL METEOROLOGICAL SERVICES

CHAPTER 1 - DEFINITIONS

IEM AMS CHAPTER 1 Definitions
(See chapter 1)

The designation (RR) in these definitions indicates a definition which has been extracted from the Radio Regulations of the International Telecommunication Union (ITU) (see Handbook on Radio Frequency Spectrum Requirements for Civil Aviation including statement of approved ICAO policies (Doc 9718)).

IEM AMS 1.1 Definitions
(See 1.1)

Air- report: Details of the AIREP form are given in the PANS-ATM (Doc 4444).

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

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

Flight level:
A pressure type altimeter calibrated in accordance with the Standard Atmosphere:

a) when set to a QNH altimeter setting, will indicate altitude;

b) when set to a QFE altimeter setting, will indicate height above the QFE reference datum;

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

The terms “height” and “altitude”, used above, indicate altimetric rather than geometric heights and altitudes.

Grid point data in digital form : In most cases, such data are transmitted on medium- or high-speed telecommunications channels.

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

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

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

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

Visibility:

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

SUBPART B

CHAPTER 2 - GENERAL

IEM AMS CHAPTER 2 General provisions
(See chapter 2)

It is recognized that the provisions of this BCAR AMS with respect to meteorological information are subject to the understanding that the obligation of a Contracting State is for the supply, under Article 28 of the Convention, of meteorological information and that the responsibility for the use made of such information is that of the user.

Although the Convention on International Civil Aviation allocates to the State of Registry certain functions which that State is entitled to discharge, or obligated to discharge, as the case may be, the Assembly recognized, in Resolution A23-13, that the State of Registry may be unable to fulfil its responsibilities adequately in instances where aircraft are leased, chartered or interchanged — in particular without crew — by an operator of another State and that the Convention may not adequately specify the rights and obligations of the State of an operator in such instances until such time as Article 83 bis of the Convention enters into force. Accordingly, the Council urged that if, in the above-mentioned instances, the State of Registry finds itself unable to discharge adequately the functions allocated to it by the Convention, it delegate to the State of the Operator, subject to acceptance by the latter State, those functions of the State of Registry that can more adequately be discharged by the State of the Operator. It was understood that pending entry into force of Article 83 bis of the Convention the foregoing action would only be a matter of practical convenience and would not affect either the provisions of the Chicago Convention prescribing the duties of the State of Registry or any third State. However, as Article 83 bis of the Convention entered into force on 20 June 1997, such transfer agreements will have effect in respect of Contracting States which have ratified the related Protocol (Doc 9318) upon fulfilment of the conditions established in Article 83 bis.

In the case of international operations effected jointly with aeroplanes not all of which are registered in the same Contracting State, nothing in this BCAR AMS prevents the States concerned entering into an agreement for the joint exercise of the functions placed upon the State of Registry by the provisions of this BCAR AMS.

IEM AMS 2.1.5 Objective, determination and provision of meteorological service
(See 2.1.5)

Requirements concerning qualifications and training of meteorological personnel in aeronautical meteorology are given in WMO Publication No. 49, Technical Regulations, Volume I — General Meteorological Standards and Recommended Practices, Chapter B.4 — Education and Training.

IEM AMS 2.2.4 Supply, use and quality management of meteorological information
(See 2.2.4)

The International Organization for Standardization (ISO) 9000 series of quality assurance standards provide a basic framework for the development of a quality assurance programme. The details of a successful programme are to be formulated by each State and in most cases are unique to the State organization. Guidance on the establishment and implementation of a quality system is given in the Manual on the Quality Management System for the Provision of Meteorological Service to International Air Navigation (Doc 9873).

IEM AMS 2.2.5 Supply, use and quality management of meteorological information
(See 2.2.5)

Requirements concerning the geographical and spatial coverage, format and content, time and frequency of issuance and period of validity of meteorological information to be supplied to aeronautical users are given in

Chapters 3, 4, 6, 7, 8, 9 and 10 of this Regulation and Appendices 2, 3, 5, 6, 7, 8 and 9 of ICAO Annex 03 and the relevant regional air navigation plans. Guidance concerning the accuracy of measurement and observation, and accuracy of forecasts is given in Attachments A and B, respectively, to this Annex.

IEM AMS 2.2.6 Supply, use and quality management of meteorological information
(See 2.2.6)

Requirements concerning the exchange of operational meteorological information are given in Chapter 11 of this Regulation and Appendix 10 of ICAO Annex 03.

IEM AMS 2.2.8 Supply, use and quality management of meteorological information
(See 2.2.8)
Guidance material on the application of Human Factors principles can be found in the Human Factors Training Manual (Doc 9683).

SUBPART C

CHAPTER 3 - METEOROLOGICAL OFFICES

IEM AMS CHAPTER 3 Meteorological offices
(See chapter 3)

Technical specifications and detailed criteria related to this chapter are given in Appendix 2 of ICAO Annex 03.

IEM AMS 3.4.2 Metorological watch offices
(See 3.4.2)

The information is provided by WMO regional specialized meteorological centres (RSMC) for the provision of transport model products for radiological environmental emergency response, at the request of the delegated authority of the State in which the radioactive material was released into the atmosphere, or the International Atomic Energy Agency (IAEA). The information is sent by the RSMC to a single contact point of the national meteorological service in each State. This contact point has the responsibility of redistributing the RSMC products within the State concerned. Furthermore, the information is provided by IAEA to RSMC co-located with VAAC London (designated as the focal point) which in turn notifies the ACCs concerned about the release.

IEM AMS 3.5.1 (b) (c) Volcanic ash advisory centres
(See 3.5.1)

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

The AFTN address to be used by the VAACs is given in the Handbook on the International Airways Volcano Watch (IAVW) (Doc 9766) and at http://www.icao.int/icao/en/anb/met/index.html.

IEM AMS 3.5.3 Volcanic ash advisory centres
(See 3.5.3)

Back-up procedures to be used in case of interruption of the operation of a VAAC are included in the Handbook on the International Airways Volcano Watch (IAVW) (Doc 9766).

IEM AMS 3.6 State volcano observations
(See 3.6)

Pre-eruption volcanic activity in this context means unusual and/or increasing volcanic activity which could presage a volcanic eruption.

SUBPART D

CHAPTER 4 - METEOROLOGICAL OBSERVATIONS AND REPORTS

IEM AMS CHAPTER 4 Meteorological observations and reports
(See chapter 4)

Technical specifications and detailed criteria related to this chapter are given in Appendix 3 this BCAR.

IEM AMS 4.1.1 Aeronautical meteorological stations and observations
(See 4.1.1)

Aeronautical meteorological stations may include sensors installed outside the aerodrome, where considered justified, by the meteorological authority to ensure the compliance of meteorological service for international air navigation with the provisions of this BCAR.

IEM AMS 4.1.4 Aeronautical meteorological stations and observations
(See 4.1.4)

Guidance on the inspection of aeronautical meteorological stations including the frequency of inspections is given in the Manual on Automatic Meteorological Observing Systems at Aerodromes (Doc 9837).

IEM AMS 4.1.5 Aeronautical meteorological stations and observations
(See 4.1.5)

Categories of precision approach and landing operations are defined in Annex 6, Part I.

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

IEM AMS 4.1.9 Aeronautical meteorological stations and observations
(See 4.1.9)

Guidance on the operationally desirable accuracy of measurement or observation is given in Attachment A of ICAO Annex 03.

IEM AMS 4.2 Agreement between air traffic services authorities and meteorological authorities
(See 4.2)
Guidance on the subject of coordination between ATS and aeronautical meteorological services is contained in the Manual on Coordination between Air Traffic Services, Aeronautical Information Services and Aeronautical Meteorological Services (Doc 9377).

IEM AMS 4.3.2 Routine observations and reports
(See 4.3.2)

Meteorological information used in ATIS (voice-ATIS and D-ATIS) is to be extracted from the local routine report, in accordance with Annex 11, 4.3.6.1 g).

IEM AMS 4.4.2 Special observations and reports
(See 4.4.2)

Meteorological information used in ATIS (voice-ATIS and D-ATIS) is to be extracted from the local special report, in accordance with Annex 11, 4.3.6.1 g).

IEM AMS 4.5.1 Contents of reports
(See 4.5.1)

The location indicators referred to under b) and their significations are published in Location Indicators (Doc 7910).

IEM AMS 4.6.2.1 Visibility
(See 4.6.2.1)

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

IEM AMS 4.6.3 Runway visual range
(See 4.6.3)

Guidance on the subject of runway visual range is contained in the Manual of Runway Visual Range Observing and Reporting Practices (Doc 9328).

IEM AMS 4.6.3.2 Runway visual range
(See 4.6.3.2)

Precision approach runways are defined in Annex 14, Volume I, Chapter 1, under “Instrument runway”.

IEM AMS 4.7.1 Reporting meteorological information from automatic observing systems
(See 4.7.1)

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

IEM AMS 4.8 Observations and reports of volcanic activity
(See 4.8.)

Pre-eruption volcanic activity in this context means unusual and/or increasing volcanic activity which could presage a volcanic eruption.

SUBPART E

CHAPTER 5 - AIRCRAFT OBSERVATIONS AND REPORTS

IEM AMS CHAPTER 5 Aircraft observations and reports
(See chapter 5)

Technical specifications and detailed criteria related to this chapter are given in Appendix 4 of ICAO Annex 03.

IEM AMS 5.5 Special aircraft observations
(See 5.5)

Pre-eruption volcanic activity in this context means unusual and/or increasing volcanic activity which could presage a volcanic eruption.

IEM AMS 5.6 Other non-routine aircraft observations
(See 5.6)

Icing, turbulence and, to a large extent, wind shear are elements which, for the time being, cannot be satisfactorily observed from the ground and for which in most cases aircraft observations represent the only available evidence.

SUBPART F

CHAPTER 6 – FORECASTS

IEM AMS CHAPTER 6 Forecasts
(See chapter 6)

Technical specifications and detailed criteria related to this chapter are given in Appendix 5 of ICAO Annex 03.

IEM AMS 6.1.1 Interpretation and use of forecasts
(See 6.1.1)

Guidance on the operationally desirable accuracy of forecasts is given in Attachment B of ICAO Annex 03.

IEM AMS 6.2.1 Aerodrome forecast
(See 6.2.1)

The aerodromes for which aerodrome forecasts are to be prepared and the period of validity of these forecasts are listed in the relevant facilities and services implementation document (FASID).

IEM AMS 6.2.3 Aerodrome forecast
(See 6.2.3)

The visibility included in TAF refers to the forecast prevailing visibility.

IEM AMS 6.2.4 Aerodrome forecast
(See 6.2.4)

Guidance on methods to keep TAF under continuous review is given in Chapter 3 of the Manual of Aeronautical Meteorological Practice (Doc 8896).

SUBPART G

CHAPTER 7 - SIGMET AND AIRMET INFORMATION, AERODROME WARNINGS AND WIND SHEAR WARNINGS AND ALERTS

IEM AMS CHAPTER 7 Sigmet and airmet information, aerodrome warnings and wind shear warnings and alerts
(See chapter 7)

Technical specifications and detailed criteria related to this chapter are given in Appendix 6 of ICAO Annex 03.

IEM AMS 7.4 Wind shear warnings and alerts
(See 7.4)

Guidance on the subject is contained in the Manual on Low-level Wind Shear (Doc 9817). Wind shear alerts are expected to complement wind shear warnings and together are intended to enhance situational awareness of wind shear.

SUBPART H

CHAPTER 8 – AERONAUTICAL CLIMATOLOGICAL INFORMATION

IEM AMS CHAPTER 8 Aeronautical climatological information
(See chapter 8)

Technical specifications and detailed criteria related to this chapter are given in Appendix 7 of ICAO Annex 03.

IEM AMS 8.1 General provisions
(See 8.1.)

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.

IEM AMS 8.1.1 General provisions
(See 8.1.1.)

Climatological data required for aerodrome planning purposes are set out in Annex 14, Volume I, 3.1.4 and Attachment A.

SUBPART I

CHAPTER 9 - SERVICE FOR OPERATORS AND FLIGHT CREW MEMBERS

IEM AMS CHAPTER 9 Service for operators and flight crew members
(See chapter 9)

Technical specifications and detailed criteria related to this chapter are given in Appendix 8 of ICAO Annex 03.

IEM AMS 9.1.3 General provisions
(See 9.1.3)
(a)(6) Forecasts of upper-air humidity and geopotential altitude of flight levels are used only in automatic flight planning and need not be displayed.

(e) Appropriate special air-reports will be those not already used in the preparation of SIGMET.

IEM AMS 9.2 briefing consultation and display
(See 9.2)

The requirements for the use of automated pre-flight information systems in providing briefing, consultation and display are given in BCAR AMS 9.4.

IEM AMS 9.3 Flight documentation
(See 9.3)
The requirements for the use of automated pre-flight information systems in providing flight documentation are given in BCAR AMS 9.4.

IEM AMS 9.4.2 Automated pre-flight information systems for briefing, consultation, flight planning and flight documentation
(See 9.4.2)

The meteorological and aeronautical information services information concerned is specified in BCAR AMS 9.1 to BCAR AMS 9.3 and Appendix 8 of ICAO Annex 3 and in Annex 15, 8.1 and 8.2, respectively.

IEM AMS 9.4.3 Automated pre-flight information systems for briefing, consultation, flight planning and flight documentation
(See 9.4.3)
The responsibilities relating to aeronautical information services information and the quality assurance of the information are given in BCAR 15, Chapter 3.

SUBPART J

CHAPTER 10 - INFORMATION FOR AIR TRAFFIC SERVICES, SEARCH AND RESCUE SERVICES AND AERONAUTICAL INFORMATION SERVICES

IEM AMS CHAPTER 10 Information for air traffic services, search and rescue services and aeronautical information services
(See chapter 10)

Technical specifications and detailed criteria related to this chapter are given in Appendix 9 of ICAO Annex 03.

SUBPART K

CHAPTER 11 - REQUIREMENTS FOR AND USE OF COMMUNICATIONS

IEM AMS CHAPTER 11 Requirements for and use of communications
(See chapter 11)

Technical specifications and detailed criteria related to this chapter are given in Appendix 10 of ICAO Annex 03.

It is recognized that it is for each Contracting State to decide upon its own internal organization and responsibility for implementing the telecommunications facilities referred to in this chapter.

IEM AMS 11.1.5 Requirements for communications
(See 11.1.5)

In BCAR AMS 11.1.4 and BCAR AMS 11.1.5, “approximately 15 seconds” refers to telephony communications involving switchboard operation and “5 minutes” refers to printed communications involving retransmission.

IEM AMS 11.1.9 Requirements for communications
(See 11.1.9)
Three aeronautical fixed service satellite distribution systems providing for global coverage are used to support the global exchanges of operational meteorological information. Provisions relating to the satellite distribution systems are given in Annex 10, Volume III, Part 1, 10.1 and 10.2.

Guidance material on non-time-critical operational meteorological information and relevant aspects of the public Internet is provided in the Guidelines on the Use of the Public Internet for Aeronautical Applications (Doc 9855).

IEM AMS 11.2 Use of aeronautical fixed service communications and the public Internet — meteorological bulletins
(See 11.2)
Meteorological bulletins containing operational meteorological information authorized for transmission via the aeronautical fixed service are listed in Annex 10, Volume II, Chapter 4, together with the relevant priorities and priority indicators.

IEM AMS 11.5 Use of aeronautical data link service-contents of D-VOLMET
(See 11.5)

The requirement to provide METAR and SPECI may be met by the data link-flight information service (D-FIS) application entitled “Data link-aerodrome routine meteorological report (D-METAR) service”; the requirement to provide TAF may be met by the D-FIS application entitled “Data link-aerodrome forecast (D-TAF) service”; and the requirement to provide SIGMET and AIRMET messages may be met by the D-FIS application entitled “Data link-SIGMET (D-SIGMET) service”. The details of these data link services are specified in the Manual of Air Traffic Services Data Link Applications (Doc 9694).