

রেজিস্টার্ড নং ডি এ-১

বাংলাদেশ



গেজেট

অতিরিক্ত সংখ্যা  
কর্তৃপক্ষ কর্তৃক প্রকাশিত

সোমবার, জুলাই ৮, ২০২৪

[ বেসরকারি ব্যক্তি এবং কর্পোরেশন কর্তৃক অর্থের বিনিময়ে জারীকৃত প্রজ্ঞাপন ]

**Civil Aviation Authority of Bangladesh**

**Gazette**

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In exercise of the power conferred by Section 47, read with Section 14 of the Civil Aviation Act, 2017 (Act No. 18 of 2017), hereinafter referred as the “Act”, the Chairman of the Civil Aviation Authority of Bangladesh is pleased to issue the following Air Navigation Order ANO-15 (Aeronautical Information Services).

2. It shall come into force immediately after being published in the Official Gazette.

Air Vice Marshal **M Mafidur Rahman**

BBP, BSP, BUP, ndu, afwc, psc

Chairman

Civil Aviation Authority of Bangladesh.

( ২১৩৪১ )

মূল্য : টাকা ৪০.০০

## CHAPTER 1. GENERAL

### 1.1 Short Title and Commencement

This Air Navigation Order (ANO) may be called the ANO-15 – “*Aeronautical Information Services*”, issued in accordance with the *ICAO Annex 15 “Aeronautical Information Services”* (up to Amendment 42). This ANO shall be effective immediately upon published in this Official Gazette.

#### 1.1.1 Applicability, Definition and Abbreviation

**1.1.1.1** This Air Navigation Order—“*Aeronautical Information Services*” (hereafter referred to as the “ANO-15”) shall be applicable to Air Navigation Services providers (ANSP), AIS providers, Aerodrome Operators, Meteorological Authority, Civil/Technical Works and other agencies which collect, prepare, check, compile, disseminate and receive aeronautical information for air navigation purposes and shall comply with all the provisions set out in this ANO at all times.

#### 1.1.2 Definitions

When the following terms are used in this ANO, 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 mapping data (AMD).** Data collected for the purpose of compiling aerodrome mapping information.

**Aerodrome mapping database (AMDB).** A collection of aerodrome mapping data organized and arranged as a structured data set.

**Aeronautical chart.** A representation of a portion of the Earth, its culture and relief, specifically designated to meet the requirements of air navigation.

**Aeronautical data.** A representation of aeronautical facts, concepts or instructions in a formalized manner suitable for communication, interpretation or processing.

**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 information.** Information resulting from the assembly, analysis and formatting of aeronautical data.

**Aeronautical Information Circular (AIC).** A notice containing information that does not qualify for the origination of a NOTAM or for inclusion in the AIP, but which relates to flight safety, air navigation, technical, administrative or legislative matters.

**Aeronautical information management (AIM).** The dynamic, integrated management of aeronautical information through the provision and exchange of quality-assured digital aeronautical data in collaboration with all parties.

**Aeronautical information product.** Aeronautical data and aeronautical information provided either as digital data sets or as a standardized presentation in paper or electronic media. Aeronautical information products include:

- Aeronautical Information Publication (AIP), including Amendments and Supplements;
- Aeronautical Information Circulars (AIC);
- aeronautical charts;
- NOTAM; and
- digital data sets.

**Aeronautical Information Publication (AIP).** A publication issued by or with the authority of a State and containing aeronautical information of a lasting character essential to air navigation.

**Aeronautical information service (AIS).** A service established within the defined area of coverage responsible for the provision of aeronautical data and aeronautical information necessary for the safety, regularity and efficiency of air navigation.

**AIP Amendment.** Permanent changes to the information contained in the AIP.

**AIP Supplement.** Temporary changes to the information contained in the AIP which are provided by means of special pages.

**AIRAC.** An acronym (aeronautical information regulation and control) signifying a system aimed at advance notification, based on common effective dates, of circumstances that necessitate significant changes in operating practices.

**Air defence identification zone (ADIZ).** Special designated airspace of defined dimensions within which aircraft are required to comply with special identification and/or reporting procedures additional to those related to the provision of air traffic services.

**Air traffic management (ATM).** The dynamic, integrated management of air traffic and airspace (including air traffic services, airspace management and air traffic flow management) — safely, economically and efficiently — through the provision of facilities and seamless services in collaboration with all parties and involving air borne and ground-based functions.

**Application.** Manipulation and processing of data in support of user requirements (ISO 19104\*).

**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.

**ASHTAM.** A special series NOTAM notifying by means of a specific format change in activity of a volcano, a volcanic eruption and/or volcanic ash cloud that is of significance to aircraft operations.

**Assemble.** A process of merging data from multiple sources into a database and establishing a baseline for subsequent processing.

**ATM community.** The aggregate of organizations, agencies or entities that may participate, collaborate and cooperate in the planning, development, use, regulation, operation and maintenance of the ATM system.

**ATS surveillance service.** Term used to indicate a service provided directly by means of an ATS surveillance system.

**ATS surveillance system.** A generic term meaning variously, ADS-B, PSR, SSR or any comparable ground-based system that enables the identification of aircraft.

**Automatic dependent surveillance — broadcast (ADS-B).** A means by which aircraft, aerodrome vehicles and other objects can automatically transmit and/or receive data such as identification, position and additional data, as appropriate, in a broadcast mode via a data link.

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

**Automatic terminal information service (ATIS).** The automatic provision of current, routine information to arriving and departing aircraft throughout 24 hours or a specified portion thereof:

**Bare Earth.** Surface of the Earth including bodies of water and permanent ice and snow, and excluding vegetation and manmade objects.

**Calendar.** Discrete temporal reference system that provides the basis for defining temporal position to a resolution of one day (ISO 19108\*).

**Canopy.** Bare Earth supplemented by vegetation height.

**Confidence level.** The probability that the true value of a parameter is within a certain interval around the estimate of its value. The interval is usually referred to as the accuracy of the estimate.

**Controller-pilot data link communications (CPDLC).** A means of communication between controller and pilot, using data link for ATC communications.

**Culture.** All man-made features constructed on the surface of the Earth, such as cities, railways and canals.

**Cyclic redundancy check (CRC).** A mathematical algorithm applied to the digital expression of data that provides a level of assurance against loss or alteration of data.

**Danger area.** An airspace of defined dimensions within which activities dangerous to the flight of aircraft may exist at specified times.

**Data accuracy.** A degree of conformance between the estimated or measured value and the true value.

**Data completeness.** The degree of confidence that all of the data needed to support the intended use is provided.

**Data format.** A structure of data elements, records and files arranged to meet standards, specifications or data quality requirements.

**Data integrity (assurance level).** A degree of assurance that an aeronautical data and its value has not been lost or altered since the origination or authorized amendment.

**Data product.** Data set or data set series that conforms to a data product specification (ISO 19131\*).

**Data product specification.** Detailed description of a data set or data set series together with additional information that will enable it to be created, supplied to and used by another party (ISO 19131\*).

**Data quality.** A degree or level of confidence that the data provided meet the requirements of the data user in terms of accuracy, resolution, integrity (or equivalent assurance level), traceability, timeliness, completeness and format.

**Data resolution.** A number of units or digits to which a measured or calculated value is expressed and used.

**Data set.** Identifiable collection of data (ISO 19101\*).

**Data set series.** Collection of data sets sharing the same product specification (ISO 19115\*).

**Data timeliness.** The degree of confidence that the data is applicable to the period of its intended use.

**Data traceability.** The degree that a system or a data product can provide a record of the changes made to that product and thereby enable an audit trail to be followed from the end-user to the originator.

**Datum.** Any quantity or set of quantities that may serve as a reference or basis for the calculation of other quantities (ISO 19104\*).

**Digital Elevation Model (DEM).** The representation of terrain surface by continuous elevation values at all intersections of a defined grid, referenced to common datum.

**Direct transit arrangements.** Special arrangements approved by the public authorities concerned by which traffic which is pausing briefly in its passage through the Contracting State may remain under their direct control.

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**Ellipsoid height (geodetic height).** The height related to the reference ellipsoid, measured along the ellipsoidal outer normal through the point in question.

**Feature.** Abstraction of real world phenomena (ISO 19101\*).

**Feature attribute.** Characteristic of a feature (ISO 19101\*).

A feature attribute has a name, a data type and a value domain associated with it.

**Feature operation.** Operation that every instance of a feature type may perform (ISO 19110\*).

**Feature relationship.** Relationship that links instances of one feature type with instances of the same or a different feature type (ISO 19101\*).

**Feature type.** Class of real world phenomena with common properties (ISO 19110\*).

**Geodesic distance.** The shortest distance between any two points on a mathematically defined ellipsoidal surface.

**Geodetic datum.** A minimum set of parameters required to define location and orientation of the local reference system with respect to the global reference system/frame.

**Geoid.** The equipotential surface in the gravity field of the Earth which coincides with the undisturbed mean sea level (MSL) extended continuously through the continents.

**Geoid undulation.** The distance of the geoid above (positive) or below (negative) the mathematical reference ellipsoid..

**Gregorian calendar.** Calendar in general use; first introduced in 1582 to define a year that more closely approximates the tropical year than the Julian calendar (ISO 19108\*).

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

**Heliport.** An aerodrome or a defined area on a structure intended to be used wholly or in part for the arrival, departure and surface movement of helicopters.

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\*All ISO Standard referred to in this chapter are listed at the end of the chapter

**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.

**Integrity classification (aeronautical data).** Classification based upon the potential risk resulting from the use of corrupted data. Aeronautical data is classified as:

a) **routine data:** there is a very low probability when using corrupted routine data that the continued safe flight and landing of an aircraft would be severely at risk with the potential for catastrophe;

b) **essential data:** there is a low probability when using corrupted essential data that the continued safe flight and landing of an aircraft would be severely at risk with the potential for catastrophe; and

c) **critical data:** there is a high probability when using corrupted critical data that the continued safe flight and landing of an aircraft would be severely at risk with the potential for catastrophe.

**International airport.** Any airport designated by the Contracting State in whose territory it is situated as an airport of entry and departure for international air traffic, where the formalities incident to customs, immigration, public health, animal and plant quarantine and similar procedures are carried out.

**International NOTAM office (NOF).** An office designated by a State for the exchange of NOTAM internationally.

**Logon address.** A specified code used for data link logon to an ATS unit.

**Maneuvering area.** That part of an aerodrome to be used for the take-off, landing and taxiing of aircraft, excluding aprons.

**Metadata.** Data about data (ISO 19115\*).

**Minimum en-route altitude (MEA).** The altitude for an en-route segment that provides adequate reception of relevant navigation facilities and ATS communications complies with the airspace structure and provides the required obstacle clearance.

**Minimum obstacle clearance altitude (MOCA).** The minimum altitude for a defined segment of flight that provides the required obstacle clearance.



**Movement area.** That part of an aerodrome to be used for the take-off, landing and taxiing of aircraft, consisting of the maneuvering area and the apron

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

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

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

The term RNP in this implementing standard is used in the context of navigation specifications that require performance monitoring and alerting, e.g. RNP 4 refers to the aircraft and operating requirements, including a 4 NM lateral performance with on-board performance monitoring and alerting that are detailed in Doc 9613.

**Next intended user.** The entity that receives the aeronautical data or information from the aeronautical information service.

**NOTAM.** A notice distributed by means of telecommunication containing information concerning the establishment, condition or change in any aeronautical facility, service, procedure or hazard, the timely knowledge of which is essential to personnel concerned with flight operations.

**Obstacle.** All fixed (whether temporary or permanent) and mobile objects, or parts thereof, that:

- a) are located on an area intended for the surface movement of aircraft; or
- b) extend above a defined surface intended to protect aircraft in flight; or
- c) stand outside those defined surfaces and that have been assessed as being a hazard to air navigation.

**Obstacle/terrain data collection surface .** A defined surface intended for the purpose of collecting obstacle/terrain data.

**Origination (aeronautical data or aeronautical information).** The creation of the value associated with new data or information or the modification of the value of existing data or information.

**Originator (aeronautical data or aeronautical information).** An entity that is accountable for data or information origination and/or from which the AIS organization receives aeronautical data and aeronautical information.

**Orthometric height.** Height of a point related to the geoid, generally presented as an MSL elevation.

**Performance-based communication (PBC).** Communication based on performance specifications applied to the provision of air traffic services.

**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.

**Performance-based surveillance (PBS).** Surveillance based on performance specifications applied to the provision of air traffic services.

**Portrayal.** Presentation of information to humans (ISO 19117\*).

**Position (geographical).** Set of coordinates (latitude and longitude) referenced to the mathematical reference ellipsoid which define the position of a point on the surface of the Earth.

**Post spacing.** Angular or linear distance between two adjacent elevation points.

**Precision.** The smallest difference that can be reliably distinguished by a measurement process.

In reference to geodetic surveys, precision is a degree of refinement in performance of an operation or a degree of perfection in the instruments and methods used when taking measurements.

**Pre-flight information bulletin (PIB).** A presentation of current NOTAM information of operational significance, prepared prior to flight.

**Prohibited area.** An airspace of defined dimensions, above the land areas or territorial waters of a State, within which the flight of aircraft is prohibited.

**Quality.** Degree to which a set of inherent characteristics fulfils requirements (ISO 9000\*).

**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\*).

**Radio navigation service.** A service providing guidance information or position data for the efficient and safe operation of aircraft supported by one or more radio navigation aids.

**Required communication performance (RCP) specification.** A set of requirements for air traffic service provision and associated ground equipment, aircraft capability, and operations needed to support performance-based communication.

**Required surveillance performance (RSP) specification.** A set of requirements for air traffic service provision and associated ground equipment, aircraft capability, and operations needed to support performance-based surveillance.

**Requirement.** Need or expectation that is stated, generally implied or obligatory (ISO 9000\*).

**Restricted area.** An airspace of defined dimensions, above the land areas or territorial waters of a State, within which the flight of aircraft is restricted in accordance with certain specified conditions.

**Route stage.** A route or portion of a route flown without an intermediate landing.

**SNOWTAM.** A special series NOTAM given in a standard format providing a surface condition report notifying the presence or cessation of hazardous conditions due to snow, ice, slush, frost, standing water or water associated with snow, slush, ice or frost on the movement area.

**Station declination.** An alignment variation between the zero degree radial of a VOR and true north, determined at the time the VOR station is calibrated.

**Terrain.** The surface of the Earth containing naturally occurring features such as mountains, hills, ridges, valleys, bodies of water, permanent ice and snow, and excluding obstacles.

**Traceability.** Ability to trace the history, application or location of that which is under consideration (ISO 9000\*).

**Validation.** Confirmation, through the provision of objective evidence, that the requirements for a specific intended use or application have been fulfilled (ISO 9000\*).

**Verification.** Confirmation, through the provision of objective evidence, that specified requirements have been fulfilled (ISO 9000\*).

**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.

## 1.2 Common reference systems for air navigation

### 1.2.1 Horizontal reference system

1.2.1.1 World Geodetic System — 1984 (WGS-84) shall be used as the horizontal (geodetic) reference system for international air navigation. Consequently, published aeronautical geographical coordinates (indicating latitude and longitude) shall be expressed in terms of the WGS-84 geodetic reference datum.

### 1.2.2 Vertical reference system

1.2.2.1 Mean sea level (MSL) datum shall be used as the vertical reference system for all air navigation purposes.

1.2.2.2 The Earth Gravitational Model — 1996 (EGM-96), shall be used as the global gravity model for international air navigation.

1.2.2.3 At those geographical positions where the accuracy of EGM-96 does not meet the accuracy requirements for elevation and geoid undulation on the basis of EGM-96 data, regional, national or local geoid models containing high resolution (short wavelength) gravity field data shall be developed and used. When a geoid model other than the EGM-96 model is used, a description of the model used, including the parameters required for height transformation between the model and EGM-96, shall be provided in the Aeronautical Information Publication (AIP).

### 1.2.3 Temporal reference system

1.2.3.1 The Gregorian calendar and Coordinated Universal Time (UTC) shall be used as the temporal reference system for international air navigation purposes.

1.2.3.2 When a different temporal reference system is used for some applications, the feature catalogue, or the metadata associated with an application schema or a data set, as appropriate, shall include either a description of that system or a citation for a document that describes that temporal reference system.

### 1.3 Miscellaneous specifications

1.3.1 Aeronautical information products of any distribution shall include English text for those parts expressed in plain language.

1.3.2 Place names shall be spelt in conformity with local usage, transliterated, when necessary, into the ISO-Basic Latin alphabet.

1.3.3 ICAO abbreviations shall be used in aeronautical information products whenever they are appropriate and their use will facilitate distribution of aeronautical data and aeronautical information.

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\* ISO Standard

*8601 — Data elements and interchange formats — Information interchange — Representation of dates and times*  
*9000 — Quality Management Systems — Fundamentals and Vocabulary*

*19101 — Geographic information — Reference model*

*19104 — Geographic information — Terminology*

*19108 — Geographic information — Temporal schema*

*19109 — Geographic information — Rules for application schema*

*19110 — Geographic information — Feature cataloguing schema*

*19115 — Geographic information — Metadata*

*19117 — Geographic information — Portrayal*

*19131 — Geographic information — Data product specification*

## **CHAPTER 2. RESPONSIBILITIES AND FUNCTIONS**

### **2.1 Service Provider Responsibilities**

2.1.1 ATM Division of Civil Aviation Authority of Bangladesh (CAAB) shall provide an aeronautical information service (AIS), in conformity with the requirements specified in this Implementing Standard.

2.1.2 ATM Division CAAB shall ensure that the provision of aeronautical data and aeronautical information covers its own territory and those areas over the high seas for which it is responsible for the provision of air traffic services (ATS).

2.1.3 ATM Division of CAAB shall remain responsible for the aeronautical data and aeronautical information provided in accordance with 2.1.2. Aeronautical data and aeronautical information provided for and on behalf of Bangladesh shall clearly indicate that they are provided under the authority of Chairman, CAAB.

2.1.4. ATM Division of CAAB shall ensure that the aeronautical data and aeronautical information provided are of required quality in accordance with 3.2.

2.1.5 ATM Division of CAAB shall ensure that formal arrangements are established between originators of aeronautical data and aeronautical information and the AIS in relation to the timely and complete provision of aeronautical data and aeronautical information.

### **2.2 AIS responsibilities and functions**

2.2.1 The Aeronautical Information Services (AIS) shall ensure that aeronautical data and aeronautical information necessary for the safety, regularity or efficiency of air navigation are made available in a form suitable for the operational requirements of the air traffic management (ATM) community, including:

- a) those involved in flight operations, including flight crews, flight planning and flight simulators; and
- b) the Air Traffic Services unit responsible for flight information service and the services responsible for pre-flight information.

2.2.2 The Aeronautical Information Services (AIS) shall receive, collate or assemble, edit, format, publish/store and distribute aeronautical data and aeronautical information concerning the entire territory of Bangladesh as well as those areas over the high seas in which Bangladesh is responsible for the provision of Air Traffic Services. Aeronautical data and aeronautical information shall be provided as Aeronautical Information product.

2.2.3 Where 24-hour service is not provided, service shall be available during the whole period an aircraft is in flight in the area of responsibility of AIS, plus a period of at least two hours before and after such a period. Service shall also be available at such other time as may be requested by an appropriate ground organization.

2.2.4 The AIS shall, in addition, obtain aeronautical data and aeronautical information to enable it to provide pre-flight information service and to meet the need for in-flight information:

- a) from the AIS of other States;
- b) from other sources that may be available.

2.2.5 Aeronautical data and aeronautical information obtained under 2.2.4 (a) shall, when distributed, be clearly identified as having the authority of the originating State.

2.2.6 Aeronautical data and aeronautical information obtained under 2.2.4 (b) shall, if possible, be verified before distribution and if not verified shall, when distributed, be clearly identified as such.

2.2.7 The AIS shall promptly make available to the AIS of other States any aeronautical data and aeronautical information necessary for the safety, regularity or efficiency of air navigation required by them, to enable them to comply with 2.2.1.

### **2.3 Exchange of aeronautical data and aeronautical information**

2.3.1 All elements of aeronautical information products provided by other States shall be addressed to AIS office, ATM Division CAAB ,HQs, Kurmitola Dhaka-1229. It shall be the office qualified to deal with requests for aeronautical data and aeronautical information provided by other States and other national organization.

2.3.2 ATM Division of CAAB shall establish the service level agreements except with Military establishments of Bangladesh between those parties providing aeronautical data and aeronautical information and their users in relation to the provision of the service.

2.3.3 When more than one international NOTAM office is designated with in Bangladesh, the extent of responsibility and the territory covered by each office shall be defined by Chairman, CAAB.

2.3.4 ATM Division of CAAB shall arrange, AMHS or as necessary, to satisfy operational requirements for the issuance and receipt of NOTAM distributed by telecommunication.

2.3.5 Wherever practicable, direct contact between AIS shall be established in order to facilitate the international exchange of aeronautical data and aeronautical information.

2.3.6 Except as provided in 2.3.7, one copy of each of the following aeronautical information products that have been requested by the AIS of a Contracting State shall be made available and provided in the mutually agreed form(s), without charge.

- a) Aeronautical Information Publication (AIP), including Amendments and Supplements;
- b) Aeronautical Information Circulars (AIC);
- c) NOTAM; and
- d) Aeronautical Charts.

2.3.7 The exchange of more than one copy of the elements of aeronautical information products, and other air navigation documents, including those containing air navigation legislation and regulations, shall be subject to bilateral agreement between the participating Contracting States and entities.



2.3.8 When aeronautical data and aeronautical information are provided in the form of digital data sets to be used by the AIS, they shall be provided on the basis of agreement between Contracting States concerned.

2.3.9 The procurement of aeronautical data and aeronautical information, including the elements of aeronautical information products, and other air navigation documents, including those containing air navigation legislation and regulations, by States other than Contracting States and by other entities shall be subject to separate agreement between CAAB and the participating States/entities.

2.3.10 The ATM Division of CAAB shall ensure that globally interoperable aeronautical data and aeronautical information exchange models be used for the provision of data sets.

## **2.4 Copyright**

2.4.1 Any aeronautical information product of AIS of Bangladesh which has been granted copyright protection by the Chairman CAAB and provided to another State in accordance with 2.3.7 shall only be made available to a third party on the condition that the third party is made aware that the product is copyright protected and annotated that the product is subject to copyright by the Chairman, CAAB.

2.4.2 When aeronautical data and aeronautical information are provided to a State in accordance with 2.3.8, the receiving State shall not provide the digital data sets of AIS of CAAB to any third party without the consent of Chairman, CAAB.

## **2.5 Cost recovery**

2.5.1 The overhead cost of collecting and compiling aeronautical data and aeronautical information shall be included in the cost basis for airport and air navigation services charges, as appropriate, in accordance with the principles contained in ICAO's Policies on Charges for Airports and Air Navigation Services (Doc 9082).

## **CHAPTER 3. AERONAUTICAL INFORMATION MANAGEMENT**

### **3.1 Information management requirements**

The information management resources and processes established by the aeronautical information service (AIS) shall be adequate to ensure the timely collection, processing, storing, integration, exchange and delivery of quality-assured aeronautical data and aeronautical information within the air traffic management (ATM) system.

### **3.2 Data quality specifications**

#### **3.2.1 Data accuracy**

The order of accuracy for aeronautical data shall be in accordance with its intended use.

#### **3.2.2 Data resolution**

The order of resolution of aeronautical data shall be commensurate with the actual data accuracy.

#### **3.2.3 Data integrity**

3.2.3.1 The ATM Division of CAAB shall ensure that the integrity of aeronautical data shall be maintained throughout the data chain from origination to distribution to the next intended user.

3.2.3.2 Based on the applicable integrity classification, procedures shall be put in place in order to:

- a) for routine data: avoid corruption throughout the processing of the data;
- b) for essential data: assure corruption does not occur at any stage of the entire process and include additional processes as needed to address potential risks in the overall system architecture to further assure data integrity at this level; and
- c) for critical data: assure corruption does not occur at any stage of the entire process and include additional integrity assurance processes to fully mitigate the effects of faults identified by thorough analysis of the overall system architecture as potential data integrity risks.

### **3.2.4 Data traceability**

Traceability of aeronautical data shall be ensured and retained as long as the data is in use.

### **3.2.5 Data timeliness**

Timeliness of aeronautical data shall be ensured by including limits on the effective period of the data elements. These limits shall be associated with individual data elements or data sets.. If the effective period is defined for a data set, it shall account for the effective dates of all of the individual data elements.

### **3.2.6 Data completeness**

Completeness of aeronautical data shall be ensured in order to support its intended use.

### **3.2.7 Data format**

The format of delivered aeronautical data shall be adequate to ensure that the data is interpreted in a manner that is consistent with its intended use.

## **3.3 Aeronautical data and aeronautical information verification and validation**

3.3.1 Data originating divisions i.e. the ATM Division of CAAB that require aeronautical information and data to be issued as a part of an aeronautical information product shall;

- a) ensure that such aeronautical information and data are correct in detail and all necessary information and data have been included in to it.
- b) thoroughly checked before it is submitted to the AIS unit to be issued as an aeronautical product.
- c) issued under the due authorization from the personnel responsible.

3.3.2 The AIS shall establish verification and validation procedures which ensure that upon receipt of aeronautical data and aeronautical information, quality requirements are met.

## **3.4 Data error detection**

3.4.1 Digital data error detection techniques shall be used during the transmission and/or storage of aeronautical data and digital data sets.

3.4.2 Digital data error detection techniques shall be used in order to maintain the integrity levels as specified in 3.2.3.

### **3.5 Use of automation**

3.5.1 Automation shall be applied in order to ensure the quality, efficiency and cost-effectiveness of aeronautical information services.

3.5.2 Due consideration to the integrity of data and information shall be given when automated processes are implemented and mitigating steps taken where risks are identified.

3.5.3 In order to meet the data quality requirements, automation shall:

- a) enable digital aeronautical data exchange between the parties involved in the data processing chain; and
- b) use aeronautical information exchange models and data exchange models designed to be globally interoperable.

### **3.6 Quality management system**

3.6.1 ATM Division of CAAB shall ensure that a Quality Management System is implemented and maintained encompassing all functions of the AIS, as outlined in 2.2. The execution of such Quality Management Systems shall be made demonstrable for each function stage.

3.6.2 The Quality Management System shall be applicable to the whole aeronautical data chain from data origination to distribution to the next intended user, taking into consideration the intended use of data.

3.6.3 The Quality Management System established shall follow the ISO 9000 series of quality assurance standards and shall be certified by an accredited certification body.

3.6.4 In order to meet the requirement of Quality Management System ATM Division of CAAB shall

- a) to identify knowledge, skill and abilities and competencies required in discharging for each AIS function
- b) ensure that personal assigned to perform AIS functions are appropriately trained
- c) ensure that AIS personnel possess the competencies required to perform specific assigned AIS functions

- d) ensure that qualifications and training records are maintained
- e) ensure initial and periodic assessments carried out requiring AIS personal to demonstrate the required competency.
- f) use the periodic assessment as a means to detect and correct shortcomings in knowledge, skill and abilities.

3.6.5 ATM Division of CAAB shall ensure that the Quality Management System established at AIS include the necessary policies, processes and procedures, including those for the use of metadata, and verify that aeronautical data is traceable throughout the aeronautical information data chain so as to allow any data anomalies or errors detected in use to be identified by root cause, corrected and communicated to affected users.

3.6.6 ATM Division of CAAB shall ensure that the established Quality Management System provide the necessary assurance and confidence that distributed aeronautical data and aeronautical information satisfy the aeronautical data quality requirements.

3.6.7 ATM Division of CAAB shall ensure to monitor the compliance of AIS functions with the Quality Management System established to that effect.

3.6.8 ATM Division of CAAB shall ensure the compliance to the quality of management system applied is demonstrated through periodic audits. If non compliances are identified corrective actions shall be taken without undue delay. All audit observations and remedial actions taken shall be properly documented and those records shall be accessible to the Civil Aviation inspectors as and when required

### **3.7 Human factors consideration**

3.7.1 The organization of the AIS as well as the design, contents, processing and distribution of aeronautical data and aeronautical information shall take into consideration human factors principles which facilitate their optimum utilization.

3.7.2 Due consideration shall be given to the integrity of information where human interaction is required and mitigating steps taken where risks are identified.

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**CHAPTER 4. SCOPE OF AERONAUTICAL DATA AND AERONAUTICAL INFORMATION**

The scope of aeronautical data and aeronautical information provides the minimum requirement to support aeronautical information products and services, aeronautical navigation data bases, air navigation applications and Air Traffic Management (ATM) systems.

**4.1 Scope of aeronautical data and aeronautical information**

4.1.1 The aeronautical data and aeronautical information to be received and managed by the aeronautical information service (AIS) shall include at least the following sub-domains:

- a) national regulations, rules and procedures;
- b) aerodromes and heliports;
- c) airspace;
- d) air traffic services (ATS) routes;
- e) instrument flight procedures;
- f) radio navigation aids/systems;
- g) obstacles;
- h) terrain; and
- i) geographic information.

4.1.2 Determination and reporting of aeronautical data shall be in accordance with the accuracy and integrity classification required to meet the needs of the end-user of aeronautical data.

**4.2 Metadata**

4.2.1 Metadata shall be collected for aeronautical data processes and exchange points.

4.2.2 Metadata collection shall be applied throughout the aeronautical information data chain, from origination to distribution to the next intended user.

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**CHAPTER 5. AERONAUTICAL INFORMATION PRODUCTS AND SERVICES****5.1 General**

5.1.1 Aeronautical information shall be provided in the form of aeronautical information products and associated services.

5.1.2 When aeronautical data and aeronautical information are provided in multiple formats, processes shall be implemented to ensure data and information consistency between formats.

**5.2 Aeronautical information in a standardized presentation**

5.2.1 Aeronautical information provided in a standardized presentation shall include the aeronautical information publication (AIP), AIP Amendments, AIP Supplements, AIC, NOTAM and aeronautical charts.

5.2.1.1 The AIP, AIP Amendment, AIP Supplement and AIC shall be provided on paper and/or as an electronic document.

5.2.1.2 The AIP, AIP Amendment, AIP Supplement and AIC when provided as an electronic document (e-AIP) should allow for both displaying on electronic devices and printing on paper.

**5.2.2 Aeronautical Information Publication**

The AIP is intended primarily to satisfy international requirements for the exchange of aeronautical information of a lasting character essential to air navigation and it shall constitute the basic information source for permanent information and long duration temporary changes.

AIP shall include:

- a) a statement of the Chairman CAAB, the competent authority responsible for the air navigation facilities, services or procedures covered by the AIP;
- b) the general conditions under which the services or facilities are available for international use;
- c) a list of significant differences between the national regulations and practices of Bangladesh and the related ICAO Standards, Recommended Practices and Procedures, given in a form that would enable a user to differentiate readily between the requirements of the CAAB and the related ICAO provisions;

- d) where applicable, the alternative course of action adopted by Bangladesh in respect of ICAO Standards, Recommended Practices and Procedures.
- e) the choice made by a state in each significant case where an alternative course of action is provided for ICAO Standards, Recommended Practices and Procedures.

### **5.2.3 AIP Supplement**

A checklist of valid AIP Supplements shall be regularly provided.

### **5.2.4 Aeronautical Information Circulars (AIC)**

5.2.4.1 An AIC shall be used to provide:

- a) a long-term forecast of any major change in legislation, regulations, procedures or facilities; or
- b) information of a purely explanatory or advisory nature liable to affect flight safety; or
- c) information or notification of an explanatory or advisory nature concerning technical, legislative or purely administrative matters.

5.2.4.2 An AIC shall not be used for information that qualifies for inclusion in AIP and NOTAM.

5.2.4.3 The validity of AIC currently in force shall be reviewed at least once a year.

5.2.4.4 A checklist of currently valid AIC shall be regularly provided.

### **5.2.5 Aeronautical charts**

Implementing Standard of ANO -4 — Aeronautical Charts provides requirements for each chart type.

5.2.5.1 The aeronautical charts listed below shall, when available for designated international aerodromes/heliports, form part of the AIP, or be provided separately to recipients of the AIP:

- a) Aerodrome/Heliport Chart—ICAO;
- b) Aerodrome Ground Movement Chart — ICAO;



- c) Aerodrome Obstacle Chart —ICAO Type A;
- d) Aerodrome Obstacle Chart —ICAO Type B (when available);
- e) Aerodrome Terrain and Obstacle Chart— ICAO (Electronic);
- f) Aircraft Parking/Docking Chart—ICAO;
- g) Area Chart —ICAO;
- g) Area Chart —ICAO;
- h) ATC Surveillance Minimum Altitude Chart— ICAO;
- i) Instrument Approach Chart—ICAO;
- j) Precision Approach Terrain Chart— ICAO;
- k) Standard Arrival Chart—Instrument (STAR)—ICAO;
- l) Standard Departure Chart—Instrument (SID)—ICAO; and
- m) Visual Approach Chart —ICAO.

5.2.5.2 The Enroute Chart—ICAO shall, when available, form part of the AIP, or be provided separately to recipients of the AIP.

5.2.5.3 ATM Division of CAAB shall ensure that the aeronautical charts listed below shall, when available, be provided as aeronautical information products:

- a) World Aeronautical Chart— ICAO 1:1 000 000;
- b) Aeronautical Chart—ICAO 1:500 000;
- c) Aeronautical Navigation Chart — ICAO Small Scale; and
- d) Plotting Chart — ICAO chart.

5.2.5.4 Electronic aeronautical charts shall be provided based on digital databases and the use of geographic information systems.

5.2.5.5. The chart resolution for aeronautical data shall be specified for a particular chart.

## 5.2.6 NOTAM

A checklist of valid NOTAM shall be regularly provided.

## 5.3 Digital datasets

### 5.3.1 General

5.3.1.1 Digital data shall be in the form of the following data sets:

- a) AIP data set;
- b) terrain data sets;
- c) obstacle data sets;
- d) aerodrome mapping data sets; and
- e) instrument flight procedure data sets.

5.3.1.2 Each data set shall be provided to the next intended user together with at least the minimum set of metadata that ensures traceability.

5.3.1.3 A checklist of valid data sets shall be regularly provided.

### 5.3.2 AIP data set

5.3.2.1 An AIP data set shall be provided covering the extent of information as provided in the AIP.

5.3.2.2 When it is not possible to provide a complete AIP data set, the data subset(s) that are available shall be provided.

5.3.2.3 The AIP data set shall contain the digital representation of aeronautical information of lasting character (permanent information and long duration temporary changes) essential to air navigation

### 5.3.3 Terrain and obstacle data set.

5.3.3.1 The coverage areas for terrain and obstacle data sets shall be as specified as:

- Area 1: the entire territory of a Bangladesh;
- Area 2: within the vicinity of an aerodrome, subdivided as follows:

- Area 2a: a rectangular area around a runway that comprises the runway strip plus any clearway that exists;
- Area 2b: an area extending from the ends of Area 2a in the direction of departure, with a length of 1km and a splay of 15 per cent to each side;
- Area 2c: an area extending outside Area 2a and Area 2b at a distance of not more than 10 km from the boundary of Area 2a; and
- Area 2d: an area outside Areas 2a, 2b and 2c up to a distance of 45 km from the aerodrome reference point, or to an existing terminal control area (TMA) boundary, whichever is nearest;
- Area 3: the area bordering an aerodrome movement area that extends horizontally from the edge of a runway to 90 m from the runway centre line and 50 m from the edge of all other parts of the aerodrome movement area and
- Area 4: the area extending 900 m prior to the runway threshold and 60 m each side of the extended runway centre line in the direction of the approach on a precision approach runway, Category II or III.

#### 5.3.3.3 Terrain data set

5.3.3.3.1 Terrain data sets shall contain the digital representation of the terrain surface in the form of continuous elevation values at all intersections (points) of a defined grid, referenced to a common datum.

5.3.3.3.2 Terrain data shall be provided for Area 1.

5.3.3.3.3 For aerodromes regularly used by international civil aviation, terrain data shall be provided for:

- a) Area 2a;
- b) the take-off flight path area; and
- c) an area bounded by the lateral extent of the aerodrome obstacle limitation surfaces.

5.3.3.3.4 For aerodromes regularly used by international civil aviation, additional terrain data shall be provided within Area 2 as follows:

- a) in the area extending to a 10-km radius from the ARP; and

- b) within the area between 10 km and the TMA boundary or a 45-km radius (whichever is smaller), where terrain penetrates a horizontal terrain data collection surface specified as 120 m above the lowest runway elevation.

5.3.3.3.5 For aerodromes regularly used by international civil aviation, terrain data shall be provided for Area 3.

5.3.3.3.6 For aerodromes regularly used by international civil aviation, terrain data shall be provided for Area 4 for all runways where precision approach Category II or III operations have been established and where detailed terrain information is required by operators to enable them to assess the effect of terrain on decision height determination by the use of radio altimeters.

5.3.3.3.7 Where additional terrain data is collected to meet other aeronautical requirements, the terrain data sets shall be expanded to include this additional data.

#### 5.3.3.4 Obstacle data sets

5.3.3.4.1 Obstacle data sets shall contain the digital representation of the vertical and horizontal extent of obstacles.

5.3.3.4.2 Obstacle data shall not be included in terrain data sets.

5.3.3.4.3 Obstacle data shall be provided for obstacles in Area 1 whose height is 100 m or higher above ground.

5.3.3.4.4 ATM Division of CAAB shall ensure that obstacle data of the Aerodromes regularly used by the international civil aviation be provided for all obstacles within Area 2 that are assessed as being a hazard to air navigation.

5.3.3.4.5 ATM Division of CAAB shall ensure that for aerodromes regularly used by international civil aviation, obstacle data shall be provided for:

- a) Area 2a for those obstacles that penetrate an obstacle data collection surface outlined by a rectangular area around a runway that comprises the runway strip plus any clearway that exists. The Area 2a obstacle collection surface shall have a height of 3 m above the nearest runway elevation measured along the runway centre line, and for those portions related to a clearway, if one exists, at the elevation of the nearest runway end;

- b) objects in the take-off flight path area which project above a plane surface having a 1.2 percent slope and having a common origin with the take-off flight path area; and
- c) penetrations of the aerodrome obstacle limitation surfaces.

5.3.3.4.6 For aerodromes regularly used by international civil aviation, obstacle data shall be provided for Areas 2b, 2c and 2d for obstacles that penetrate the relevant obstacle data collection surface specified as follows:

- a) Area 2b: an area extending from the ends of Area 2a in the direction of departure, with a length of 10 km and a splay of 15 percent to each side. The Area 2b obstacle collection surface has a 1.2 percent slope extending from the ends of Area 2a at the elevation of the runway end in the direction of departure, with a length of 10 km and a splay of 15 percent to each side;
- b) Area 2c: an area extending outside Area 2a and Area 2b at a distance of not more than 10 km from the boundary of Area 2a. The Area 2c obstacle collection surface has a 1.2 percent slope extending outside Area 2a and Area 2b at a distance of not more than 10 km from the boundary of Area 2a. The initial elevation of Area 2c has the elevation of the point of Area 2a at which it commences;
- c) Area 2d: an area outside Areas 2a, 2b and 2c up to a distance of 45 km from the aerodrome reference point, or to an existing TMA boundary, whichever is nearest. The Area 2d obstacle collection surface has a height of 100 m above ground; and
- d) except that data need not be collected for obstacles less than a height of 3m above ground in Area 2b and less than a height of 15m above ground in Area 2c.

5.3.3.4.7 For aerodromes regularly used by international civil aviation, obstacle data shall be provided for Area 3 for obstacles that penetrate the relevant obstacle data collection surface extending a half-metre (0.5m) above the horizontal plane passing through the nearest point on the aerodrome movement area.

5.3.3.4.8 For aerodromes regularly used by International Civil Aviation, obstacle data shall be provided for Area 4 for all runways where precision approach category II or III operation have been established.

5.3.3.4.9 Where additional obstacle data is collected to meet other aeronautical requirements, the obstacle data sets shall be expanded to include this additional data.

#### 5.3.4 Aerodrome mapping data sets

5.3.4.1 Aerodrome mapping data sets shall contain the digital representation of aerodrome features.

5.3.4.2 Aerodrome mapping data sets shall be made available for aerodromes regularly used by international civil aviation.

#### 5.3.5 Instrument flight procedure data sets

5.3.5.1 Instrument flight procedure data sets shall contain the digital representation of instrument flight procedures.

5.3.5.2 Instrument flight procedure data sets shall be made available for aerodromes regularly used by international civil aviation.

### **5.4 Distribution services**

#### 5.4.1 General

5.4.1.1 Aeronautical information products shall be distributed to authorized users who request them.

5.4.1.2 ATM Division of CAAB shall ensure that AIP, AIP Amendments, AIP Supplements and AIC be made available by the most expeditious means.

5.4.1.3 Global communication networks such as the Internet shall, whenever practicable, be employed for the provision of aeronautical information products

#### 5.4.2 NOTAM distribution

5.4.2.1 NOTAM shall be distributed on the basis of a request.

5.4.2.2 NOTAM shall be prepared in conformity with the relevant provisions of the ICAO communication procedure..

5.4.2.3 The aeronautical fixed service (AFS) shall, whenever practicable, be employed for NOTAM distribution.

5.4.2.4 When a NOTAM is sent by means other than the AFS, a six-digit date-time group indicating the date and time of NOTAM origination, and the identification of the originator shall be used, preceding the text. The International office of AIS shall select the NOTAM that are to be given international distribution.

5.4.2.5 International exchange of NOTAM shall take place only as mutually agreed between the international NOTAM offices concerned, and between the NOTAM offices and multinational NOTAM processing units.

5.4.2.6 The International NOTAM office shall, upon request, grant distribution of NOTAM series other than those distributed internationally.

5.4.2.7 Selective distribution lists shall be used when practicable.

## **5.5 Pre-flight information service**

5.5.1 ATM Division of CAAB shall ensure that any aerodrome used for international air operations, aeronautical information relative to the route stages originating at the aerodrome be made available to flight operations personnel, including flight crews and services responsible for pre-flight information.

5.5.2 ATM Division of CAAB shall ensure that Aeronautical information provided for pre-flight planning purposes be included with information of operational significance from the elements of aeronautical information products.

5.5.3 A recapitulation of valid NOTAM of operational significance and other information of urgent character shall be made available to flight crews in the form of plain-language Pre-flight Information Bulletins (PIB).

## **5.6 Post-flight information service**

5.6.1 ATM Division of CAAB shall make arrangements to receive information concerning the state and operation of air navigation facilities or services noted by flight crews of both International and domestic operation.

5.6.2 The arrangements specified in 5.6.1 shall ensure that such information is made available to the aeronautical information service (AIS) unit for distribution as the circumstances necessitate.

5.6.3 ATM Division of CAAB shall make arrangement to receive information concerning the presence of wildlife hazards observed by flight crews of both International and domestic operation.

5.6.4 The information about presence of wildlife hazards shall be made available to the aeronautical information service for distribution as the circumstances necessitate.

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**CHAPTER 6. AERONAUTICAL INFORMATION UPDATES****6.1 General specifications**

Aeronautical data and aeronautical information shall be kept up to date.

**6.2 Aeronautical information regulation and control (AIRAC)**

6.2.1 Information concerning the following circumstances shall be distributed under the regulated system (AIRAC), i.e. basing establishment, withdrawal or significant changes upon a series of common effective dates at intervals of 28 days.

- a) limits (horizontal and vertical), regulations and procedures applicable to:
  - 1) flight information regions;
  - 2) control areas;
  - 3) control zones;
  - 4) advisory areas;
  - 5) air traffic services (ATS) routes;
  - 6) permanent danger, prohibited and restricted areas (including type and periods of activity when known) and air defence identification zones (ADIZ);
  - 7) permanent areas or routes or portions there of where the possibility of interception exists;
- b) positions, frequencies, call signs, identifiers, known irregularities and maintenance periods of radio navigation aids, and communication and surveillance facilities;
- c) holding and approach procedures, arrival and departure procedures, noise abatement procedures and any other pertinent ATS procedures;
- d) transition levels, transition altitudes and minimum sector altitudes;
- e) meteorological facilities (including broadcasts) and procedures;
- f) runways and stop ways;



- g) taxiways and aprons;
- h) aerodrome ground operating procedures (including low visibility procedures);
- i) approach and runway lighting; and
- j) aerodrome operating minima

6.2.2 The information notified under the AIRAC system shall not be changed further for at least another 28 days after the effective date, unless the circumstance notified is of a temporary nature and would not persist for the full period.

6.2.3 Information provided under the AIRAC system shall be made available by the aeronautical information service (AIS) so as to reach recipients at least 28 days in advance of the effective date.

AIRAC information is distributed by the AIS unit at least 42 days in advance of the AIRAC effective dates with the objective of reaching recipients at least 28 days in advance of the effective date.

6.2.4 When information has not been submitted by the AIRAC date, a NIL notification shall be distributed not later than one cycle before the AIRAC effective date concerned.

6.2.5 Implementation dates other than AIRAC effective dates shall not be used for pre-planned operationally significant changes requiring cartographic work and/or for updating of navigation databases.

6.2.6 The regulated system (AIRAC) shall be used for the provision of information relating to the establishment and withdrawal of, and premeditated significant changes in, the circumstances listed below:

- a) position, height and lighting of navigational obstacles;
- b) hours of service of aerodromes, facilities and services;
- c) customs, immigration and health services;
- d) temporary danger, prohibited and restricted areas and navigational hazards, military exercises and mass movements of aircraft; and
- e) temporary areas or routes or portions thereof where the possibility of interception exists.

6.2.7 Whenever major changes are planned and where advance notice is desirable and practicable, information shall be made available by the AIS so as to reach recipients at least 56 days in advance of the effective date. This shall be applied to the establishment of, and premeditated major changes in, the circumstances listed below, and other major changes if deemed necessary:

- a) new aerodromes for international instrument flight rules (IFR) operations;
- b) new runways for IFR operations at international aerodromes;
- c) design and structure of the ATS route network;
- d) design and structure of a set of terminal procedures (including change of procedure bearings due to magnetic variation change);
- e) circumstances listed in 6.2.1 if the entire State or any significant portion thereof is affected or if cross-border coordination is required.

### **6.3 Aeronautical information product updates**

#### 6.3.1 AIP updates

6.3.1.1 ATM Division of CAAB shall ensure that the Aeronautical Information Publication (AIP) be amended or reissued at such regular intervals as may be necessary to keep it up to date.

6.3.1.2 Permanent changes to the AIP shall be published as AIP Amendments.

6.3.1.3 Temporary changes of long duration (three months or longer) and information of short duration which contains extensive text and/or graphics shall be published as AIP Supplements.

#### 6.3.2 NOTAM

6.3.2.1 When an AIP Amendment or an AIP Supplement is published in accordance with AIRAC procedures, a Trigger NOTAM shall be originated.

6.3.2.2 A NOTAM shall be originated and issued promptly whenever the information to be distributed is of a temporary nature and of short duration, or when operationally significant permanent changes or temporary changes of long duration are made at short notice, except for extensive text and/or graphics.

6.3.2.3 A NOTAM shall be originated and issued concerning the following information:

- a) establishment, closure or significant changes in operation of aerodrome(s) or heliport(s) or runways;
- b) establishment, withdrawal or significant changes in operation of aeronautical services (aerodromes, AIS, ATS, communications, navigation and surveillance (CNS), meteorology (MET), search and rescue (SAR), etc.)
- c) establishment, withdrawal or significant changes in operational capability of radio navigation and air-ground communication services. This includes: interruption or return to operation, change of frequencies, change in notified hours of service, change of identification, change of orientation (directional aids), change of location, power increase or decrease amounting to 50 per cent or more, change in broadcast schedules or contents, or irregularity or unreliability of operation of any radio navigation and air-ground communication services or limitations of relay stations including operational impact, affected service, frequency and area;
- d) unavailability of back-up and secondary systems, having a direct operational impact;
- e) establishment, withdrawal or significant changes to visual aids;
- f) interruption of or return to operation of major components of aerodrome lighting systems;
- g) establishment, withdrawal or significant changes to procedures for air navigation services;
- h) occurrence or correction of major defects or impediments in the maneuvering area;
  - i) changes to and limitations on availability of fuel, oil and oxygen.
  - j) major changes to search and rescue facilities and services available;
- k) establishment, withdrawal or return to operation of hazard beacons marking obstacles to air navigation;
- l) changes in regulations requiring immediate action, e.g. prohibited areas for SAR action;

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- m) presence of hazards not otherwise promulgate, which affect air navigation (including obstacles, military exercises and operation, intentional and unintentional radio frequency interference, racket launches displays, fireworks, sky lanterns, rocket debris, races and major parachuting events );
  - n) conflict zones which affect air navigation (to include information that is as specific as possible regarding the nature and extent of threats of that conflict and its consequences for civil aviation);
  - o) planned laser emissions, laser displays and search lights if pilots' night vision is likely to be impaired;
  - p) erecting or removal of, or changes to, obstacles to air navigation in the take-off/climb, missed approach, approach areas and runway strip;
  - q) establishment or discontinuance (including activation or deactivation) as applicable, or changes in the status of prohibited, restricted or danger areas;
  - r) establishment or discontinuance of areas or routes or portions thereof where the possibility of interception exists and where the maintenance of guard on the VHF emergency frequency 121.5 MHz is required;
  - s) allocation, cancellation or change of location indicators;
  - t) changes in aerodrome/heliport rescue and firefighting category provided (see ANO 14, Volume I Chapter 9, and Attachment A, Section 17);
  - u) presence or removal of, or significant changes in, hazardous conditions due to snow, slush, ice, radioactive material, toxic chemicals, volcanic ash deposition or water on the movement area;
  - v) outbreaks of epidemics necessitating changes in notified requirements for inoculations and quarantine measures;
  - w) observations or forecasts of space weather phenomena, the date and time of their occurrence, the flight levels where provided and portions of the airspace which may be affected by the phenomena;

- x) an operationally significant change in volcanic activity, the location, date and time of volcanic eruptions and/or horizontal and vertical extent of volcanic ash cloud, including direction of movement, flight levels and routes or portions of routes which could be affected;
- y) release into the atmosphere of radioactive materials or toxic chemicals following a nuclear or chemical incident, the location, date and time of the incident, the flight levels and routes or portions thereof which could be affected and the direction of movement;
- z) establishment of operations of humanitarian relief missions, such as those undertaken under the auspices of the United Nations, together with procedures and/or limitations which affect air navigation; and
- aa) implementation of short-term contingency measures in cases of disruption, or partial disruption, of ATS and related supporting services.

6.3.2.4 The following information shall not be notified by NOTAM:

- a) routine maintenance work on aprons and taxiways which does not affect the safe movement of aircraft;
- b) runway marking work, when aircraft operations can safely be conducted on other available runways, or the equipment used can be removed when necessary;
- c) temporary obstructions in the vicinity of aerodromes/heliports that do not affect the safe operation of aircraft;
- d) partial failure of aerodrome/heliport lighting facilities where such failure does not directly affect aircraft operations;
- e) partial temporary failure of air-ground communications when suitable alternative frequencies are known to be available and are operative;
- f) the lack of apron marshalling services and road traffic control;
- g) the unserviceability of location, destination or other instruction signs on the aerodrome movement area;
- h) parachuting when in uncontrolled airspace under VFR (see 6.3.2.3 m)), when controlled, at promulgated sites or within danger or prohibited areas;
- i) training activities by ground units;

- j) unavailability of back-up and secondary systems if these do not have an operational impact;
- k) limitations to airport facilities or general services with no operational impact;
- l) national regulations not affecting general aviation;
- m) announcement or warnings about possible/potential limitations, without any operational impact;
- n) general reminders on already published information;
- o) availability of equipment for ground units without containing information on the operational impact for airspace and facility users;
- p) information about laser emissions without any operational impact and fireworks below minimum flying heights;
- q) closure of movement area parts in connection with planned work locally coordinated of duration of less than one hour;
- r) closure or unavailability of, or changes in, operation of aerodrome(s) outside the aerodrome(s) operational hours; and
- s) other non-operational information of a similar temporary nature.

### 6.3.3 Data set updates

6.3.3.1 ATM Division of CAAB shall ensure that the data sets be amended or reissued at such regular intervals as may be necessary to keep them up to date.

6.3.3.2 Permanent changes and temporary changes of long duration (three months or longer) made available as digital data shall be issued in the form of a complete data set or a subset that includes only the differences from the previously issued complete data set.

6.3.3.3 When made available as a completely reissued data set, the differences from the previously issued complete data set shall be indicated.

6.3.3.4 When temporary changes of short duration are made available as digital data (digital NOTAM), they shall use the same aeronautical information model as the complete data set.

6.3.3.5. Updates to AIP and digital data sets shall be synchronized.

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## CHAPTER 7. REPEAL AND SAVINGS

- 7.1 As soon as the commencement of this ANO will be executed, the First Edition of ANO (AIS) A.1 issued on 11<sup>TH</sup> February 2009 shall stand be repealed.