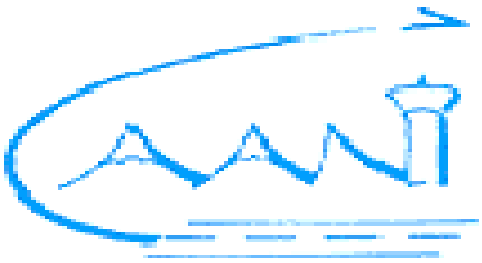

Manual Of Standards
Aeronautical Information Service (MOS – AIS)

First Edition, January, 2018

Civil Aviation Authority of Nepal

AMENDMENT RECORDS

The amendment listed below incorporated into this copy of the manual of Standards- Aeronautical Information Services.

RECORD OF AMENDMENTS AND CORRIGENDA

Amendments			
No	Date of Issue	Date Entered	Entered by

Corrigenda			
No	Date of Issue	Date Entered	Entered by

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FOREWORD

Pursuant to Rule -82,schedule-3 Civil Aviation Regulation ,2058 (2002), this Manual of Standards – Aeronautical Information Services is issued by CAAN specifying the national standards, requirements and procedures pertaining to the provision of aeronautical information services by the air navigation service provider within the Nepalese Flight Information Region.

The standards and recommended practices in this Manual are based on those stipulated in Annexes 4, Annex 15 and Doc 8126 to the Convention on International Civil Aviation [as in force and amended from time to time by the Council of the International Civil Aviation Organization (ICAO)] and other relevant ICAO documents, and with such modifications as may be determined by CAAN to be applicable in Nepal

This is a controlled documents and is subject to periodic review .Air Navigation Services Safety Standards Department will maintain this document as complete, accurate and up-dated as possible. Comments and recommendations for revision /amendment action to this publication should be forwarded to the Director of ANS Safety Standards Department, Head office. Babarmahal, Kathmandu.

Sanjiv Gautam

Director General

Civil Aviation Authority of Nepal

Date

DEFINITIONS AND ABBREVIATIONS

Definitions

Accuracy.
A degree of conformance between the estimated or measured value and the true value.

Note.—For measured positional data the accuracy is normally expressed in terms of a distance from a stated position within which there is a defined confidence of the true position falling.

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

Aeronautical Mapping data (AMD).
Data collected for the purpose of compiling aerodrome mapping information.

Note.— Aerodrome mapping data are collected for purposes that include the improvement of the user's situational awareness, surface navigation operations, training, charting and planning.

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

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

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 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 information/data 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 published 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 (ATS).

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 airborne and ground-based functions.

AIS product.
Aeronautical information provided in the form of the elements of the Integrated Aeronautical Information Package (except NOTAM and PIB), including aeronautical charts, or in the form of suitable electronic media.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.

Note — Area navigation includes performance- based navigation as well as other operations that do not meet the definition of performance-based navigation.

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.

Note.—The assemble phase includes checking the data and ensuring that detected errors and omissions are rectified.

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 groundbased system that enables the identification of aircraft.

Note.—A comparable ground-based system is one that has been demonstrated, by comparative assessment or other methodology, to have a level of safety and performance equal to or better than monopulse SSR.

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-Cagreement will be exchanged between the ground system and the aircraft, via a data link, specifying under whatconditions ADS-C reports would be initiated, and what data would be contained in the reports.

Note.—The abbreviated term "ADS contract" is commonly used to refer to ADS event contract, ADS demand contract, ADS periodic contract or an emergency mode.

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:

Data link-automatic terminal information service (D-ATIS).
The provision of ATIS via data link.Voice-automatic terminal information service (Voice-ATIS). The provision of ATIS by means of continuous and repetitive voice broadcasts.

Bare Earth.
Surface of the Earth including bodies of water and permanent ice and snow, and excluding vegetation and man-made 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.

Note.— The interval is usually referred to as the accuracy of the estimate.

Controller-pilot dat link communications (CPDLC).
A means of communication between controller andpilot, 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 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*).

Note.—A data product specification provides a description of the universe of discourse and a specification for mapping the universe of discourse to a data set. It may be used for production, sales, end-use or other purpose.

Data quality.
A degree or level of confidence that the data provided meets the requirements of the data user in terms of accuracy, resolution and integrity.

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

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

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.

Note.—Digital Terrain Model (DTM) is sometimes referred to as DEM.

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.

Ellipsoid height (Geodetic height).

The height related to the reference ellipsoid, measured along the ellipsoidal 0uter normal through the point in question.Feature. Abstraction of real world phenomena (ISO 19101*). Feature attribute. Characteristic of a feature (ISO 19101*).

Note.—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*).

Note.—An operation upon the feature type dam is to raise the dam. The result of this operation is to raise the level of water in the reservoir.

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*). Note.—In a feature catalogue, the basic level of classification is the feature type 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.

Note.—The geoid is irregular in shape because of local gravitational disturbances (wind tides, salinity, current, etc.) and the direction of gravity is perpendicular to the geoid at every point.

Geoid undulation.

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

Note.—In respect to the World Geodetic System — 1984 (WGS-84) defined ellipsoid, the difference between the WGS-84 ellipsoidal height and orthometric height represents WGS-84 geoid undulation.

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*).

Note.—In the Gregorian calendar, common years have 365 days and leap years 366 days divided into twelve sequential months.

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.

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 byproper consideration to human performance.

Integrated Aeronautical Information Package.
A package which consists of the following elements:

- AIP, including amendment service;
- Supplements to the AIP;
- NOTAM and PIB;
- AIC; and
- checklists and lists of valid NOTAM.

Integrity (aeronautical data).
A degree of assurance that an aeronautical data and its value has not been lost oraltered since the data origination or authorized amendment.

Integrity classification (aeronautical data).Classification based upon the potential risk resulting from the useof corrupted data. Aeronautical data are 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*).

Note.—Data that describes and documents data.

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(s).

Navigation specification:
A set of aircraft and flight crew requirement needed to support performance based navigation operation within a defined space. There are two kinds of navigation specification:

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

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

Note 1.— The Performance-based Navigation (PBN) Manual (Doc 9613), Volume II, contains detailed guidance on navigation specifications.

Note 2.—The term RNP, previously defined as "a statement of the navigation performance necessary for operation within a defined airspace", has been removed from this Annex as the concept of RNP has been overtaken by the concept of PBN. The term RNP in this Annex is now solely 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.

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.

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.

Note.— An RCP specification includes communication performance requirements that are allocated to system components in terms of the communication to be provided and associated transaction time, continuity, availability, integrity, safety and functionality needed for the proposed operation in the context of a particular airspace concept.

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.

Note— Performance requirements are expressed in navigation specification(RNAV specification, RNPspecification) in terms of accuracy, integrity, continuity, availability and functionality needed for theproposed operation in the context of a particular airspace concept.

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

Note.— An RSP specification includes surveillance performance requirements that are allocated to system components in terms of the surveillance to be provided and associated data delivery time, continuity, availability, integrity, accuracy of the surveillance data, safety and functionality needed for the proposed operation in the context of a particular airspace concept

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.

Note.—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*).

Note 1.—The term "quality" can be used with adjectives such as poor, good or excellent.

Note 2.— "Inherent", as opposed to "assigned", means existing in something, especially as a permanent characteristic. .

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 the aircraft supported by one or more navigation aids.

Requirement.

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

Note 1.— "Generally implied" means that it is custom or common practice for the organization, its customers and other interested parties, that the need or expectation under consideration is implied.

Note 2.— A qualifier can be used to denote a specific type of requirement, e.g. product requirement, quality management requirement, customer requirement.

Note 3.— A specified requirement is one which is stated, for example, in a document.

Note 4.— Requirements can be generated by different interested parties.

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.

Resolution.
A number of units or digits to w hich a measured or calculated value is expressed and used.

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 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.

Note.—In practical terms, depending on the method of data collection used, terrain represents the continuous surface that exists at the bare Earth, the top of the canopy or something in-between, also known as "first reflective surface".

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

Note.—When considering product, traceability can relate to :
- the origin of materials and parts;
- the processing history; and
- the distribution and location of the product after delivery.

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*).

Note 1.—The term "verified" is used to designate the corresponding status.
Note 2.—Confirmation can comprise activities such as:

- performing alternative calculations;
- comparing a new design specification with a similar proven design specification;
- undertaking tests and demonstrations; and
- reviewing documents prior to issue.

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 (TAP), 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, TAP and SIGMET by means of continuous and repetitive voice broadcasts.

Abbreviations

AFS	Aeronautical Fixed Services
AIC	Aeronautical Information Circular
AIP	Aeronautical Information Publication
AIRAC	Aeronautical Information Regulation and Control
AIS	Aeronautical Information Services
ANS	Air Navigation Services
ATC	Air Traffic Control
ATS	Air Traffic Service
ATM	Air Traffic Management
CAR	Civil Aviation Requirements
CRC	Cyclic Redundancy Check
ICAO	International Civil Aviation Organization
NOF	International NOTAM Office
NOTAM	Notice to Airmen
SARPS	Standards and Recommended Practices
QMS	Quality Management System

Chapter 1
Introduction

1.1 The Manual of Standards for Aeronautical Information Services (MOS-AIS) contains the standards, requirements and procedures pertaining to the planning and operation of aeronautical information services and the provision of aeronautical charts.

1.2 The Civil Aviation Authority of the Nepal (CAAN), shall remain responsible for the information published. Aeronautical information published by the AIS provider, for and on behalf of CAAN, shall clearly indicate that it is published under the authority of CAAN

1.3 This Manual is based mainly on compliance with the following ICAO documents:

(a) ICAO Annex 4 – Aeronautical Charts;

(b) ICAO Annex 15 – Aeronautical Information Services;

(c) ICAO Annex 11 – Air Traffic Services;

(d) ICAO Doc 8126 – Aeronautical Information Services Manual; and

(e) ICAO Doc 9674 – World Geodetic System – 1984 (WGS - 84) Manual

1.4 Where there is a difference between a standard in this Manual and that of the above-mentioned ICAO documents, the standard in this Manual shall prevail.

1.5 Differences, where they exist, between the standards in this Manual and those contained in the ICAO Annexes shall be published in section GEN 1.7 of the AIP Nepal and also notified to ICAO.

1.6 In this Manual, standards are preceded by the word “shall” whereas recommended practices are preceded by the word “should”. An AIS provider shall comply with all standards at all times and should endeavor to comply with all recommended practices.

1.7 The AIS provider shall ensure that the units of measurement as specified in Manual of Standards – Units of Measurement to be used in Air and Ground Operations are used in the provision of aeronautical information services and aeronautical charts.

1.8 In addition to the Manual of Standards, the following may also be issued as and when required to supplement the Manual of Standards:

a) **Safety Directive** – this is a mandatory requirement to be complied by the AIS provider. It is published for purposes of immediate promulgation of local standards and recommended practices in response to, but not limited to, amendments to ICAO Annexes. The Safety Directives will be incorporated into subsequent amendments of the Manual of Standards.

b) **Safety Publication** – this is published for purposes of promulgating supplementary guidance materials to the standards and recommended practices in the Manual of Standards. The publications are intended to provide recommendations and guidance to illustrate means, but not necessarily the only means of complying with the Manual of Standards. Safety Publications may explain certain regulatory requirements by providing interpretive and explanatory materials.

c) **Information Circular** – this is published for purposes of bringing to the attention of the AIS provider educational materials related to aviation safety. The publications could be initiated as a result of ICAO State letters which do not require immediate changes to

local regulations, new safety initiatives or international best practices as identified by ANSSSD (ANS Safety Standards Department) The AIS provider is encouraged to review and adopt the material if practicable. Where appropriate, the material in the publications may be incorporated into subsequent amendments of the Manual of Standards.

1.9 When AIS provider is not able to comply with any standards specified or referenced in this Manual, the AIS provider shall file differences for deviation from the relevant standards. Applications shall be supported in writing with the reasons for such deviation including any safety assessment or other studies undertaken and where appropriate, an indication of when compliance with the current standards can be expected.

1.10 Any difference or deviation granted to an AIS provider shall also be recorded in the operations manual. The operations manual shall also contain the details of the differences or deviations, such as the reason that the differen ce or deviation was requested for and any resultant limitations or conditions imposed

Chapter 2
Operation Requirement

2.1 General AIS Operation Requirement

2.1.1 An AIS provider shall ensure that aeronautical information/data necessary for the safety; regularity or efficiency of air navigation is made available in a form in conformity with ICAO Annex 15 and suitable for the operational requirements of:

a) those involved in flight operations, including flight crews, flight planning and flight simulators; and

b) the ATS units responsible for flight information service and the services responsible for pre-flight information.

2.1.2 An AIS provider shall receive, and/or originate, collate, edit, format, publish/store and distribute aeronautical information/data concerning the airspace in which CAAN has responsibility for air traffic services. Aeronautical information shall be published as an Integrated Aeronautical Information Package consisting of:

(a) AIP, including amendment service;

(b) Supplements to the AIP;

(c) NOTAM;

(d) Pre-flight Information Bulletins;

(e) AIC; and

(f) Checklists and lists of valid NOTAM.

2.1.3 An AIS provider shall ensure that published geographical coordinates indicating latitude and longitude are expressed in terms of the World Geodetic System – 1984 (WGS-84) geodetic reference datum as in ICAO Doc 9674 - World Geodetic System – 1984 (WGS-84) Manual.

2.1.4 Automation enabling digital data exchange should be introduced with the objective of improving the speed, quality, efficiency and cost-effectiveness of aeronautical information services.

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

2.1.6 Metadata shall be collected for aeronautical data processes and exchange points. This metadata collection shall be applied throughout the aeronautical information data chain,from survey/origin to distribution to the next intended user. The metadata to be collected shall include, as a minimum:

1) the name of the organization or entity performing the function;

2) the function performed; and

3) the data and time of operation.

Note. – The function performed indicates any action of originating, transmitting or manipulating the data.

2.2 Facilities and the Work Environment

2.2.1 In addition to adequate numbers of suitably experienced and competent personnel, AIS provider also requires appropriate accommodation and adequate facilities to get the work done and subsequently provides quality services.

2.2.2 This part of the ISO Standards calls for AIS provider to determine, provide and maintain facilities it needs to achieve product conformity, including:

1) Workspace;
2) Equipment, hardware and software; and
3) Supporting services

2.2.3 In simple terms, this means that AIS provider needs to identify, provide and maintain adequate space, suitable equipment, tools and systems to enable staff to do their job.

2.2.4 ICAO Aeronautical Information Services Manual (Doc 8126) provides guidance on facilities and equipment for aeronautical information services.

2.2.5 At the most basic level, facilities for AIS provider should include:

1) Suitable furniture for staff to work comfortably, efficiently and ergonomically;
2) Sufficient space between work-stations to avoid disruption to other staff;
3) Noisy equipment isolated away from staff or sound-proofed;
4) Adequate overhead or specialist lighting to be able to easily read source document;
5) A quiet area for proof-reading; and
6) Suitable computing equipment for word-processing and data capture.

2.2.6 AIS provider organizations are moving more and more towards automated systems to improve the efficiency, accuracy and cost effectiveness of their businesses. AIS provider needs to ensure that any systems automation and services are designed with the intent of avoiding incompatibilities, divergences and unnecessary duplication of effort and importantly that there is an overall systems integration management plan in place. Standardization of procedures, products and services is essential for the successful automation of AIS.

2.3 Quality Management System

2.3.1 Quality management systems shall be implemented and maintained by an AIS provider encompassing to all functions of an aeronautical information service, as described in paragraph 2.1.2.The execution of such quality management systems shall be made demonstrable for each function stage, when required. -

2.3.2 Quality management should be applicable to the whole aeronautical information data chain from data origination to distribution to the next intended user, taking into consideration the intended use of data.

Note 1 – Quality management may be provided by a single quality management system or serial quality management systems.

Note 2, – Letters of agreement concerning data quality between originator and distributor and between distributor and next intended user may be used to manage the aeronautical information data chain.

2.3.3 The quality management system implemented in paragraph 2.2.1 shall follow the International Organization for Standardization (ISO) 9000 series of quality assurance standards, and be certified by an approved organization.

2.3.4 The quality management system established by the AIS provider shall include thenecessary policies, processes and procedures, including those for the use of metadata,to ensure 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. assurance of the applicability period of intended use of aeronautical information/data as well as that the agreed distribution dates will be met.

2.3.5 The AIS provider shall comply with the order of accuracy for aeronautical information/data as specified in ICAO Annex 11, Chapter 2, paragraph 2.19 and Annex 14, Volumes I and II, Chapter 2. The order of publication resolution and data integrity of aeronautical information/data shall comply with Annex 15, paragraph 3.2.9 and Appendices 1 and 7.

2.3.6 The AIS provider shall ensure that electronic aeronautical data sets, shall be protected by the inclusion in the data sets of a 32-bit cyclic redundancy check (CRC) implemented by the application dealing with the data sets.

2.4 Operations Manual

2.4.1 The AIS provider shall submit an operations manual to DGCA . The information presented in the operations manual shall serve to demonstrate how the AIS provider will comply with the requirements of this Manual. It also serves as a reference document agreed between the AIS provider and ANS Safety Standards Department with respect to the standards, conditions and level of service to be maintained for the provision of aeronautical information services.

2.4.2 The contents of the operations manual shall contain:

a) the information required of the AIS provider as mentioned in this Manual;

b) an organization chart of the AIS provider that shows the position of each personnel and the name, qualification, experience, duties and responsibilities of personnel who are responsible for ensuring the compliance of the organization with the requirements in subparagraph (a);

c) an operation plan for the aeronautical information services; and

d) information on the compliance of the aeronautical information services with the applicable requirements of CAR 4 and 15 and this Manual of Standards – Aeronautical Information Services.

2.4.3 The operations manual may consist of a main manual covering the main areas that need to be addressed, as well as separate supporting documents and manuals.

2.4.4 The operations manual is an important document and shall be issued under the authority of the AIS provider. The AIS provider shall control the distribution of the operations manual and ensure that it is amended whenever necessary to maintain the accuracy of the information in the operations manual and to keep its contents up to date.

2.5 Aeronautical Data Publication Resolution and Integrity Classification

Reference : (Table A 2-1, 2-2, 2-3, 2-4, 2-5)

Table 2-1. LATITUDE AND LONGITUDE

Latitude and Longitude	*Publication resolution*	*Integrity classification*
Flight information region boundary points	1 min	routine
P, R, D area boundary points (outside CTA/CTR boundaries)	1 min	routine
P, R, D area boundary points (inside CTA/CTR boundaries)	1 sec	essential
CTA/CTR boundary points	1 sec	essential
En-route NAVAIDS and fixes, holding, STAR/SID points	1 sec	essential
Obstacles in Area 1 (the entire State territory)	1 sec	routine
Aerodrome/heliport reference point	1 sec	routine
NAVAIDS located at the aerodrome/heliport	1/10 sec	essential
Obstacles in Area 3	1/10 sec	essential
Obstacles in Area 2	1/10 sec	essential
Final approach fixes/points and other essential fixes/points comprising the instrument approach procedures	1/10 sec	essential
Runway threshold	1/100 sec	critical
Runway end	1/100 sec	critical
Runway holding position	1/100 sec	critical
Taxiway center line points/parking guidance line points	1/100 sec	essential
Taxiway intersection marking line	1/100 sec	essential
Exit guidance line	1/100 sec	essential
Aircraft standpoints /INS checkpoints	1/100 sec	routine
Geometric center of TLOF or FATO thresholds, heliports	1/100 sec	critical
Apron boundaries (polygon)	1/10 sec	routine

Table 2-2. ELEVATION / ALTITUDE / HEIGHT

Elevation / Altitude / Height	*Publication resolution*	*Integrity classification*
Aerodrome/heliport elevation	1 m or 1 ft	essential
WGS-84 geoid undulation at aerodrome/heliport elevation position	1 m or 1 ft	essential
Runway or FATO threshold, non-precision approaches	1 m or 1 ft	essential
WGS-84 geoid undulation at runway or FATO threshold, TLOF geometric center, non-precision approaches	1 m or 1 ft	essential
Runway or FATO threshold, precision approaches	0.1 m or 0.1 ft	critical
WGS-84 geoid undulation at runway or FATO threshold, TLOF geometric center, precision approaches	0.1 m or 0.1 ft	critical
Threshold crossing height, precision approaches	0.1 m or 0.1 ft	critical
Obstacles in Area 2	1 m or 1 ft	essential
Obstacles in Area 3	0.1m or 0.1ft	essential
Obstacles in Area 1 (the entire State territory)	1 m or 1 ft	routine
Distance Measuring Equipment/Precision (DME/P)	3 m (10 ft)	essential
Distance Measuring Equipment (DME)	30m (100ft)	essential
Minimum altitudes	50m or 100ft	routine

Table 2-3. DECLINATION AND MAGNETIC VARIATION

Declination and Magnetic Variation	*Publication resolution*	*Integrity classification*
VHF NAVAID station declination used for technical line-up	1 degree	essential
NDB NAVAID magnetic variation	1 degree	routine
Aerodrome/heliport magnetic variation	1 degree	essential
ILS localizer antenna magnetic variation	1 degree	essential
MLS azimuth antenna magnetic variation	1 degree	essential

Table 2-4. BEARING

Bearing	*Publication resolution*	*Integrity classification*
Airway segments	1 degree	routine
En-route and terminal fix formations	1/10 degree	routine
Terminal arrival/departure route segments	1 degree	routine
Instrument approach procedure fix formations	1/100 degree	essential
ILS localizer alignment (True)	1/100 degree	essential
MLS zero azimuth alignment (True)	1/100 degree	essential
Runway and FATO bearing (True)	1/100 degree	routine

Table 2-5. LENGTH/DISTANCE/DIMENSION

Length / Distance / Dimension	*Publication resolution*	*Integrity classification*
Airway segment length	1/10 km or 1/10 NM	routine
En-route fix formation distance	1/10 km or 1/10 NM	routine
Terminal arrival/departure route segments length	1/100 km or 1/100 NM	essential
Terminal and instrument approach procedure fix formation distance	1/100 km or 1/100 NM	essential
Runway and FATO length, TLOF dimensions	1 m or 1 ft	critical
Runway width	1 m or 1 ft	essential
Displaced threshold distance	1 m or 1 ft	routine
Clearway length and width	1 m or 1 ft	essential
Stopway length and width	1 m or 1 ft	critical
Landing distance available	1 m or 1 ft	critical
Take-off run available	1 m or 1 ft	critical
Take-off distance available	1 m or 1 ft	critical
Accelerate-stop distance available	1 m or 1 ft	critical
Runway shoulder width	1 m or 1 ft	essential
Taxiway width	1 m or 1 ft	essential
Taxiway shoulder width	1 m or 1 ft	essential
ILS localizer antenna – runway end, distance	1 m or 1 ft	routine
ILS glide slope antenna – threshold, distance along center line	1 m or 1 ft	routine
ILS markers – threshold distance	1 m or 1 ft	essential
ILS DME antenna – threshold, distance along center line	1 m or 1 ft	essential
MLS azimuth antenna – runway end, distance	1 m or 1 ft	routine
MLS elevation antenna – threshold, distance along center line	1 m or 1 ft	routine
MLS DME/P antenna – threshold, distance along center line	1 m or 1 ft	essential

Chapter 3. Organization of AIS

3.1 Introduction

3.1.1 The objective of Aeronautical Information Services (AIS), as stated in CAR- 15, is to ensure the flow of information necessary for the safety, regularity and efficiency of international Civil Aviation.

3.2 Establishment of the AIS

3.2.1 The AIS should be established as a separate entity within a Civil Aviation Authority of Nepal. It should not be established as a part of any of ATS service. In addition, AIS/Charting officers should be remunerated at least at the same level as personnel in the ATS and CNS. (suggestion in Figure 3-1 in this Chapter)

3.3 Technical orientation and status

3.3.1 The main user of aeronautical information is the pilot. Another category of user represents those engaged in airline operational control, aeronautical charts provider and document producing agencies, and air traffic services. The aeronautical information service is technically oriented in the nature of the services it provides.

3.3.2 In this connection it must be emphasized that:

a) the CAAN is responsible for the aeronautical information provided by the AIS provider;

b) the role and the importance of aeronautical information changed significantly with the implementation of area navigation (RNAV), required navigation performance (RNP) and airborne computer-based navigation systems; and

c) corrupt or erroneous aeronautical information can potentially affect the safety of air navigation.

3.3.3 Consequently, it is essential to establish a high level of technical proficiency within the AIS provider. In addition, the AIS should be given the appropriate status in the Civil Aviation Authority Of Nepal in accordance with the important role it has in the provision of accurate aeronautical information.

3.4 Organization - Size and scope of the AIS provider

3.4.1 The volume of aircraft operations and the extent to which civil aviation facilities are provided with aeronautical information and aeronautical data will determine the size and scope of the AIS provider. While the amount of information to be processed will vary from State to State, the nature of the responsibilities remains basically the same.

3.5 Working arrangements

3.5.1 Efficient working arrangements within CAAN have underlined a number of common factors which contribute to a sound organizational base. The main considerations are the coordination of AIS provider with:

a) related technical services;

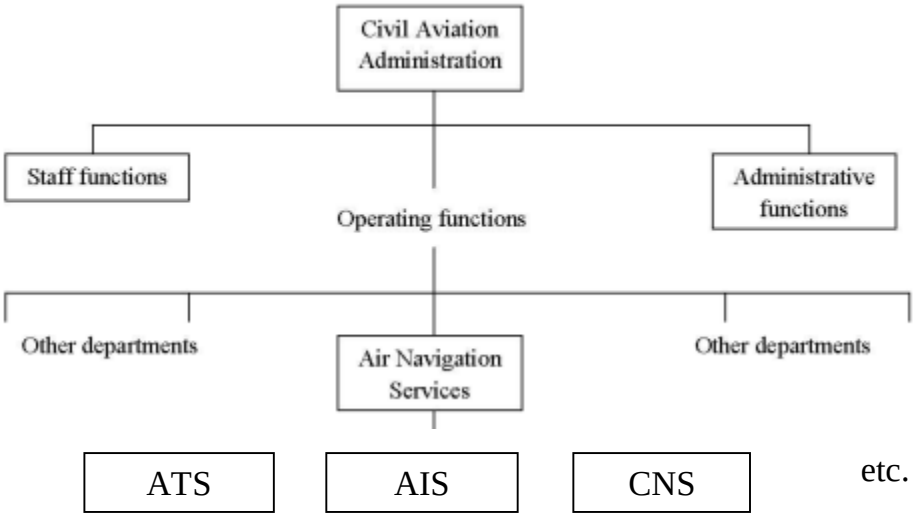
b) the international NOTAM office (NOF);

c) aerodrome/heliport operators;

d) cartographic services (if provided by separate entity);

e) printing and distribution services; and efficient communication facilities, particularly AFTN links, telefax and connection to the Internet (e-mail) for this coordination to function effectively (see Figure 3-1 in this Chapter).

Figure 3-1. Location of AIS within the aviation administration



Chapter 4: Training, Competency and Staffing

4.1 Training, Awareness and Competency

4.1.1 This part of the standard requires an organization to:

a) determine competency needs for personnel performing activities affecting quality;
b) provide training to satisfy those needs;
c) evaluate the effectiveness of the training provided;
d) ensure that its employees are aware of the relevance and importance of their activities and how they contribute to the achievement of quality objectives; and
e) maintain appropriate records of education, experience, training and qualifications.

4.2 Checking Competence and Training

4.2.1 AIS provider Chief or the designated training officer needs to regularly review the competence, experience, qualifications, capabilities and abilities of its staff to ensure that any skills and qualifications needed by the AIS technical staff are available for the tasks to be completed.

4.2.2 Training is required when deficiencies are noted, or when new employees start working with AIS provider. Any training that is required may be carried out in stages, and may be in the workplace, in-house or at an external location.

4.2.3 The scope of the training and checking is largely a matter for the organization to determine, but generally, training for AIS technical personnel would include the following topics:

a) Principles of the Aeronautical Information Service;
b) General Specifications of Aeronautical Charts;
c) Organization of AIS;
d) Responsibilities and Functions of AIS;
   → ICAO Documents
   → AIS Products
   → Responsibilities and Limitations
e) The Integrated AIP Package;
f) Relationships with External Agencies;
g) Change Management;

- → Applicable Policies and Procedures
- → Standard Operating Procedures
- → Quality Processes
- → Coordination Requirements
- → Collation and Processing
- → Data Entry and Verification
- → Data Structures
- → Formats to be used
- → Checking Procedures and Processes
- → File Management
- → Record Keeping
- → Publication and Production
- → Distribution

h) AIS Automation.

4.2.4 Records should be maintained to show what competences staff possess, and to show what training has been carried out, and the results of that training. Records that demonstrate successful completion, i.e. effectiveness, of a training program and the competence of staff can and should be kept simple.

4.3 Training Requirements

4.3.1 The AIS provider shall establish procedures to ensure that all the AIS technical staff possesses the skills and competencies required in the provision of aeronautical information services. The AIS provider should develop an overall training policy and programme and detailed job descriptions for its staff. The training policy and programme should lay down the training courses that different levels of staff have to undergo to perform their duties, including initial, recurrent and specialized training. The job description should depict the job purpose and key responsibilities of each staff.

4.3.2 The AIS provider shall ensure that their staff should undergo a suitable period of supervised on-the-job training before being deployed for duties.

4.3.3 The AIS provider shall maintain individual training records for each of its staff, which should include a training plan detailing the courses completed by each staff as well as the time-frame for attending future courses as required under his training plan.

4.3.4 The AIS provider shall conduct a yearly review of the training plan for each staff at the beginning of the year to identify any gaps in competency, changes in training requirement and prioritize the type of training required for the coming year.

4.4 Staffing

4.4.1 The structure and level of staffing of the AIS will depend on the volume of work to be handled. The AIS should be headed by a qualified, experienced and knowledgeable person .

4.4.2 The AIS provider shall employ sufficient number of competent personnel preferably graduates of Science/IT/or Management and basic AIS training conducted at CAA or its equivalent training under the former ATO to perform the operation of the service.

4.4.3 The AIS provider shall provide in the operations manual an analysis of the number of personnel required to perform the aeronautical information service taking into account the duties and workload require.

Chapter 5. Aeronautical Information Publication

5.1 Introduction

5.1.1 The AIP forms the basic element of the Integrated Aeronautical Information Package. It contains aeronautical information of a permanent nature and temporary changes to this information of long duration. It is the task of the AIS provider to provide a comprehensive document, to maintain it up-to-date and to make it simple to use.

5.1.2 The content of an AIP is governed by Chapter 4 and Appendix 1 of CAR- 15, supplemented by the guidance in this manual as to how the requirements might best be met.Taking into consideration the increased use of automation in aeronautical information service, the information contained in the AIP was arranged in such a manner that automation could be used, both for the production of the "paper" AIP as well as for creation of a database for retrieval of that information. In addition, duplication of information was avoided. To the extent possible, the AIP was also signed facilitate its use in flight.

5.1.3 The AIP under must contain concise, current information relating to, and arranged under, the subject headings listed in CAR- 15, Appendix 1. This facilitates both in locating information a specific heading and the storage/retrieval of the information using automated processing. If no facilities or services are provided or no information is available for publication in respect of one of the categories of information specified in CAR-15, Appendix 1, an indication should be given as to which of these circumstances applies (e.g. "NIL" or "Not AVBL").

5.1.4 The basic structure and referencing must be common to all AIP but at the same time it should allow for the specific requirements of CAAN with respect to quantity and nature of information to be included. Each of the specified "compulsory" reference numbers of a section and/or subsection must relate to the same topic in every AIP, except that it might be noted as "not applicable" in some cases and have larger or smaller quantities of information in others.

5.2 Content and Format

5.2.1 The AIP must be self-contained and include a table of contents. It should be published in loose leaf form, unless the complete publication is re-issued at frequent intervals.

5.2.2 The AIP is divided into three parts:

PART 1 — GENERAL (GEN), consisting of five sections, contains information of an administrative and explanatory nature which is not of such significance/importance that NOTAM need be issued;

PART 2 — EN-ROUTE (ENR), consisting of seven sections, contains information concerning airspace and its use; and

PART 3 — AERODROMES (AD), consisting of four sections, contains information 0y6concerning aerodromes/heliports and their use.

5.2.3 Many States may be able to produce the AIP in one volume. Where this is not practicable and the AIP is produced and made available in more than one volume,

each volume must include a separate amendment and supplement service, and the following separate sections must be included in each volume:

— Preface
— Record of AIP Amendments
— Record of AIP Supplements
— Checklist of AIP pages
— List of current hand amendments.

5.2.4 When the AIP is published as one volume, the above-mentioned subsections appear only in Part 1 — GEN and the annotation "not applicable" must be entered against each of these subsections in Parts 2 and 3.

5.2.5 Each AIP must be dated. In the case of AIP issued in loose-leaf form, each page must be dated. The date, consisting of the day, month (by name) and year, must be the publication date or the effective date (AIRAC) of the information.

5.3 Charts to be included in the AIP

The following charts for aerodromes/heliports listed in Part 3 — Aerodromes (AD) — must, when available, form part of the AIP unless distributed through a separate subscription service. When included in the AIP, these charts should be in Part 3 — Aerodromes (AD), Section 2, Subsection 24 for aerodromes, or Section 3, Subsection 23 for heliports, immediately following the tabulations for the aerodrome or heliport concerned. The charts, as appropriate, should be included in the following sequence:

1) Aerodrome/Heliport Chart — ICAO
2) Aircraft Parking/Docking Chart — ICAO
3) Aerodrome Ground Movement Chart — ICAO
4) Aerodrome Obstacle Chart — ICAO Type A (for each runway)
5) Precision Approach Terrain Chart — ICAO (precision approach Cat II and III runways)
6) Area Chart — ICAO
7) ATC Surveillance Minimum Altitude Chart — ICAO
8) Standard Instrument Departure Chart — Instrument (SID) — ICAO
9) Standard Arrival Chart — Instrument (STAR) — ICAO
10) Instrument Approach Chart — ICAO (for each runway and procedure type)
11) Visual Approach Chart — ICAO

5.4 Notification of differences in the AIP

5.4.1 The primary purpose of reporting differences is to promote safety and efficiency in air navigation by ensuring that governmental and other agencies, including operators, concerned with international civil aviation are made aware of all national rules and practices in so far as they differ from those prescribed in the ICAO Annexes, Procedures. If identified in AIP, significant differences would not only provide a clear picture of the operational significance of the differences to users of that document, but facilitate the process of isolating and eliminating those that do not

have an important bearing on the safety of air navigation or are inconsistent with the objectives of the ICAO provisions.

5.4.2 CAR-15 requires that a Contracting State shall record in its AIP any significant differences between its national regulations and practices and the related ICAO provisions. It is intended that any such differences be included in GEN 1.7 of the AIP. This is to ensure that an AIP will provide up-to-date information on the status of implementation of Standards, Recommended Practices and Procedures (SARPs), particularly those concerned with aircraft operations and the provision of facilities and services. Any deviation from SARPs that needs to be taken into account in aircraft operations, as indicated below, constitutes a "significant difference".

5.4.3 All significant differences notified to ICAO must also be included in the AIP in a form that will enable a user to differentiate easily between the national rules and practices of CAAN and the related ICAO provisions. They comprise differences from:

a) any of the International Standards;

b) Recommended Practices that are important for the safety of air navigation or, in the case of facilitation, for the speedy handling and clearance through customs, immigration, etc. of aircraft and the loads they carry;

c) Procedures for Air Navigation Services (PANS) that are important for the safety of air navigation.

5.5 AIP Requirements

5.5.1 The AIS provider shall publish an Aeronautical Information Publication (AIP) containing current information, data and aeronautical charts relating to the airspace in which CAAN has responsibility for air traffic services. The contents of the AIP shall be in accordance with CAR-15.

5.5.2 The AIS provider shall ensure that the AIP to be published is self-contained and includes:

a) a statement of the competent authority responsible for the air navigation facilities, services or procedures covered by the AIP.

b) the general condition under which the services or facilities are available for international use;

c) a list of the significant differences with the ICAO SARPS that CAAN has filed with ICAO with regards to its own regulations and practices;

d) a summary of any significant regulations and practices followed by CAAN where the ICAO SARPS allow alternative course of action.

5.5.3 The AIS provider shall establish a system to disseminate and make the AIP, AIP Amendment and AIP Supplement available to AIS contracting states and its subscribers (paying and complimentary).

5.6 AIP Amendment

5.6.1 The AIS provider shall ensure that permanent changes to the AIP are published as AIP Amendments. Each AIP Amendment shall be allocated with a serial number, which

shall be consecutive. Each AIP Amendment page, including the cover sheet, shall display a publication date. A brief description of the subjects affected by the amendment shall be given on the AIP Amendment cover sheet.

5.7 AIP Supplement

5.7.1 The AIS provider shall ensure that temporary changes of long duration (three months or longer) and information of short duration which contains extensive text and/or graphics are published as AIP Supplement.

5.7.2 Each AIP Supplement shall be allocated with a serial number which shall be consecutive and based on the calendar year. AIP Supplement pages shall be kept in the AIP as long as all or some of their contents remain valid.

5.7.3 The AIS provider shall issue a checklist of valid AIP Supplements at the first month of the year for distribution. The NOTAM summary with the list of valid AIP supplements and AIC, shall be issued either through the medium of the monthly printed plain language or electronic copy available on-line at ats.caap.gov.ph.

5.8 Electronic AIP (eAIP)

5.8.1 The AIS provider shall publish the AIP, AIP Amendment, AIP Supplement and AIC in a format that allows for displaying on a computer screen and printing on paper.
Note 1. – This composite electronic document is named “Electronic AIP” (eAIP) and may be based on a format that allows for digital data exchange.

5.8.2 When provided, the information content of the eAIP and the structure of chapters, sections and sub-sections shall follow the content and structure of the paper AIP.

5.8.3 When provided, the eAIP shall be available in the physical form CD, DVD and on-line throuh the internet for paid subscribers and complimentary subscribers local and international only. The AIP amendment is available at the www.caanepal.org.np website.

Chapter 6 : NOTAM

6.1 General NOTAM Requirements

6.1.1 The NOF shall promptly originate and issue a NOTAM 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.

6.2 Duration of NOTAM

6.2.1 NOTAM should not remain in force for more than three months. If the circumstances to be notified are expected to exceed three months, an AIP Supplement must be published. When a temporary change in AIP information issued by NOTAM unexpectedly exceeds the three month period, a new or replacement NOTAM may be issued, but only in those cases where a condition is expected to last for a further period of a maximum of one to two months. If it is expected that the condition will last for a longer period of time, an AIP Supplement must be issued.

6.2.2 The CAAN shall ensure that the NOTAM shall:

a) operate the NOF on a 24-hour basis;

b) establish agreements with other international NOTAM offices for the exchange of NOTAM;

c) use appropriate telecommunication facilities to issue and receive NOTAM;

d) issue a checklist of the NOTAM's that are currently in force, at intervals of not more than one month; and

e) issue promptly NOTAM in a format in accordance with CAR-15.

6.3 Information to be promulgated by NOTAM

6.3.1 NOTAM is issued when it is necessary to distribute information of direct operational significance which is:

a) of short duration; or

b) appropriate for inclusion in the AIP but needs immediate distribution.

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

a) establishment, closure or significant changes in operation of aerodrome(s)/heliport(s) or runways;

b) establishment, withdrawal and significant changes in operation of aeronautical services (AGA, AIS, ATS, COM, MET, SAR, etc.);

c) establishment, withdrawal and 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 percent or more, change in broadcast schedules or contents, or irregularity or unreliability of operation of any radio navigation and air-ground communication services;

d) establishment, withdrawal or significant changes made to visual aids;

e) interruption of or return to operation of major components of aerodrome lighting systems;

(f) establishment, withdrawal or significant changes made to procedures for air navigation services;

g) occurrence or correction of major defects or impediments in the maneuvering area;

h) changes to and limitations on availability of fuel, oil and oxygen;

i) major changes to search and rescue facilities and services available;

j) establishment, withdrawal or return to operation of hazard beacons marking obstacles to air navigation;

k) changes in regulations requiring immediate action, e.g. prohibited areas for SAR action;

l) presence of hazards which affect air navigation (including obstacles, military exercises, displays, races and major parachuting events outside promulgated sites);

m) erecting, or removal of, or changes to, obstacles to air navigation in the take-off/climb, missed approach, approach areas and runway strip;

n) establishment or discontinuance (including activation or deactivation) as applicable, or changes in the status of prohibited, restricted or danger areas;

o) 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 121.500 MHz is required;

p) allocation, cancellation or change of location indicators;

q) significant changes in the level of protection normally available at an aerodrome for rescue and fire fighting purposes. NOTAM shall be originated only when a change of category is involved and such change of category shall be clearly stated (see CAR- 14, Volume I, Chapter 9);

r) presence or removal of, or significant changes in, hazardous conditions due to slush, or water on the movement area;

s) outbreaks of epidemics necessitating changes in notified requirements for inoculations and quarantine measures;

t) forecasts of solar cosmic radiation, where provided;

u) 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;

v) 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;

w) establishment of operations of humanitarian relief missions, such as those undertaken under the auspices of United Nations, together with procedures and/or limitations which affect air navigation; and

x) implementation of short-term contingency measures in cases of disruption, or partial disruption, of air traffic services and related supporting services.

6.3.3 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 works, 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 that do not affect the safe operation of aircraft;

d) partial failure of aerodrome 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. (l)], when controlled, at promulgated sites or within danger or prohibited areas;

i) other information of a similar temporary nature.

6.4 Distribution of NOTAM

6.4.1 The NOF shall ensure that each NOTAM is distributed on the basis of a request and where possible be distributed as a single telecommunication message.

6.4.2 The NOF shall ensure that whenever practicable, the AFS is employed for NOTAM distribution. A predetermined distribution system for NOTAM transmitted on the AFS shall be used, subject to agreement established with other international NOTAM offices.

6.6.3 The NOF shall ensure that a monthly either printed or electronic copy plain language list of valid NOTAM, including indications of the latest AIP Amendments, AIC issued and a checklist of AIP Supplements is prepared with a minimum of delay and forwarded by the most expeditious means to recipients of the Integrated Aeronautical Information Package.

Chapter 7: Provision of Pre-Flight Information Service

7.1 Requirement

7.1.1 CAR-15 specifies that pre-flight information must be made available at each aerodrome/heliport normally used for international operations. This includes all aerodromes/heliports designated for regular use by international commercial air transport as listed in the relevant ICAO regional plans and any aerodromes/heliports serving as alternates to these regular aerodromes/heliports.

7.1.2 The following guidance material is primarily intended to assist CAAN in organizing the pre-flight information service. It should be noted that this service is required by all operators and particularly those who have not made specific arrangements to obtain such information. The service should also be arranged so as to supplement existing arrangements where these do not fully meet the operators' requirements.

7.2 Responsibility for execution

7.2.1 The CAAN is responsible for the execution of the above requirement. The AIS provider established for this purpose should be organized and administered on the basis of the amount and type of traffic normally expected to use the aerodrome/heliport and on the length and number of the air routes originating at the aerodrome/heliport. Such units should be staffed by qualified AIS technical personnel, since a complete and responsible briefing can only be provided by staff possessing the requisite knowledge in this field. It may be necessary, however, to delegate such responsibility to an air traffic services (ATS) unit or other operational service at an aerodrome/heliport where minimal traffic requires personnel to perform more than one task.

7.3 Location of the AIS provider Unit

7.3.1 AIS provider units should be situated close to aerodrome/heliport flight services and to airline flight operations offices to facilitate pre-flight functions by flight crews with maximum efficiency and without their being compelled to cover undue distances. Ideally, all such services, namely meteorological briefing, flight clearance and the collection of fees and charges (if any), should be established in a group of soundproof offices located on the ground floor of the terminal building, preferably near the apron.

7.3.2 In order to reduce ground time, particularly for flights continuing without a change of crew, arrangements should be made for access to pre-flight information services without the necessity of customs clearance and/or other formalities. For the convenience of crews unfamiliar with the aerodrome/heliport, a diagram indicating

the location of the Pre-Flight Information Service unit should be placed at the apron entrance(s) to the terminal building.

7.3.3 Where the aerodrome/heliport is the site of a flight information center or area control center, it may be advisable to locate the ATS unit and the AIS provider unit in close proximity (providing the principles outlined above are not compromised).

7.4 Wall displays

7.4.1 Wall displays normally should consist of the following, although the extent of the coverage zone, the availability of suitable charts and the size of the available wall area may necessitate some deviation:

a) two sets of charts of the coverage zone at small scale (1:1,000,000 to 1:3,000,000) showing:

1) the ATS system, aerodromes/heliports and radio aids to navigation;

2) areas over which the flight of aircraft is dangerous, restricted or prohibited;

Note.— The areas contained in navigation warning bulletins should be plotted on glass or transparent plastic sheeting and superimposed on this chart.

b) a 1:500,000 or larger scale chart of the Nepal in which the aerodrome/heliport is located;

Note.— In larger States this may be limited to the flight information region (FIR) in which the aerodrome/heliport is located and adjacent FIR.

c) an outline chart of the coverage zone at small scale with an index to the area or route breakdown used in distributing briefing material. This chart should show the FIRs and items that would be mentioned in a briefing bulletin;

d) a large scale chart or series of charts of the aerodrome/heliport traffic area showing controlled areas, approach aids, and holding, approach and departure procedures (the scale should be as large as practicable);

e) an Aerodrome Obstacle Chart;

f) a large scale chart (approximately 1:3,000) of the aerodrome/heliport movement area and approaches (in so far as necessary to include all lighting aids) showing the location of all technical services and the normal taxiing routes to be followed from apron to take-off positions; and

g) a large scale diagram of the terminal area showing location of various offices and facilities of interest to visiting flight crews.

7.5 Updating of charts

7.5.1 Due to the frequent changes in the ATS system, the information about the current situation can best be indicated by the use of coloured tapes, pins, markers, etc., superimposed on a chart. Such a presentation can be amended from day to day and is much more intelligible to flight crews.

7.6 Access to basic documents

7.6.1 Basic documents (such as up-to-date AIP, AIP Supplements, AIC and ICAO documents) should be stored in such a way as to facilitate access to those wishing to refer to them. Whatever filing system a unit chooses to adopt for its reference library should be such that it is immediately identifiable to the intended user and thereby help to promote self-briefing.

7.7 Sale of aeronautical charts

7.7.1 At AIS provider arrangements could be made, where practicable, to have appropriate aeronautical charts available for sale. The quantity maintained on hand should be kept to the minimum consistent with the potential demand in order to avoid, as much as possible, the effect of obsolescence.

7.8 Verbal briefing

7.8.1 Verbal briefing should be adjusted to the pilot's requirements depending upon familiarity with the route. A checklist may be used by the briefing officer to ensure that the briefing is as comprehensive as necessary; the completeness of a briefing should not be dependent upon the unaided memory of the briefing officer. The items to be included in such a checklist will vary according to the local situation.
If there is any reason to doubt published information, e.g. on aerodromes/heliports or aerodrome/heliport facilities, the briefing officer should not hesitate to telephone the appropriate authority for the latest information.To facilitate SAR action, the briefing officer must ensure that the exact location of the intended landing places of the flight which is being briefed is known, particularly in the case of light aircraft not equipped with a two-way radio. When it is impracticable to obtain information for the complete flight planned route, or when it is more expeditious for information concerning part of the route to be provided by or through another unit, the briefing officer must ensure that the pilot knows where to obtain information for the next route segment. It may be necessary, in exceptional cases, to supplement the normal bulletins and verbal briefing with additional written material specially prepared for a pilot totally unfamiliar with the route to be flown.

7.9 Self-briefing - Pre-flight information bulletins

7.9.1 The provision of daily bulletins is of primary significance in a self-briefing service. Manually prepared, printed plain-language bulletins for collection by pilots, containing current information on the status of facilities and services should be provided. Additionally, amendments to the information contained in bulletins should be made available in the form of hand-out sheets or updated PIB.

7.10 Post Flight Information

Purpose of post-flight information

7.10.1 The purpose of post-flight information is toensure that inadequacies of facilities essential to the safetyof flight operations, and the presence of birds on or aroundthe airport constituting a potential hazard to aircraftoperations, observed by a pilot during the flight, arereported without delay to the authority responsible for thosefacilities. Annex 6, Part I, Chapter 4, 4.1.2 and Part III, Section II, Chapter 2, 2.1.2 places on the operator the responsibility for reporting any inadequacy. Annex 15, 8.3 requires States to ensure that arrangements are made ataerodromes/heliports to receive this information and tomake it available to the AIS "for such distribution as the circumstances necessitate". This is the basis on which thecollection and distribution of post-flight information shouldbe administered, and should influence the formulation of aformat for the collection of such information.

7.10.2 Furthermore, CAR 15, 8.3.2 requires States to ensure that arrangements are made to receive at aerodromes/heliports information concerning the presenceof birds observed by aircrews and ensure that such informationis made available to the AIS for such distribution asthe circumstances necessitate.

Collection of post-flight information

7.10.3 In most cases, an inadequacy of a facility or thepresence of birds is reported by the pilot on the appropriateATS frequency, and this information must then be passedon to the responsible authority and to AIS for requiredaction.

7.10.4 After landing, a pilot wishing to confirm inwriting any observations, or wishing to make an initial report, may do so at the aerodrome/heliport AIS unit, wherea post-flight report form should be available. A specimen post-flight report form is at Figure 1. A space could alsobe provided on a PIB to facilitate the reporting of such data in writing at the aerodrome/heliport of destination.

7.10.5 Copies of the post-flight report form could alsobe made available in the airline operator's offices at theaerodrome/heliport to facilitate filing of post-flight reportsby the pilot. The report must subsequently be madeavailable to the AIS without delay.

Figure – 1 Provision of Pre-Flight/Post flight Information Service

Name of Aerodrome/Heliport AIS Unit:

Operator	Destination	Alternates	ATS Route(s)	FIR	NOF	frequency	Departure Time(s)	Remarks

Explanatory notes on information required under column headings

1. *Operator*. All operators using or intending to use the aerodrome/heliport at which the aerodrome/heliport AIS unit is located.

2. *Destination.* The aerodrome of first intended landing on the air route stage originating at the aerodrome at which the aerodrome/heliport AIS unit is located.

3. *Alternates.* The alternate aerodrome(s)/heliport(s) for the destination given in the preceding column, specified by the operator.

4. *ATS route(s)*. The air traffic service (ATS) route(s), as applicable, specified by the operator for flight to the destination and alternate(s).

5. *FIR.* The flight information region(s) through which the flight to the destination and alternate(s) is planned, together with those adjacent FIRS which contain information significant to the flight.

6. *NOF*. The international NOTAM offices responsible for the provision of aeronautical information in the FIR specified in the preceding column.

7. *Frequency.* The number of flights, specified as per day or per week, for the given air route stage.

Note.— This will determine the pre-flight information bulletin reproduction requirements.

8. *Departure time(s).* The scheduled departure time(s) for the given air route stage.

Note.— This will determine the pre-flight information bulletin optimum release time.

9. *Remarks.* Any additional information concerning the given air route stage; e.g. pre-flight information required for lower airspace only.

Figure 7-2. Briefing checklist

1. Regulations and procedures
   a) Basic publications and recent amendments and supplements
   b) Procedures applicable to airspace to be used
   c) ATS procedures
   d) Altimeter setting

2. Meteorological information

   a) Availability of MET facilities, forecasts and weather reports
   b) Provision of relevant available meteorological information where there is no meteorological office at the aerodrome/heliport, including weather information reported by en-route aircraft

3. *Route and destination information*

   a) Suggestions concerning available routes
   b) Tracks, distances, general topography and terrain features and information required to maintain safe levels en route
   c) Availability and serviceability state of aerodromes/heliports and aerodrome/heliport facilities
   d) Availability and serviceability state of navigation aids
   e) SAR procedures and facilities and functions of the SAR organization

4. Communication facilities and procedures

   a) Availability and serviceability of air/ground communication facilities
   b) Procedures
   c) Radio frequencies and hours of operation
   d) Communication facilities available to aircraft not equipped with radio for forwarding movement reports

5. Hazards to air navigation

6. *Any other essential information* (including that requested by a pilot which might not be available locally but which can be obtained from the appropriate source).

Chapter 8: Aeronautical Information Regulation andControl (AIRAC)

8.1 The need for control

8.1.1 Information concerning changes in facilities, services or procedures in most cases requires amendments to be made to airline operations manuals or other documents produced by various aviation agencies. The organizations responsible for maintaining these publications up to date usually work to a pre-arranged production programme. If AIP Amendments or AIP Supplements concerning such information were published indiscriminately with a variety of effective dates, it would be impossible to keep the manuals and other documents up to date. Alternatively, if a schedule of predetermined dates on which changes were to become effective were fixed throughout the year, it would be possible for a production programme to take account of or be based on these predetermined dates.

8.2 Regulated system

8.2.1 Since many of the changes to facilities, services and procedures can be anticipated and become effective in accordance with a predetermined schedule of effective dates, CAR- 15, 6, calls for the use of a regulated system designed to ensure, unless operational considerations make it impracticable, that:

a) information concerning any circumstances listed in 8.12 will be issued asAIPAmendments or AIP Supplements.These amendments and supplements must be identified by the acronym “AIRAC” and distributed at least 42 days in advance of the effective date for usual changes and 58 days in advance for major changes with the objective of reaching recipients at least 28 days in advance for usual changes and 44 days in advance for major changes;

b) the AIRAC effective dates must be in accordance with the predetermined, internationally agreed schedule of effective dates based on an interval of 28 days, including 29 January 1998; and

c) information so notified must not be changed further for at least another 28 days after the indicated effective date, unless the circumstance notified is of a temporary nature and would not persist for the full period.

8.2.2 Essentially, implementation dates other than AIRAC effective dates must not be used for pre-planned, operationally significant changes requiring cartographic work and/or updating of navigation databases.

8.2.3 The processing cycle for airborne navigation databases requires the database to be delivered at least seven days before the effective date. At least eight days are necessary to prepare the data in the database; therefore, the navigation data houses generally exercise a cut-off 20 days prior to the effective date in order to ensure that the subsequent milestones are met. Data supplied after the 20-day cut-off will generally not be included in the database for the next cycle (see Figure 8-1).

8.2.4 In addition to the use of a predetermined schedule of effective AIRAC dates, Coordinated Universal Time (UTC) must also be used to indicate the time when the AIRAC information will become effective.

8.3 Schedule of AIRAC effective dates

8.3.1 The schedule of predetermined, internationally agreed AIRAC effective dates for the years 2014 to 2018 inclusive is given in Table 8-1.

8.4 Coordination

8.4.1 In order for the AIRAC system to operate satisfactorily, it is essential that the concerned department/division of CAAN that are assigned the responsibility of supplying raw data to the AIS provider be thoroughly familiar with the AIRAC system. In particular, they must be aware not only of the effective dates but also the latest dates on which the raw data must reach the AIS in order for an AIP Amendment or AIP Supplement to be published and reach recipients at least 28 days in advance of the effective date. It is the responsibility of the AIS to determine these latest dates in order to publish amendments/supplements that will meet the corresponding AIRAC effective dates.

A convenient way of informing concerned department/division of these dates is for the dates to be printed on the reverse side of the aeronautical information promulgation advice form (see Figure 2-1, verso DOC 8126). In addition, the AIS publishes on a yearly basis, usually in the form of an AIC, a list of AIRAC effective dates, publication dates and latest dates on which raw material has to reach the AIS. Technical branches should endeavour to forward raw data to the AIS as early as possible and not wait until the latest date. This applies particularly where lengthy or complicated drafts are concerned. Early receipt will allow the AIS to process the data at a normal speed, whereas late receipt will normally mean that processing will be rushed, increasing the possibility of error.

8.5 Significant dates

8.5.1 There are three significant dates associated with the AIRAC system:

a) the effective date;
b) the publication date; and
c) the latest date for raw data to reach the AIS.

8.5.2 There must be an interval of 42 days between the distribution date and the effective date. This allows for a period of up to 14 days' distribution time, by the most expeditious means, in order for recipients to receive the information at least 28 days in advance of the effective date.

8.5.3 In cases where major changes (i.e. extensive changes to procedures or services which will impact international air transport) are planned and more advance notice is desirable and practicable, a distribution date of 56 days (or even longer) in advance of the effective date should be used. Examples of major changes are:

a) the introduction of a new aerodrome;
b) the introduction of new approach and/or departure procedures at international aerodromes; and
c) the introduction of new ATS routes.

8.5.4 When the AIS does not receive AIRAC material from the responsible authorities/agencies for publication on the next scheduled AIRAC effective date, it must issue a NIL notification by NOTAM (or other means) at least one cycle (28 days or more) before the AIRAC effective date concerned.

8.6 Use of the AIRAC system during holiday periods

8.6.1 In some areas of the world the use of an AIRAC effective date that falls within major holiday periods (e.g. Christmas/New Year, Haj, Mardi Gras, summer vacations) creates difficulties in processing the material received because of reduced staff during these periods. In addition, the increased burden on postal services during such periods frequently delays delivery of AIRAC material, causing considerable problems to users.

8.6.2 To improve the situation during the year-end holiday period, it is recommended that the AIRAC cycle date occurring in the 28-day period from 21 December to 17 January inclusive should not be used for AIRAC effective dates for the introduction of significant operational changes.

8.6.3 It should be emphasized, however, that the AIRAC system provides for considerable flexibility in its application, with a choice of thirteen AIRAC effective dates each calendar year. Bearing in mind that many significant changes to facilities, services and procedures can be anticipated well in advance, a suitable effective date can be selected which does not conflict with a major holiday period. In addition, a publication date can be selected that provides for as much advance notice as possible. CAR- 15,.6.2, specifies that AIRAC material must reach recipients at least 28 days in advance of the AIRAC effective date. Preferably such material should reach recipients more than 28 days before the effective date (for instance, 42 or 56 days or more). Under the AIRAC system the maximum period of advance notification is essential. If this policy is applied it will give users ample time for processing changes to essential information, even if the effective date falls within a major holiday period.

8.7 Provision of aeronautical information in paper copy and electronic forms

8.7.1 The AIRAC system has proved to be an effective means of regulating and controlling the provision of aeronautical information affecting operation of aircraft. In addition, the AIRAC system has been used as a basic source of information for the updating of computer-based navigation systems. AIS provider should introduce automation system to improve the speed, accuracy, efficiency and cost effectiveness of aeronautical information services. The automation may change in airac system in AIS. The airac system must apply to the provision of aeronautical information in both the paper and electronic environment.(If introduced automation system)

8.7.2 In view of the above, under the AIRAC system information must always be published in paper copy form and be distributed by the AIS at least 42 days in advance of the AIRAC effective date, to reach the user at least 28 days in advance of the effective date.

8.7.3 The automated AIS systems must ensure (If introduced automation system) that the effective dates of information in the database are the same as the AIRAC effective dates used for the provision of information in paper copy form. AIS must ensure that AIRAC material provided in electronic form is received by the user at least 28 days in advance of the AIRAC effective date. Where major changes are planned and more advancenotice is desirable and practicable, information provided in electronic form should be issued at least 56 days before the AIRAC effective date.

8.8 Example

8.8.1 An example of the application of the AIRAC system follows:

a) On 24 December, 2018 CAA Nepal decided to establish control zone of Janakpur Airport.

b) CAA Nepal consults the schedule of AIRAC effective dates and decides that 1 March, 2018 would be the most suitable.

c) The publication date is 17 January, 2018 and that the information it wishes to issue must be provided to the AIM Department not later than 11 January, 2018 i.e. a week before the date of publication.

d) The information is provided to the AIM Department on 2 January, 2018.

8.9 Significance

8.9.1 It will be apparent from this example that the benefits to be derived from such a system are almost entirely dependent upon the degree to which the AIRAC effective dates are observed and used by the authorities that are responsible for originating changes in facilities, services or procedures. Such changes must be anticipated by these authorities, and AIRAC effective dates must be selected from the schedule of AIRAC effective dates sufficiently in advance to permit issue of the relevant information in accordance with the prescribed procedure. AIRAC effective dates are

used by ICAO, when appropriate, as the date of implementation for amendments to ICAO Standards, Recommended Practices and Procedures.

8.10 Late receipt of AIRAC publications

8.10.1 When AIRAC AIP Amendments or Supplements are not received at least 28 days in advance of the AIRAC effective date, it is the responsibility of the recipient AIS to investigate whether late receipt is due to local postal, customs or administrative delays and, if so, to take remedial action as required. Otherwise, the recipient AIS will report this to the originating AIS, whose duty it will be to investigate and eliminate the cause of the delay.

8.11 Postponement of changes to aeronautical information

8.11.1 Postponement of changes to circumstances listed in 8.12 has the effect of cancelling information notified by AIRAC and reinstating previously valid information. Doing so by NOTAM less than 28 days before the effective date for changes to circumstances listed in 8.12, Parts 1 and 3, does not generally allow sufficient time for previously valid information to be reinstated in airborne navigation databases, with the result that erroneous information would be presented to flight crews. Furthermore, since charts used by flight crews and ATC are updated on a different schedule than airborne navigation databases, it is possible that valid information which is not reflected in the airborne database may nevertheless appear on charts. The resulting mismatch of information would give rise to considerable operational difficulties and potential safety hazards. In the worst case, RNAV procedures that require a navigation database may not be flown (operated).

8.11.2 In order to avoid negative consequences to the safety and efficiency of flights, all possible measures should be taken to ensure that changes to circumstances listed in 8.12, Parts 1 and 3, take place as notified on the AIRAC date. This will require thorough planning of aeronautical information changes and the cooperation of all parties involved, including AIS.

8.11.3 It is important to recognize that a change to the effective date (or postponement) is information to be notified by AIRAC and therefore constitutes “withdrawal” as stated in 8.12. Postponement by NOTAM should be issued more than 28 days in advance of the previously indicated effective date unless the circumstances are of a temporary nature and would not persist for the full period.

8.12 Information to be notified by AIRAC

(See CAR-15, Chapter 6 and Appendix 4)

Part 1

1. The establishment and withdrawal of, and premeditated significant changes (including operational trials) to:

1.1 Limits (horizontal and vertical), regulations and procedures applicable to:

a) flight information regions;
b) control areas;
c) control zones;
d) advisory areas;
e) ATS routes;
f) permanent danger, prohibited and restricted areas (including type and periods of activity when known) and ADIZ;
g) permanent areas or routes or portions thereof where the possibility of interception exists.

1.2 Positions, frequencies, call signs, identifiers, known irregularities and maintenance periods of radio navigation aids, communication and surveillance facilities.

1.3 Holding and approach procedures, arrival and departure procedures, noise abatement procedures and any other pertinent ATS procedures.

1.4 Meteorological facilities (including broadcasts) and procedures.

1.5 Taxiways and aprons.

1.6 Runways and stopways.

Part 2

2. The establishment and withdrawal of, and pre-meditated significant changes to:

2.1 Position, height and lighting of navigational obstacles.

2.2 Hours of service of aerodromes, facilities and services.

2.3 Customs, immigration and health services.

2.4 Temporary danger, prohibited and restricted areas and navigational hazards, military exercises and mass movements of aircraft.

2.5 Temporary areas or routes or portions thereof where the possibility of interception exists.

Part 3

3. The establishment of, and pre-meditated changes to:

3.1 New aerodromes for international IFR operations.

3.2 New runways for IFR operations at international aerodromes.

3.3 Design and structure of the air traffic services route network.

3.4 Design and structure of a set of terminal procedures (including change of procedure bearings due to magnetic variation change).

3.5 Circumstances listed in Part 1 if the entire State or any significant position thereof is affected or if cross-border coordination is required.

8.13 AIRAC predetermined dates

Operational changes to which the regulated system (AIRAC) is applied will be issued as AIP Amendments or Supplements.

The sample table below illustrates the latest dates by which raw data should reach the AIS in order to be promulgated on one of the selected publication dates. When possible, raw data should always be forwarded well ahead of these dates. In order to ensure that charts and route manuals are correct on the date of publication, it is essential that an effective date should not be notified until a high degree of certainty that it will be met exists. A complete list of AIRAC effective dates for the years 2015 to 2029 found in Figurre 8-2.

Date to reach the AIS for major changes	Publication date for major changes*	Date to reach the AIS for normal changes	Publication date normal (Thursday)	Effective date (Thursday)
5 February 2009	12 February 2009	19 February 2009	26 February 2009	9 April 2009
5 March 2009	12 March 2009	19 March 2009	26 March 2009	7 May 2009
2 April 2009	9 April 2009	16 April 2009	23 April 2009	4 June 2009
30 April 2009	7 May 2009	14 May 2009	21 May 2009	2 July 2009

etc.

* These dates are intended to take account of the time required for processing and subsequent mail delivery to the user, so as to provide adequate advance notice; they may need to be adjusted in light of practical experience.

Figure 8-1 Processing Cycle for Airborne navigation databases

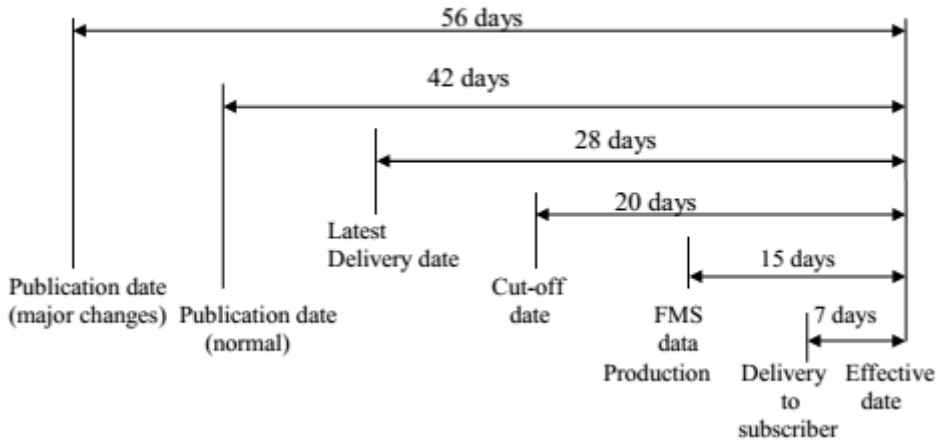


Figure 8-2 Schedule of AIRAC effective dates, 2015-2029

2015	*2016*	*2017*	*2018*	*2019*
08 January	07 January	05 January	04 January	03 January
05 February	04 February	02 February	01 February	31 January
05 March	03 March	02 March	01 March	28 February
02 April	31 March	30 March	29 March	28 March
30 April	28 April	27 April	26 April	25 April
28 May	26 May	25 May	24 May	23 May
25 June	23 June	22 June	21 June	20 June
23 July	21 July	20 July	19 July	18 July
20 August	18 August	17 August	16 August	15 August
17 September	15 September	14 September	13 September	12 September
15 October	13 October	12 October	11 October	10 October
12 November	10 November	09 November	08 November	07 November
10 December	08 December	07 December	06 December	05 December

2020	*2021*	*2022*	*2023*	*2024*
02 January	28 January	27 January	26 January	25 January
30 January	25 February	24 February	23 February	22 February
27 February	25 March	24 March	23 March	21 March
26 March	22 April	21 April	20 April	18 April
23 April	20 May	19 May	18 May	16 May
21 May	17 June	16 June	15 June	13 June
18 June	15 July	14 July	13 July	11 July
16 July	12 August	11 August	10 August	08 August
13 August	09 September	08 September	07 September	05 September
10 September	07 October	06 October	05 October	03 October
08 October	04 November	03 November	02 November	31 October
05 November	02 December	01 December	30 November	28 November
03 December	30 December	29 December	28 December	26 December
31 December				

2025	*2026*	*2027*	*2028*	*2029*
23 January	22 January	21 January	20 January	18 January
20 February	19 February	18 February	17 February	15 February
20 March	19 March	18 March	16 March	15 March
17 April	16 April	15 April	13 April	12 April
15 May	14 May	13 May	11 May	10 May
12 June	11 June	10 June	08 June	07 June
10 July	09 July	08 July	06 July	05 July
07 August	06 August	05 August	03 August	02 August
04 September	03 September	02 September	31 August	30 August
02 October	01 October	30 September	28 September	27 September
30 October	29 October	28 October	26 October	25 October
27 November	26 November	25 November	23 November	22 November
25 December	24 December	23 December	21 December	20 December

Chapter 9: Aeronautical Information Circular (AIC)

9.1 General

The AIS shall originate an AIC whenever it is necessary to promulgate aeronautical information, mainly of an administrative nature, which does not qualify for inclusion in the AIP or NOTAM. An AIC shall be originated whenever it is desirable to promulgate:

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

9.2 Information appropriate for AIC

In such cases, rather than overburden the AIP and/or NOTAM service, the information must be distributed by means of an AIC which is an element of the Integrated Aeronautical Information Package. The types of information appropriate for AIC are as follows:

1) forecasts of important changes in the air navigation procedures, services and facilities provided (e.g. new layout of control sectors or implementation plan for a radar network);
2) forecasts of implementation of new navigational systems (VOR, DME, etc.);
3) significant information arising from aircraft accident/incident investigation that has a bearing on flight safety;
4) information on regulations relating to the safeguarding of international civil aviation against acts of unlawful interference;
5) advice on medical matters of special interest to pilots;
6) warnings to pilots concerning the avoidance of physical hazards;
7) effect of certain weather phenomena on aircraft operations;
8) information on new hazards affecting aircraft handling techniques;
9) regulations relating to the carriage of restricted articles by air;
10) reference to the requirements of, and publication of changes in, national legislation;
11) aircrew licensing arrangements;
12) training of aviation personnel;
13) application of, or exemption from, requirements in national legislation;
14) advice on the use and maintenance of specific types of equipment;
15) actual or planned availability of new or revised editions of aeronautical charts;
16) carriage of radio equipment;
17) explanatory information relating to noise abatement;
18) selected airworthiness directives;

19) changes in NOTAM series or distribution, new editions of AIP or major

20) changes in their contents, coverage or format;

21) other information of a similar nature.

9.3 AIC serial number

Each AIC shall be issued in printed form and be allocated a serial number which should be consecutive and based on the calendar year.

9.4 Annual review and checklist

9.4.1 AIC should be numbered consecutively on a calendar year basis. Since AIC formation is often effective for long periods and requires little amendment, it will usually be found that AIC can, if necessary, remain outstanding for several years without inconvenience. A review and re-issue on a yearly basis is however advisable. In any case, a checklist of AIC currently in force must be issued as an AIC (see Figure 8-1) at least once a year. Further, if AIC are issued in more than one series, each series must be identified by a letter (A 2/02, B 4/02, etc.)

9.5 Distribution

9.5.1 The originating AIS providers select the AIC that are to be given international distribution. AIC thus selected must be given the same distribution as the AIP, AIP Amendments and AIP Supplements. In addition, it is highly recommended that AIC be colour coded by subject where there are sufficient circulars in force to warrant such identification, e.g.:

a) white — administrative;

b) yellow — ATC;

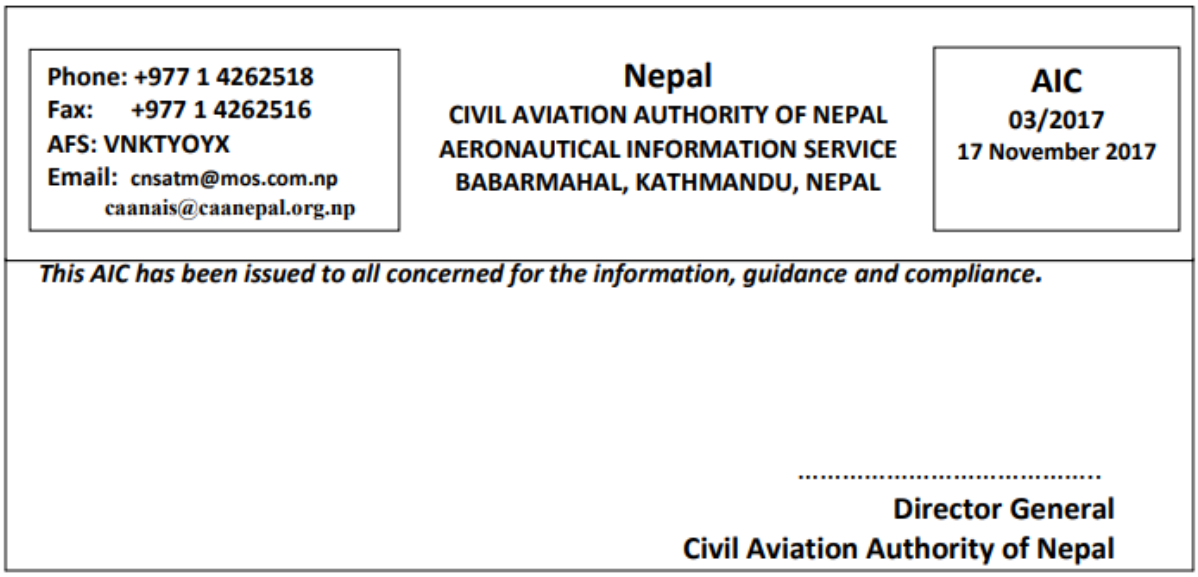
c) pink — safety;

d) mauve — danger area map; and

e) green — maps/charts.

9.5.2 Distribution of AIC on a national basis is left to the discretion of the originating AIS provider.

Figure 8-2. Format for an Aeronautical Information Circular from Civil Aviation Authority of Nepal



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Nepal
CIVIL AVIATION AUTHORITY OF NEPAL
AERONAUTICAL INFORMATION SERVICE
BABARMAHAL, KATHMANDU, NEPAL

AIC
03/2017
17 November 2017

This AIC has been issued to all concerned for the information, guidance and compliance.

.....
Director General
Civil Aviation Authority of Nepal

Chapter 10: Documentation and Records

10.1 Documents and Records to be maintained

10.1.1 The AIS shall maintain all documents and records which are necessary for the operation of the service. Copies of these documents shall also be made available to personnel when needed. These documents shall include but not limited to:

1) the Manual of Standards for Aeronautical Information Services;
2) the AIS operations manual; (SOP)
3) CAR-4 and CAR-15, Doc 8126, Doc 9859 and other relevant ICAO documents;
4) records of all incoming and outgoing aeronautical information to be identified by serial number and date;
5) records of each person who is authorized to check, edit and publish aeronautical information;
6) records of internal quality and safety audit reports;
7) records of reporting, investigation and correction of error;
8) records of job description, training programme and plan of each staff.

10.2 Document Control

10.2.1 The AIS shall establish a process for the authorization and amendment of the documents stipulated in paragraph 9.1 (1) to ensure that they are constantly updated. The AIS shall establish a system to ensure that:

1) the currency of the documents can be readily determined;
2) amendments to the documents are controlled in accordance with established quality management principles; and
3) only current versions of documents are available.

10.2.2 The AIS shall ensure that where documents are held as computer based records (If computer based system) and where paper copies of computer based records are made, they are subjected to the same control as paper documents.

10.3 Documentation

10.3.1 AIS shall establish a system for the recording and retention of data. Records shall include but not limited to:
1) ATS data;
2) procedure design documentation;

10.3.2 AIS shall establish mechanism that ensures reports and personnel records are maintained and updated and shall include:

1) details of personnel qualification and experience;
2) job descriptions;
3) training reports and training records of all members of the organization, including management;
4) internal and external audit reports; and
5) management review meetings and reports.

10.4 General Documentation Requirements

10.4.1 Documentation for a Quality Management System must include:

1) documented procedures; and
2) documents required by the organization to ensure the effective operation and control of its processes.

10.4.2 The extent of the Quality Management System is, however, dependent on the following, and may be in any form or type of medium:

1) size and type of the organization;
2) complexity and interaction of the processes; and
3) competence of personnel.

10.5 Documented Procedures

10.5.1 ISO requirements for a Quality System call for six (6) Quality Management System procedures to be in place. These are mandatory written procedures that describe how your organization performs the activities described in each of the six Quality Management System procedures described below:

1) Control of Documents;
2) Control of Quality Records;
3) Internal Audit;
4) Control of Non-conformity;
5) Corrective Action; and
6) Preventative Action.

10.5.2 Documented Procedures should indicate who does what, where and when they do it, why they do it, and how. It is up to the organization itself to decide the level of detail that is included in the Documented Procedures. Largely, this will depend on:

1) methods used;
2) skills needed;
3) training; and
4) extent of supervision required.

10.5.3 Documented Procedures should not contain what you would like to happen in the organization, but rather an accurate description of what really happens. A robust Quality Management System will involve staff, to the extent that they can contribute, in the writing of Documented Procedures. The earlier and the more staff that are involved will lead to greater staff involvement, understanding and "buy-in" to the procedures and practices.

10.6 Control of Quality Records

10.6.1 Records exist in all organizations. Quality Records are required to provide evidence of conformance with requirements and of effective operation of the quality management system. Procedures must be documented for the identification, storage, retrieval, protection, retention time and disposition of quality records.

10.6.2 A Quality Record is a record produced following a procedure in a Quality System document. This record provides a reference when reviewing progress and/or performance, and is often a form. Each Quality System document must include definitions of the Quality Records to be produced and kept. Quality records will provide AIS with information to help manage the business better. This is the part that enables you to "show how you did it". In some instances, retention periods will be dictated by legal or regulatory requirements, financial requirements or customer's specifications. Details about specific retention periods should be recorded in the documented procedures.

10.6.3 Examples of Quality Records include:

1) customer orders, specifications and requirements;
2) meeting notes, *e.g.* Management review;
3) audit reports;
4) non-conformance records (service failure reports, customer complaints);
5) corrective action records;
6) files on suppliers, *e.g.* evaluation of suppliers and their performance history;
7) process control records;
8) inspection and testing reports;
9) training records; and
10) records of goods received and delivered.

10.6.4 Records, indexing and filing can be in any appropriate form; hard copy, or electronic. Storage needs to be appropriate to the circumstances and the medium and should be such that the risk of deterioration, damage or loss is minimized.

a) The International Standards also call for the organization to identify and document who has access to the quality records.

10.6.5 To help in deciding what quality records need to be kept, it is useful to consider that all quality records can be considered under the three (3) different categories:

1) What is received before a procedure starts;

2) What is produced to show intermediary steps have been completed; and
3) What is produced to show a procedure has been completed.

10.6.6 Quality records are usually produced internally however, they may also be produced outside the AIS, for example a customer's order, or an external auditor's report For each quality record identified, the following aspects need to be defined:

1) What the record is;
2) Who is responsible for its filing;
3) How long the record is required to be kept;
4) Where the record will be kept; and
5) Who is responsible for the record's disposal?

10.6.7 A tabular layout may be useful to present the information required

Record	Responsiblity	Minimum Retention Period	Location
What the record is?	Who is responsible for its filing? Who is responsible for its eventual disposition?	The minimum time the record must be retained for.	Where the record is kept?

10.6.8 In some ways, by default, the person deemed responsible for the records filing is also responsible for and authorized to dispose of the record. In this case, one position can be listed as responsible for the record, and for the filing and disposition.

1) A minimum period is specified to supply an audit trail for accountability purposes. The audit trail may be required for official inquiries or litigation.

2) Specification of a minimum retention period allows us to keep records longer if required. Records are often kept on hand for as long as there is space to accommodate them.

3) In summary, the records management process ensures that all quality records are identified and controlled, in order to provide a ready reference to the effectiveness of our Quality System documents.

4) The records management process occurs over an extended period and interleaves with other processes, particularly with those for document development and control.

Chapter 11: Automated AIS System

11.1 Basic Principles

11.1.1 The principal objective of developing an automated AIS system is to improve, through automation, the overall speed, efficiency, accuracy and cost- effectiveness of the AIS.

11.1.2 For an automated or computer-based AIS system, the following material focuses on the advantages and flexibility to be derived from such an application. Essentially, an automated AIS system should be capable of providing a more flexible pre-flight information service by tailoring its automation processes to cater to a wider spectrum of users. As such, the tailoring/selection functions required for this service should be performed by the automated AIS system with a minimum of manual intervention so that duplication of work can be reduced if not eliminated entirely. For reasons of cost-effectiveness, such a service must strike abalance between the degree of sophistication of the system required and the amount of information to be accepted in the various categories of bulletins. It is necessary therefore to:

1) select a simple, flexible and efficient system for storage and retrieval of information; and

2) develop methods of providing a greater selectivity of information in accordance with user requirements.

11.1.3 As such, the system should be designed with the intent of avoiding incompatibilities, divergences and unnecessary duplication of effort thereby ensuring standardization of procedures, products and services to end-users. It is highly desirable that all AIS systems be automated along the same or similar lines in order to ensure compatibility.

11.2 User's operational requirements in an automated AIS system

11.2.1 The overall system should provide a service that is capable of satisfying users' operational requirements, which include:

1) availability of the latest PIB of the specific type needed (e.g. route or area)

2) provision of information on specific items for given areas required by flight planning services, ATS, AIS or other users;

3) availability of NOTAM entered into the system after a specific date-time group, to facilitate briefing; and

4) provision of immediate notification capability for items of urgent operational significance.

11.2.2 Automated pre-flight information systems for the supply of aeronautical information/data for self-briefing, flight planning and flight information service should:

1) provide for continuous and timely updating of the system database and monitoring of the validity and quality of the aeronautical information stored;

2) permit access to the system by flight operations personnel, including flight crew members, aeronautical personnel concerned and other aeronautical users, through a suitable means of telecommunications;

3) ensure provision, in paper copy form, of the aeronautical information/data accessed, as required;

4) use access and interrogation procedures based on abbreviated plain language and ICAO location indicators, as appropriate, or based on a menu-driven interface or other appropriate mechanism as agreed between the civil aviation authority and operator(s) concerned; and

5) provide for rapid responses to user requests for information.

11.2.3 On the basis of the foregoing, an automated AIS system should be able to provide end-users, such as pilots, ATS and military, with PIB geared to meet their specific requirements.

11.3 Types of information to be provided

11.3.1 The system should provide NOTAM covering the area of service, the area of responsibility and the area of coverage. The system should additionally provide the following PIB and lists:

a) route type bulletin containing NOTAM relevant to the aerodrome/heliport of departure, the planned route based on FIR crossed, the aerodrome/heliport of destination, and alternate aerodromes/heliports;

b) area type bulletin containing NOTAM relevant to FIR;

c) aerodrome type bulletin containing NOTAM concerning any aerodrome/heliport or group of aerodromes/heliports;

d) immediate notification items;

e) checklists of NOTAM, FIR and aerodrome/heliport; and

f) list of NOTAM for a specific period or NOTAM entered into the system after a specific date-time group.

11.3.2 The updating of PIB should be covered by the items listed in 11.3.1 d), e) and f), or by request for a new PIB. The system features described in 11.2 should permit PIB to be tailored to the needs of users and should provide flexible options for information content ranging from full system data coverage to data of urgent operational significance. PIB should be provided in a standard format.

For details Ref *Doc 8126 AIS Manual.*