

COVER SHEET TO AMENDMENT 50-B

**INTERNATIONAL STANDARDS
AND RECOMMENDED PRACTICES**

AIR TRAFFIC SERVICES

**AIR TRAFFIC CONTROL SERVICE
FLIGHT INFORMATION SERVICE
ALERTING SERVICE**

**ANNEX 11
TO THE CONVENTION ON INTERNATIONAL CIVIL AVIATION**

FOURTEENTH EDITION — JULY 2016

INTERNATIONAL CIVIL AVIATION ORGANIZATION

Checklist of Amendments to Annex 11

	<i>Effective date</i>	<i>Date of applicability</i>
Fourteenth Edition (incorporates Amendments 1 to 50-A)	11 July 2016	10 November 2016
Amendment 50-B (adopted by the Council on 22 February 2016) Replacement pages (v), (vii), (xvi), (xvii), 1-4, 1-5, 1-7 to 1-12, 2-17 to 2-20, APP 6-1, APP 7-1 to APP 7-4, APP 8-1 and ATT C-1	11 July 2016	5 November 2020



Transmittal note

Amendment 50-B

to the

International Standards and
Recommended Practices

AIR TRAFFIC SERVICES

(Annex 11 to the Convention on International Civil Aviation)

1. The following replacement pages in Annex 11 (Fourteenth Edition) incorporate Amendment 50-B which becomes applicable on 5 November 2020:
 - a) Pages (v) and (vii) — Table of Contents
 - b) Pages (xvi) and (xvii) — Foreword
 - c) Pages 1-4, 1-5 and 1-7 to 1-12 — Chapter 1
 - d) Pages 2-17 to 2-20 — Chapter 2
 - e) Page APP 6-1 — Appendix 6
 - f) Pages APP 7-1 to APP 7-4 — Appendix 7
 - g) Page APP 8-1 — Appendix 8
 - h) Page ATT C-1 — Attachment C
2. These pages should be retained separately from the Annex proper until the applicability date is reached, at which time they should be incorporated into the Annex.
3. Record the entry of this amendment on page (iii).

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<i>Amendment(s)</i>	<i>Source(s)</i>	<i>Subject(s)</i>	<i>Adopted/approved Effective Applicable</i>
36	Fourth Meeting of the Secondary Surveillance Radar Improvements and Collision Avoidance Systems Panel (SICAS/4); Thirteenth and Fourteenth Meetings of the All Weather Operations Panel (AWOP/13 and 14); Tenth Meeting of the Obstacle Clearance Panel (OCP/10)	Pressure-altitude reporting transponders; microwave landing system; enroute obstacle clearance criteria.	8 March 1996 15 July 1996 7 November 1996
37 (11th Edition)	Air Navigation Commission; Amendment 70 to Annex 3	Aeronautical databases; AIRMET information; wind shear.	20 March 1997 21 July 1997 6 November 1997
38 (12th Edition)	Automatic Dependent Surveillance Panel, Fourth Meeting (1996); Review of the General Concept of Separation Panel, Ninth Meeting (1996); Amendment 71 to Annex 3; Air Navigation Commission	Definitions; automatic dependent surveillance systems and procedures; data interchange between automated ATS systems; ATS applications for air-ground data links; separation between aircraft; RNP and RNAV for en-route operations; requirements for the uplink of OPMET information to aircraft in flight; volcanic ash advisories; Human Factors.	19 March 1998 20 July 1998 5 November 1998
39	Air Navigation Commission	ATS airspace classifications; visual meteorological conditions; and minimum safe altitude warning.	10 March 1999 19 July 1999 4 November 1999
40 (13th Edition)	Air Navigation Commission; Fifth Meeting of the Automatic Dependent Surveillance Panel (ADSP/5); Thirty-ninth Meeting of the European Air Navigation Planning Group (EANPG); Twelfth Meeting of the Obstacle Clearance Panel (OCP/12); Amendments 25, 20 and 7 to Annex 6, Parts I, II and III, respectively; Secretariat	Definitions; ATS safety management; ADS to indicate state of aircraft emergency; flexible use of airspace; minimum flight altitudes; terrain clearance during radar vectoring; downstream clearance delivery service; transfer of responsibility for control; read-back of clearances; air traffic flow management; automatic terminal information service; VOLMET and D-VOLMET; equipment in ATS units and criteria for indicators(s) for RVR values; editorial amendments.	12 March 2001 16 July 2001 1 November 2001
41	Tenth meeting of the Review of the General Concept of Separation Panel (RGCSP/10); Seventeenth meeting of the Dangerous Goods Panel (DGP/17)	Spacing between parallel area navigation (RNAV) routes; and notification of dangerous goods information to rescue coordination centres (RCCs).	21 February 2002 15 July 2002 28 November 2002
42	Laser Emitters and Flight Safety Study Group; Secretariat; the Proficiency Requirements in Common English Study Group; Air Navigation Commission	Laser beam emissions; language proficiency requirements; and air traffic contingency measures.	7 March 2003 14 July 2003 27 November 2003

<i>Amendment(s)</i>	<i>Source(s)</i>	<i>Subject(s)</i>	<i>Adopted/approved Effective Applicable</i>
43	Secretariat; Aeronautical Information Services/Aeronautical Charts (AIS/MAP) Divisional Meeting (1998)	Definitions; use of surface movement radar; ATS requirements for communications; meteorology information; height-keeping performance by aircraft; ATS safety management; electronic terrain and obstacle data; editorial amendments.	2 March 2005 11 July 2005 24 November 2005
44	35th Session of the ICAO Assembly; Eleventh Air Navigation Conference; Air Navigation Commission	ATS safety management; recording devices.	14 March 2006 17 July 2006 23 November 2006
45	Air Navigation Commission	Definitions and associated procedures for ADS-B, ADS-C and RCP; coordination procedures between ATS and other entities; name-code designators; introduction of wind shear alerts.	26 February 2007 16 July 2007 22 November 2007
46	Secretariat with the assistance of the RNPSOR Study Group; Report of the third meeting of the NSP Working Group of the Whole	Definitions and Standards to align required navigation performance (RNP) and area navigation (RNAV) terminology with the performance-based navigation (PBN) concept; make use of the latest GNSS terminology.	10 March 2008 20 July 2008 20 November 2008
47-A	Secretariat; Instrument Flight Procedures Panel first working group of the whole meeting (IFPP-WG/WHL/1)	Amendment to definitions; waypoint naming convention; air traffic services; and public health emergencies.	2 March 2009 20 July 2009 19 November 2009
47-B	Secretariat	Amendment to definitions; safety management system.	2 March 2009 20 July 2009 18 November 2010
48	Secretariat; Separation and Airspace Safety Panel (SASP); AIG Divisional Meeting (2008); Aerodrome Meteorological Observation and Forecast Study Group (AMOFSG)	Amendment to definitions and an abbreviation; reduced vertical separation minimum (RVSM) monitoring; use of fully automatic observing systems for the provision of local reports; and enhanced protection of electronic aeronautical data sets.	7 March 2012 16 July 2012 15 November 2012
49	Secretariat; AIS to AIM Study Group (AIS-AIMSG); Safety Management Panel (SMP)	Definitions; safety management system; integrity of aeronautical data; and identification and delineation of prohibited, restricted and danger areas.	25 February 2013 15 July 2013 14 November 2013
50-A (14th Edition)	Second meeting of the Operational Data Link Panel (OPLINKP/2); Twelfth meeting of the Instrument Flight Procedures Panel (IFPP/12); Meteorology (MET) Divisional Meeting (2014) (Recommendation 5/1 refers)	Provisions concerning performance-based communication and surveillance (PBCS); regulatory framework on instrument flight procedure design service; and consequential amendment concerning aeronautical meteorology.	22 February 2016 11 July 2016 10 November 2016

<i>Amendment(s)</i>	<i>Source(s)</i>	<i>Subject(s)</i>	<i>Adopted/approved Effective Applicable</i>
50-B	Twelfth Air Navigation Conference (AN-Conf/12, Recommendation 6/4) and the Secretariat, with the assistance of the Fatigue Risk Management System Task Force (FRMSTF)	Provisions concerning fatigue management for air traffic controllers.	22 February 2016 11 July 2016 5 November 2020

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

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

Airborne collision avoidance system (ACAS). An aircraft system based on secondary surveillance radar (SSR) transponder signals which operates independently of ground-based equipment to provide advice to the pilot on potential conflicting aircraft that are equipped with SSR transponders.

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

Air-ground communication. Two-way communication between aircraft and stations or locations on the surface of the earth.

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

Air-taxiing. Movement of a helicopter/VTOL above the surface of an aerodrome, normally in ground effect and at a ground speed normally less than 37 km/h (20 kt).

Note.— The actual height may vary, and some helicopters may require air-taxiing above 8 m (25 ft) AGL to reduce ground effect turbulence or provide clearance for cargo slingloads.

Air traffic. All aircraft in flight or operating on the manoeuvring area of an aerodrome.

Air traffic advisory service. A service provided within advisory airspace to ensure separation, in so far as practical, between aircraft which are operating on IFR flight plans.

Air traffic control clearance. Authorization for an aircraft to proceed under conditions specified by an air traffic control unit.

Note 1.— For convenience, the term “air traffic control clearance” is frequently abbreviated to “clearance” when used in appropriate contexts.

Note 2.— The abbreviated term “clearance” may be prefixed by the words “taxi,” “take-off,” “departure,” “en route,” “approach” or “landing” to indicate the particular portion of flight to which the air traffic control clearance relates.

Air traffic control service. A service provided for the purpose of:

- a) preventing collisions:
 - 1) between aircraft, and
 - 2) on the manoeuvring area between aircraft and obstructions; and
- b) expediting and maintaining an orderly flow of air traffic.

Air traffic control unit. A generic term meaning variously, area control centre, approach control unit or aerodrome control tower.

Air traffic controller schedule. A plan for allocating air traffic controller duty periods and non-duty periods over a period of time, otherwise referred to as a roster.

Air traffic flow management (ATFM). A service established with the objective of contributing to a safe, orderly and expeditious flow of air traffic by ensuring that ATC capacity is utilized to the maximum extent possible and that the traffic volume is compatible with the capacities declared by the appropriate ATS authority.

Air traffic service. A generic term meaning variously, flight information service, alerting service, air traffic advisory service, air traffic control service (area control service, approach control service or aerodrome control service).

Air traffic services airspaces. Airspaces of defined dimensions, alphabetically designated, within which specific types of flights may operate and for which air traffic services and rules of operation are specified.

Note.— ATS airspaces are classified as Class A to G as described in 2.6.

Air traffic services reporting office. A unit established for the purpose of receiving reports concerning air traffic services and flight plans submitted before departure.

Note.— An air traffic services reporting office may be established as a separate unit or combined with an existing unit, such as another air traffic services unit, or a unit of the aeronautical information service.

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

Airway. A control area or portion thereof established in the form of a corridor.

ALERFA. The code word used to designate an alert phase.

Alerting service. A service provided to notify appropriate organizations regarding aircraft in need of search and rescue aid, and assist such organizations as required.

Alert phase. A situation wherein apprehension exists as to the safety of an aircraft and its occupants.

Alternate aerodrome. An aerodrome to which an aircraft may proceed when it becomes either impossible or inadvisable to proceed to or to land at the aerodrome of intended landing where the necessary services and facilities are available, where aircraft performance requirements can be met and which is operational at the expected time of use. Alternate aerodromes include the following:

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

En-route alternate. An alternate aerodrome at which an aircraft would be able to land in the event that a diversion becomes necessary while en route.

Destination alternate. An alternate aerodrome at which an aircraft would be able to land should it become either impossible or inadvisable to land at the aerodrome of intended landing.

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

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

Approach control service. Air traffic control service for arriving or departing controlled flights.

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

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

Apron. A defined area, on a land aerodrome, intended to accommodate aircraft for purposes of loading or unloading passengers, mail or cargo, fuelling, parking or maintenance.

Apron management service. A service provided to regulate the activities and the movement of aircraft and vehicles on an apron.

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

Area control service. Air traffic control service for controlled flights in control areas.

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.

Area navigation route. An ATS route established for the use of aircraft capable of employing area navigation.

ATS route. A specified route designed for channelling the flow of traffic as necessary for the provision of air traffic services.

Note 1.— The term “ATS route” is used to mean variously, airway, advisory route, controlled or uncontrolled route, arrival or departure route, etc.

Note 2.— An ATS route is defined by route specifications which include an ATS route designator, the track to or from significant points (waypoints), distance between significant points, reporting requirements and, as determined by the appropriate ATS authority, the lowest safe altitude.

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

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

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.

Base turn. A turn executed by the aircraft during the initial approach between the end of the outbound track and the beginning of the intermediate or final approach track. The tracks are not reciprocal.

Note.— Base turns may be designated as being made either in level flight or while descending, according to the circumstances of each individual procedure.

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

Change-over point. The point at which an aircraft navigating on an ATS route segment defined by reference to very high frequency omnidirectional radio ranges is expected to transfer its primary navigational reference from the facility behind the aircraft to the next facility ahead of the aircraft.

Note.— Change-over points are established to provide the optimum balance in respect of signal strength and quality between facilities at all levels to be used and to ensure a common source of azimuth guidance for all aircraft operating along the same portion of a route segment.

Clearance limit. The point to which an aircraft is granted an air traffic control clearance.

Conference communications. Communication facilities whereby direct speech conversation may be conducted between three or more locations simultaneously.

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

Controlled aerodrome. An aerodrome at which air traffic control service is provided to aerodrome traffic.

Note.— The term “controlled aerodrome” indicates that air traffic control service is provided to aerodrome traffic but does not necessarily imply that a control zone exists.

Controlled airspace. An airspace of defined dimensions within which air traffic control service is provided in accordance with the airspace classification.

Note.— Controlled airspace is a generic term which covers ATS airspace Classes A, B, C, D and E as described in 2.6.

Controlled flight. Any flight which is subject to an air traffic control clearance.

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

Control zone. A controlled airspace extending upwards from the surface of the earth to a specified upper limit.

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

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 link communications. A form of communication intended for the exchange of messages via a data link.

* All ISO Standards are listed at the end of this chapter.

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.

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

Declared capacity. A measure of the ability of the ATC system or any of its subsystems or operating positions to provide service to aircraft during normal activities. It is expressed as the number of aircraft entering a specified portion of airspace in a given period of time, taking due account of weather, ATC unit configuration, staff and equipment available, and any other factors that may affect the workload of the controller responsible for the airspace.

DETRESFA. The code word used to designate a distress phase.

Distress phase. A situation wherein there is reasonable certainty that an aircraft and its occupants are threatened by grave and imminent danger or require immediate assistance.

Downstream clearance. A clearance issued to an aircraft by an air traffic control unit that is not the current controlling authority of that aircraft.

Duty. Any task that an air traffic controller is required by an air traffic services provider to perform. These tasks include those performed during time-in-position, administrative work and training.

Duty period. A period which starts when an air traffic controller is required by an air traffic services provider to report for or to commence a duty and ends when that person is free from all duties.

Emergency phase. A generic term meaning, as the case may be, uncertainty phase, alert phase or distress phase.

Fatigue. A physiological state of reduced mental or physical performance capability resulting from sleep loss, extended wakefulness, circadian phase, and/or workload (mental and/or physical activity) that can impair a person's alertness and ability to perform safety-related operational duties.

Fatigue risk management system (FRMS). A data-driven means of continuously monitoring and managing fatigue-related safety risks, based upon scientific principles, knowledge and operational experience that aims to ensure relevant personnel are performing at adequate levels of alertness.

Final approach. That part of an instrument approach procedure which commences at the specified final approach fix or point, or where such a fix or point is not specified,

- a) at the end of the last procedure turn, base turn or inbound turn of a racetrack procedure, if specified; or
- b) at the point of interception of the last track specified in the approach procedure; and

ends at a point in the vicinity of an aerodrome from which:

- 1) a landing can be made; or
- 2) a missed approach procedure is initiated.

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

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

Flight information region. An airspace of defined dimensions within which flight information service and alerting service are provided.

Flight information service. A service provided for the purpose of giving advice and information useful for the safe and efficient conduct of flights.

Flight level. A surface of constant atmospheric pressure which is related to a specific pressure datum, 1 013.2 hectopascals (hPa), and is separated from other such surfaces by specific pressure intervals.

Note 1.— A pressure type altimeter calibrated in accordance with the Standard Atmosphere:

- a) when set to a QNH altimeter setting, will indicate altitude;*
- b) when set to a QFE altimeter setting, will indicate height above the QFE reference datum;*
- c) when set to a pressure of 1 013.2 hPa, may be used to indicate flight levels.*

Note 2.— The terms “height” and “altitude”, used in Note 1 above, indicate altimetric rather than geometric heights and altitudes.

Flight plan. Specified information provided to air traffic services units, relative to an intended flight or portion of a flight of an aircraft.

Note.— Specifications for flight plans are contained in Annex 2. When the expression “flight plan form” is used it denotes the model flight plan form at Appendix 2 to the PANS-ATM (Doc 4444).

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

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.

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, a point or an object considered as a point, measured from a specified datum.

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

Human performance. Human capabilities and limitations which have an impact on the safety and efficiency of aeronautical operations.

IFR. The symbol used to designate the instrument flight rules.

IFR flight. A flight conducted in accordance with the instrument flight rules.

IMC. The symbol used to designate instrument meteorological conditions.

INCERFA. The code word used to designate an uncertainty phase.

Incident. An occurrence, other than an accident, associated with the operation of an aircraft which affects or could affect the safety of operation.

Note.— The types of incidents which are of main interest to the International Civil Aviation Organization for accident prevention studies are listed in Annex 13, Attachment C.

Instrument flight procedure design service. A service established for the design, documentation, validation, maintenance and periodic review of instrument flight procedures necessary for the safety, regularity and efficiency of air navigation.

Instrument meteorological conditions (IMC). Meteorological conditions expressed in terms of visibility, distance from cloud, and ceiling, less than the minima specified for visual meteorological conditions.

Note.— The specified minima for visual meteorological conditions are contained in Annex 2.

Integrity (aeronautical data). A degree of assurance that an aeronautical data and its value has not been lost nor altered since the data origination or authorized amendment.

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

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

International NOTAM office. An office designated by a State for the exchange of NOTAM internationally.

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

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

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

Movement area. That part of an aerodrome to be used for the take-off, landing and taxiing of aircraft, consisting of the manoeuvring area and the apron(s).

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

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

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

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.

Non-duty period. A continuous and defined period of time, subsequent to and/or prior to duty periods, during which the air traffic controller is free of all duties.

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.

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

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 specifications (RNAV specification, RNP specification) in terms of accuracy, integrity, continuity, availability and functionality needed for the proposed operation in the context of a particular airspace concept.

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.

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

Printed communications. Communications which automatically provide a permanent printed record at each terminal of a circuit of all messages which pass over such circuit.

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.

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

Radiotelephony. A form of radiocommunication primarily intended for the exchange of information in the form of speech.

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

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.

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

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.

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

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

Safety management system (SMS). A systematic approach to managing safety, including the necessary organizational structures, accountabilities, policies and procedures.

SIGMET information. Information issued by a meteorological watch office concerning the occurrence or expected occurrence of specified en-route weather and other phenomena in the atmosphere that may affect the safety of aircraft operations.

Significant point. A specified geographical location used in defining an ATS route or the flight path of an aircraft and for other navigation and ATS purposes.

Note.— There are three categories of significant points: ground-based navigation aid, intersection and waypoint. In the context of this definition, intersection is a significant point expressed as radials, bearings and/or distances from ground-based navigation aids.

Special VFR flight. A VFR flight cleared by air traffic control to operate within a control zone in meteorological conditions below VMC.

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.

Taxiing. Movement of an aircraft on the surface of an aerodrome under its own power, excluding take-off and landing.

Terminal control area. A control area normally established at the confluence of ATS routes in the vicinity of one or more major aerodromes.

Time-in-position. The period of time when an air traffic controller is exercising the privileges of the air traffic controller's licence at an operational position.

Track. The projection on the earth's surface of the path of an aircraft, the direction of which path at any point is usually expressed in degrees from North (true, magnetic or grid).

Traffic avoidance advice. Advice provided by an air traffic services unit specifying manoeuvres to assist a pilot to avoid a collision.

Traffic information. Information issued by an air traffic services unit to alert a pilot to other known or observed air traffic which may be in proximity to the position or intended route of flight and to help the pilot avoid a collision.

Transfer of control point. A defined point located along the flight path of an aircraft, at which the responsibility for providing air traffic control service to the aircraft is transferred from one control unit or control position to the next.

Transferring unit. Air traffic control unit in the process of transferring the responsibility for providing air traffic control service to an aircraft to the next air traffic control unit along the route of flight.

Uncertainty phase. A situation wherein uncertainty exists as to the safety of an aircraft and its occupants.

VFR. The symbol used to designate the visual flight rules.

VFR flight. A flight conducted in accordance with the visual flight rules.

Visual meteorological conditions (VMC). Meteorological conditions expressed in terms of visibility, distance from cloud, and ceiling, equal to or better than specified minima.

Note.— The specified minima are contained in Annex 2.

VMC. The symbol used to designate visual meteorological conditions.

Waypoint. A specified geographical location used to define an area navigation route or the flight path of an aircraft employing area navigation. Waypoints are identified as either:

Fly-by waypoint. A waypoint which requires turn anticipation to allow tangential interception of the next segment of a route or procedure, or

Flyover waypoint. A waypoint at which a turn is initiated in order to join the next segment of a route or procedure.

* ISO Standard

19104 — *Geographic information — Terminology*

19108 — *Geographic information — Temporal schema*

2.26 Time in air traffic services

2.26.1 Air traffic services units shall use Coordinated Universal Time (UTC) and shall express the time in hours and minutes and, when required, seconds of the 24-hour day beginning at midnight.

2.26.2 Air traffic services units shall be equipped with clocks indicating the time in hours, minutes and seconds, clearly visible from each operating position in the unit concerned.

2.26.3 Air traffic services unit clocks and other time-recording devices shall be checked as necessary to ensure correct time to within plus or minus 30 seconds of UTC. Wherever data link communications are utilized by an air traffic services unit, clocks and other time-recording devices shall be checked as necessary to ensure correct time to within 1 second of UTC.

2.26.4 The correct time shall be obtained from a standard time station or, if not possible, from another unit which has obtained the correct time from such station.

2.26.5 Aerodrome control towers shall, prior to an aircraft taxiing for take-off, provide the pilot with the correct time, unless arrangements have been made for the pilot to obtain it from other sources. Air traffic services units shall, in addition, provide aircraft with the correct time on request. Time checks shall be given to the nearest half minute.

2.27 Establishment of requirements for carriage and operation of pressure-altitude reporting transponders

States shall establish requirements for carriage and operation of pressure-altitude reporting transponders within defined portions of airspace.

Note.— This provision is intended to improve the effectiveness of air traffic services as well as airborne collision avoidance systems.

2.28 Fatigue management

Note.— Guidance on the development and implementation of fatigue management regulations is contained in the Manual for the Oversight of Fatigue Management Approaches (Doc 9966).

2.28.1 States shall establish regulations for the purpose of managing fatigue in the provision of air traffic control services. These regulations shall be based upon scientific principles, knowledge and operational experience, with the aim of ensuring that air traffic controllers perform at an adequate level of alertness. To that aim, States shall establish:

- a) regulations that prescribe scheduling limits in accordance with Appendix 6; and
- b) where authorizing air traffic services providers to use a fatigue risk management system (FRMS) to manage fatigue, FRMS regulations in accordance with Appendix 7.

2.28.2 States shall require that the air traffic services provider, for the purposes of managing its fatigue-related safety risks, establish one of the following:

- a) air traffic controller schedules commensurate with the service(s) provided and in compliance with the prescriptive limitation regulations established by the State in accordance with 2.28.1 a); or

- b) an FRMS, in compliance with regulations established by the State in accordance with 2.28.1 b), for the provision of all air traffic control services; or
- c) an FRMS, in compliance with regulations established by the State in accordance with 2.28.1 b), for a defined part of its air traffic control services in conjunction with schedules in compliance with the prescriptive limitation regulations established by the State in accordance with 2.28.1 a) for the remainder of its air traffic control services.

2.28.3 Where the air traffic services provider complies with prescriptive limitation regulations in the provision of part or all of its air traffic control services in accordance with 2.28.2 a), the State:

- a) shall require evidence that the limitations are not exceeded and that non-duty period requirements are met;
- b) shall require that the air traffic services provider familiarize its personnel with the principles of fatigue management and its policies with regard to fatigue management;
- c) shall establish a process to allow variations from the prescriptive limitation regulations to address any additional risks associated with sudden, unforeseen operational circumstances; and
- d) may approve variations to these regulations using an established process in order to address strategic operational needs in exceptional circumstances, based on the air traffic services provider demonstrating that any associated risk is being managed to a level of safety equivalent to, or better than, that achieved through the prescriptive fatigue management regulations.

Note.— Complying with the prescriptive limitations regulations does not relieve the air traffic services provider of the responsibility to manage its risks, including fatigue-related risks, using its SMS in accordance with the provisions of Annex 19.

2.28.4 Where an air traffic services provider implements an FRMS to manage fatigue-related safety risks in the provision of part or all of its air traffic control services in accordance with 2.28.2 b), the State shall:

- a) require the air traffic services provider to have processes to integrate FRMS functions with its other safety management functions; and
- b) approve an FRMS, according to a documented process, that provides a level of safety acceptable to the State.

Note.— Provisions on the protection of safety information, which support the continued availability of information required by an FRMS, are contained in Annex 19.

2.29 Safety management

Note.— Annex 19 includes the safety management provisions applicable to ATS providers. Further guidance is contained in the Safety Management Manual (SMM) (Doc 9859) and associated procedures are contained in the PANS-ATM (Doc 4444).

Any significant safety-related change to the ATS system, including the implementation of a reduced separation minimum or a new procedure, shall only be effected after a safety assessment has demonstrated that an acceptable level of safety will be met and users have been consulted. When appropriate, the responsible authority shall ensure that adequate provision is made for post-implementation monitoring to verify that the defined level of safety continues to be met.

Note.— When, due to the nature of the change, the acceptable level of safety cannot be expressed in quantitative terms, the safety assessment may rely on operational judgement.

2.30 Common reference systems

2.30.1 Horizontal reference system

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

Note.— Comprehensive guidance material concerning WGS-84 is contained in the World Geodetic System — 1984 (WGS-84) Manual (Doc 9674).

2.30.2 Vertical reference system

Mean sea level (MSL) datum, which gives the relationship of gravity-related height (elevation) to a surface known as the geoid, shall be used as the vertical reference system for air navigation.

Note.— The geoid globally most closely approximates MSL. It is defined as the equipotential surface in the gravity field of the Earth which coincides with the undisturbed MSL extended continuously through the continents.

2.30.3 Temporal reference system

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

2.30.3.2 When a different temporal reference system is used, this shall be indicated in GEN 2.1.2 of the Aeronautical Information Publication (AIP).

2.31 Language proficiency

2.31.1 An air traffic services provider shall ensure that air traffic controllers speak and understand the language(s) used for radiotelephony communications as specified in Annex 1.

2.31.2 Except when communications between air traffic control units are conducted in a mutually agreed language, the English language shall be used for such communications.

2.32 Contingency arrangements

Air traffic services authorities shall develop and promulgate contingency plans for implementation in the event of disruption, or potential disruption, of air traffic services and related supporting services in the airspace for which they are responsible for the provision of such services. Such contingency plans shall be developed with the assistance of ICAO as necessary, in close coordination with the air traffic services authorities responsible for the provision of services in adjacent portions of airspace and with airspace users concerned.

Note 1.— Guidance material relating to the development, promulgation and implementation of contingency plans is contained in Attachment C.

Note 2.— Contingency plans may constitute a temporary deviation from the approved regional air navigation plans; such deviations are approved, as necessary, by the President of the ICAO Council on behalf of the Council.

2.33 Identification and delineation of prohibited, restricted and danger areas

2.33.1 Each prohibited area, restricted area, or danger area established by a State shall, upon initial establishment, be given an identification and full details shall be promulgated.

Note.— See Annex 15, Appendix 1, ENR 5.1.

2.33.2 The identification so assigned shall be used to identify the area in all subsequent notifications pertaining to that area.

2.33.3 The identification shall be composed of a group of letters and figures as follows:

- a) nationality letters for location indicators assigned to the State or territory which has established the airspace;
- b) a letter P for prohibited area, R for restricted area and D for danger area as appropriate; and
- c) a number, unduplicated within the State or territory concerned.

Note.— Nationality letters are those contained in Location Indicators (Doc 7910).

2.33.4 To avoid confusion, identification numbers shall not be reused for a period of at least one year after cancellation of the area to which they refer.

2.33.5 **Recommendation.**— *When a prohibited, restricted or danger area is established, the area should be as small as practicable and be contained within simple geometrical limits, so as to permit ease of reference by all concerned.*

2.34 Instrument flight procedure design service

States shall ensure that an instrument flight procedure design service is in place in accordance with Appendix 8.

APPENDIX 6. PRESCRIPTIVE FATIGUE MANAGEMENT REGULATIONS

Note.— Guidance on the development and implementation of prescriptive fatigue management regulations is contained in the Manual for the Oversight of Fatigue Management Approaches (Doc 9966).

1. States shall establish prescriptive limitation regulations that take into account acute and cumulative fatigue, circadian factors and the type of work being undertaken. These regulations shall identify:

- a) the maximum:
 - i) number of hours in any duty period;
 - ii) number of consecutive work days;
 - iii) number of hours worked in a defined period; and
 - iv) time-in-position;
- b) the minimum:
 - i) duration of non-duty periods;
 - ii) number of non-duty days required in a defined period; and
 - iii) duration of breaks between periods of time-in-position in a duty period.

2. States shall require that the air traffic services provider identify a process for assigning unscheduled duties that allows air traffic controllers to avoid extended periods of being awake.

3. The processes established by States in accordance with 2.28.3 c) and d) to allow variations from 1 a) and b) above shall include the provision of:

- a) the reason for the need to deviate;
- b) the extent of the deviation;
- c) the date and time of enactment of the deviation; and
- d) a safety case, outlining mitigations, to support the deviation.

APPENDIX 7. FATIGUE RISK MANAGEMENT SYSTEM (FRMS) REQUIREMENTS

Note.— Guidance on the development and implementation of FRMS regulations is contained in the Manual for the Oversight of Fatigue Management Approaches (Doc 9966).

States shall require that an FRMS contain, at a minimum:

1. FRMS policy and documentation

1.1 FRMS policy

1.1.1 The air traffic services provider shall define its FRMS policy, with all elements of the FRMS clearly identified.

1.1.2 The policy shall:

- a) define the scope of FRMS operations;
- b) reflect the shared responsibility of management, air traffic controllers, and other involved personnel;
- c) clearly state the safety objectives of the FRMS;
- d) be signed by the accountable executive of the organization;
- e) be communicated, with visible endorsement, to all the relevant areas and levels of the organization;
- f) declare management commitment to effective safety reporting;
- g) declare management commitment to the provision of adequate resources for the FRMS;
- h) declare management commitment to continuous improvement of the FRMS;
- i) require that clear lines of accountability for management, air traffic controllers, and all other involved personnel are identified; and
- j) require periodic reviews to ensure it remains relevant and appropriate.

Note.— Effective safety reporting is described in the Safety Management Manual (SMM) (Doc 9859).

1.2 FRMS documentation

An air traffic services provider shall develop and keep current FRMS documentation that describes and records:

- a) FRMS policy and objectives;
- b) FRMS processes and procedures;
- c) accountabilities, responsibilities and authorities for these processes and procedures;
- d) mechanisms for ongoing involvement of management, air traffic controllers, and all other involved personnel;
- e) FRMS training programmes, training requirements and attendance records;
- f) scheduled and actual duty and non-duty periods and break periods between periods of time-in-position in a duty period with significant deviations and reasons for deviations noted; and

Note.— Significant deviations are described in the Manual for the Oversight of Fatigue Management Approaches (Doc 9966).

- g) FRMS outputs including findings from collected data, recommendations, and actions taken.

2. Fatigue risk management processes

2.1 Identification of fatigue-related hazards

Note.— Provisions on the protection of safety information are contained in Annex 19.

An air traffic services provider shall develop and maintain three fundamental and documented processes for fatigue hazard identification:

2.1.1 *Predictive.* The predictive process shall identify fatigue hazards by examining air traffic controller scheduling and taking into account factors known to affect sleep and fatigue and their effects on performance. Methods of examination may include, but are not limited to:

- a) air traffic services or industry operational experience and data collected on similar types of operations or from other industries with shift work or 24-hour operations;
- b) evidence-based scheduling practices; and
- c) bio-mathematical models.

2.1.2 *Proactive.* The proactive process shall identify fatigue hazards within current air traffic services operations. Methods of examination may include, but are not limited to:

- a) self-reporting of fatigue risks;
- b) fatigue surveys;
- c) relevant air traffic controller performance data;

- d) available safety databases and scientific studies;
- e) tracking and analysis of differences in planned and actual worked times; and
- f) observations during normal operations or special evaluations.

2.1.3 *Reactive*. The reactive process shall identify the contribution of fatigue hazards to reports and events associated with potential negative safety consequences in order to determine how the impact of fatigue could have been minimized. At a minimum, the process may be triggered by any of the following:

- a) fatigue reports;
- b) confidential reports;
- c) audit reports; and
- d) incidents.

2.2 Fatigue-related risk assessment

2.2.1 An air traffic services provider shall develop and implement risk assessment procedures that determine when the associated risks require mitigation.

2.2.2 The risk assessment procedures shall review identified fatigue hazards and link them to:

- a) operational processes;
- b) their probability;
- c) possible consequences; and
- d) the effectiveness of existing preventive controls and recovery measures.

2.3 Risk mitigation

An air traffic services provider shall develop and implement fatigue risk mitigation procedures that:

- a) select the appropriate mitigation strategies;
- b) implement the mitigation strategies; and
- c) monitor the strategies' implementation and effectiveness.

3. FRMS safety assurance processes

The air traffic services provider shall develop and maintain FRMS safety assurance processes to:

- a) provide for continuous FRMS performance monitoring, analysis of trends, and measurement to validate the effectiveness of the fatigue safety risk controls. The sources of data may include, but are not limited to:
 - 1) hazard reporting and investigations;
 - 2) audits and surveys; and
 - 3) reviews and fatigue studies (both internal and external);
- b) provide a formal process for the management of change. This shall include, but is not limited to:
 - 1) identification of changes in the operational environment that may affect the FRMS;
 - 2) identification of changes within the organization that may affect the FRMS; and
 - 3) consideration of available tools which could be used to maintain or improve FRMS performance prior to implementing changes; and
- c) provide for the continuous improvement of the FRMS. This shall include, but is not limited to:
 - 1) the elimination and/or modification of preventive controls and recovery measures that have had unintended consequences or that are no longer needed due to changes in the operational or organizational environment;
 - 2) routine evaluations of facilities, equipment, documentation and procedures; and
 - 3) the determination of the need to introduce new processes and procedures to mitigate emerging fatigue-related risks.

4. FRMS promotion processes

FRMS promotion processes support the ongoing development of the FRMS, the continuous improvement of its overall performance, and attainment of optimum safety levels. The following shall be established and implemented by the air traffic service provider as part of its FRMS:

- a) training programmes to ensure competency commensurate with the roles and responsibilities of management, air traffic controllers, and all other involved personnel under the planned FRMS; and
- b) an effective FRMS communication plan that:
 - 1) explains FRMS policies, procedures and responsibilities to all relevant stakeholders; and
 - 2) describes communication channels used to gather and disseminate FRMS-related information.

APPENDIX 8. STATE RESPONSIBILITIES CONCERNING AN INSTRUMENT FLIGHT PROCEDURE DESIGN SERVICE

(Chapter 2, 2.34 refers)

1. A State shall:

- a) provide an instrument flight procedure design service; and/or
- b) agree with one or more Contracting State(s) to provide a joint service; and/or
- c) delegate the provision of the service to external agency(ies).

2. In all cases in paragraph 1 above, the State concerned shall approve and remain responsible for all instrument flight procedures for aerodromes and airspace under the authority of the State.

3. Instrument flight procedures shall be designed in accordance with State-approved design criteria.

4. Each State shall ensure that an instrument flight procedure design service provider intending to design an instrument flight procedure for aerodromes or airspace under the authority of that State meets the requirements established by that State's regulatory framework.

Note.— Guidance material for regulatory framework for the oversight of instrument flight procedure design service is contained in the Manual on the Development of a Regulatory Framework for Instrument Flight Procedure Design Service (Doc 10068).

5. A State shall ensure that an instrument flight procedure design service provider utilizes a quality management system at each stage of the instrument flight procedure design process.

Note.— This requirement can be met by means of a quality assurance methodology, such as that described in PANS-OPS (Doc 8168), Volume II. Guidance for implementing such a methodology is contained in the Quality Assurance Manual for Flight Procedure Design (Doc 9906).

6. A State shall ensure that maintenance and periodic review of instrument flight procedures for aerodromes and airspace under the authority of the State are conducted. Each State shall establish an interval for periodic review of instrument flight procedures not exceeding five years.

Note.— Guidance on maintenance and periodic review is contained in the Quality Assurance Manual for Flight Procedure Design (Doc 9906).

ATTACHMENT C. MATERIAL RELATING TO CONTINGENCY PLANNING

(Chapter 2, 2.32 refers)

1. Introduction

1.1 Guidelines for contingency measures for application in the event of disruptions of air traffic services and related supporting services were first approved by the Council on 27 June 1984 in response to Assembly Resolution A23-12, following a study by the Air Navigation Commission and consultation with States and international organizations concerned, as required by the Resolution. The guidelines were subsequently amended and amplified in the light of experience gained with the application of contingency measures in various parts of the world and in differing circumstances.

1.2 The purpose of the guidelines is to assist in providing for the safe and orderly flow of international air traffic in the event of disruptions of air traffic services and related supporting services and in preserving the availability of major world air routes within the air transportation system in such circumstances.

1.3 The guidelines have been developed in recognition of the fact that circumstances before and during events causing disruptions of services to international civil aviation vary widely and that contingency measures, including access to designated aerodromes for humanitarian reasons, in response to specific events and circumstances must be adapted to these circumstances. They set forth the allocation of responsibility among States and ICAO for the conduct of contingency planning and the measures to be taken into consideration in developing, applying and terminating the application of such plans.

1.4 The guidelines are based on experience which has shown, inter alia, that the effects of disruption of services in particular portions of airspace are likely to affect significantly the services in adjacent airspace, thereby creating a requirement for international coordination, with the assistance of ICAO as appropriate. Hence, the role of ICAO in the field of contingency planning and coordination of such plans is described in the guidelines. They also reflect the experience that ICAO's role in contingency planning must be global and not limited to airspace over the high seas and areas of undetermined sovereignty, if the availability of major world air routes within the air transportation system is to be preserved. Finally, they further reflect the fact that international organizations concerned, such as the International Air Transport Association (IATA) and the International Federation of Airline Pilots' Associations (IFALPA), are valuable advisers on the practicability of overall plans and elements of such plans.

2. Status of contingency plans

Contingency plans are intended to provide alternative facilities and services to those provided for in the regional air navigation plan when those facilities and services are temporarily not available. Contingency arrangements are therefore temporary in nature, remain in effect only until the services and facilities of the regional air navigation plan are reactivated and, accordingly, do not constitute amendments to the regional plan requiring processing in accordance with the "Procedure for the Amendment of Approved Regional Plans". Instead, in cases where the contingency plan would temporarily deviate from the approved regional air navigation plan, such deviations are approved, as necessary, by the President of the ICAO Council on behalf of the Council.

3. Responsibility for developing, promulgating and implementing contingency plans

3.1 The State(s) responsible for providing air traffic services and related supporting services in particular portions of airspace is (are) also responsible, in the event of disruption or potential disruption of these services, for instituting measures to ensure the safety of international civil aviation operations and, where possible, for making provisions for alternative facilities and services. To that end the State(s) should develop, promulgate and implement appropriate contingency plans. Such plans should be developed in consultation with other States and airspace users concerned and with ICAO, as appropriate, whenever the effects of the service disruption(s) are likely to affect the services in adjacent airspace.

3.2 The responsibility for appropriate contingency action in respect of airspace over the high seas continues to rest with the State(s) normally responsible for providing the services until, and unless, that responsibility is temporarily reassigned by ICAO to (an)other State(s).

3.3 Similarly, the responsibility for appropriate contingency action in respect of airspace where the responsibility for providing the services has been delegated by another State continues to rest with the State providing the services until, and unless, the delegating State terminates temporarily the delegation. Upon termination, the delegating State assumes responsibility for appropriate contingency action.

3.4 ICAO will initiate and coordinate appropriate contingency action in the event of disruption of air traffic services and related supporting services affecting international civil aviation operations provided by a State wherein, for some reason, the authorities cannot adequately discharge the responsibility referred to in 3.1. In such circumstances, ICAO will work in coordination with States responsible for airspace adjacent to that affected by the disruption and in close consultation with international organizations concerned. ICAO will also initiate and coordinate appropriate contingency action at the request of States.

4. Preparatory action

4.1 Time is essential in contingency planning if hazards to air navigation are to be reasonably prevented. Timely introduction of contingency arrangements requires decisive initiative and action, which again presupposes that contingency plans have, as far as practicable, been completed and agreed among the parties concerned before the occurrence of the event requiring contingency action, including the manner and timing of promulgating such arrangements.

4.2 For the reasons given in 4.1, States should take preparatory action, as appropriate, for facilitating timely introduction of contingency arrangements. Such preparatory action should include:

- a) preparation of general contingency plans for introduction in respect of generally foreseeable events such as industrial action or labour unrest affecting the provision of air traffic services and/or supporting services. In recognition of the fact that the world aviation community is not party to such disputes, States providing services in airspace over the high seas or of undetermined sovereignty should take appropriate action to ensure that adequate air traffic services will continue to be provided to international civil aviation operations in non-sovereign airspace. For the same reason, States providing air traffic services in their own airspace or, by delegation, in the airspace of (an)other State(s) should take appropriate action to ensure that adequate air traffic services will continue to be provided to international civil aviation operations concerned, which do not involve landing or take-off in the State(s) affected by industrial action;
- b) assessment of risk to civil air traffic due to military conflict or acts of unlawful interference with civil aviation as well as a review of the likelihood and possible consequences of natural disasters or public health emergencies. Preparatory action should include initial development of special contingency plans in respect of natural disasters, public health emergencies, military conflicts or acts of unlawful interference with civil aviation that are likely to affect the availability of airspace for civil aircraft operations and/or the provision of air traffic services and