APAC AIR NAVIGATION PLAN

VOLUME I

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APAC ANP, VOLUME I
PART 0 – INTRODUCTION

1. GENERAL

1.1 On ***18 June 2014***, the ICAO Council decided that the regional air navigation plans (ANPs) should be published in three volumes.

1.2 ANP Volume I contains stable plan elements whose amendment necessitates approval by the Council such as the assignment of responsibilities to States for the provision of aerodrome and air navigation facilities and services in accordance with Article 28 of the *Convention on International Civil Aviation* (Doc 7300); and the current to medium term mandatory regional requirements related to aerodrome and air navigation facilities and services to be implemented by States in accordance with regional air navigation agreements and requirements specific to the region which are not covered in the ICAO Standards and Recommended Practices (SARPs) and Procedures for Air Navigation Services (PANS). The material to be included in Volume I should minimise the requirement for frequent amendment. The following is a non-exhaustive list of such elements:

- Flight Information Regions (FIR) boundaries (Table and Charts);
- Search and Rescue Regions (SRR) boundaries (Table and Charts);
- Volcanic Ash Advisory Centres (VAAC);
- Tropical Cyclone Advisory Centres (TCAC); and
- Volcano Observatories (VO).

1.3 ANP Volume II contains dynamic plan elements material related to the assignment of responsibilities to States for the provision of aerodrome and air navigation facilities and services and the current to medium term mandatory regional requirements related to aerodrome and air navigation facilities and services to be implemented by States in accordance with regional air navigation agreements involving the relevant PIRG. The amendment of these elements does not require approval by the Council. The following is a non-exhaustive list of such elements:

- Major traffic flows;
- ATS route network;
- Meteorological Watch Offices (MWO);
- Secondary Surveillance Radar (SSR) codes;
- Five-letter name-codes; and
- VOLMET Broadcasts.

1.4 ANP Volume III contains dynamic/flexible plan elements providing implementation planning guidance for air navigation systems and their modernization taking into consideration emerging programmes such as the ICAO Aviation System Block Upgrades (ASBUs) and associated technology roadmaps described in the *Global Air Navigation Plan* (GANP) (Doc 9750). The ANP Volume III would also include appropriate additional guidance, particularly with regard to implementation, to complement the material contained in the ANP Volumes I and II. The amendment of Volume III would not require approval by the Council (approval of Part II is under the responsibility of the relevant PIRG).

Note 1: The ANP does not list all facilities in the region(s) but only those required for international civil aviation operations. Documents from the Integrated Aeronautical Information Package and other States publications should be consulted for information on additional facilities and for operational information in general.

Note 2: The general structure of the regional plans for the parts which concern an air navigation field in Volumes I and II consists of an "Introduction", "General Regional Requirements" and "Specific Regional Requirements". Only Tables shown under "General Regional Requirements" are harmonized for all Regions. Should a Region require a Table for a specific field, this should be reflected under "Specific Regional Requirements" of the subject concerned. The naming convention for such tables consists of the technical field concerned (AOP, CNS, ATM, MET, SAR and AIM), the ANP Volume number (I or II), the

Region (APAC, AFI, CAR/SAM, EUR, MID, NAM and NAT) and the consecutive number of the table. Examples are as follows: Table ATM I-EUR-1, Table CNS II-MID-1 or Table MET I-AFI-2.

1.5 Guidance material on the detail of programmes or concepts should be contained in supplementary material referenced appropriately or adopted as APAC Documents.

2. RELATIONSHIP BETWEEN THE GLOBAL AND REGIONAL AIR NAVIGATION PLANS

2.1 The ANPs represent the bridge between, on one side, the global provisions in the ICAO SARPs and the GANP, and on the other side, the States' air navigation plans and implementation status.

2.2 The GANP represents a rolling, 15-year strategic methodology which leverages existing technologies and anticipates future developments based on State/industry-agreed operational objectives. The GANP is an overarching framework that includes key aviation policy principles to assist ICAO Regions, sub-regions and States with the preparation of their regional and State air navigation plans and to support the establishment of air navigation priorities.

3. OBJECTIVE AND PURPOSE OF REGIONAL AIR NAVIGATION PLANS

3.1 The ANPs provide for the planning and implementation of air navigation systems within a specified area, in accordance with the agreed global and regional planning framework. They are developed to meet those needs of specific areas not covered in the worldwide provisions. The development and maintenance of the ANPs is undertaken by ICAO PIRGs with the assistance of the ICAO Secretariat.

3.2 The ANPs are used as a repository Document for the assignment of responsibilities to States for the provision of air navigation facilities and services within a specified area in accordance with Article 28 of the *Convention on International Civil Aviation* (Doc 7300).

3.3 The ANPs contain requirements related to the facilities and services to be implemented by States in accordance with regional air navigation agreements. The procedural parts of ANPs are published in the *ICAO Regional Supplementary Procedures* (SUPPs) (Doc 7030).

3.4 The ANPs contain provisions that States can follow in the planning of aerodrome and air navigation facilities and services activities, with the assurance that facilities and services furnished in accordance with the plan will form with those of other States an integrated system adequate for the foreseeable future.

3.5 The ANPs may serve as a legal basis for air navigation services charges which are levied for services provided or made available to users, in accordance with ICAO's *Policies on Charges for Airports and Air Navigation Services* (Doc 9082) and *ICAO Manual on Air Navigation Services Economics* (Doc 9161).

3.6 The ANPs support the performance-based approach to planning adopted by ICAO to measure the efforts made by States in implementing the agreed requirements.

4. MANAGEMENT AND AMENDMENT OF REGIONAL AIR NAVIGATION PLANS

4.1 The elements of the existing planning system and the planning principles, operational requirements and planning criteria as developed for the Asia and Pacific Regions are kept under constant review by the APANPIRG in accordance with its schedule of meetings, in consultation with provider and user States and with the assistance of the ICAO Regional Office(s) concerned.

4.2 The detailed amendment procedure of the three ANP Volumes is described in paragraph 5 below.

5. PROCEDURE FOR THE AMENDMENT OF REGIONAL AIR NAVIGATION PLANS

5.1 The procedure for the amendment of regional air navigation plans in three Volumes as approved by the Council is shown in **Appendix A**.

6. ABBREVIATIONS

6.1 The abbreviations used in this document are contained in the *Procedures for Air Navigation Services — ICAO Abbreviations and Codes (PANS-ABC)* (Doc 8400), with the exception of those used in the explanations of any tables appearing herein, which also give their meaning.

7. ESTABLISHMENT AND PROVISION OF A MULTINATIONAL ICAO AIR NAVIGATION FACILITY/SERVICE

7.1 The operation of multinational air navigation services is well established within the Asia and Pacific Regions. The ICAO *Manual on Air Navigation Services Economics* (Doc 9161) details the ICAO policies on charges for air navigation services and provides additional information on the various models adopted globally. The introduction of multinational air navigation services does not dilute the principle that a State has the responsibility of overseeing the provision of air navigation services and that it shall maintain that responsibility within its sovereign airspace as well as within the airspace over the high seas for which it has accepted the responsibility for the provision of services. Where there is no intention to change or modify the FIR boundaries nor the facilities and services currently listed in the ANP there is not a requirement to amend the ANP. However, should changes to the FIR boundaries or to the facilities and services provided be required, such changes are likely to be subject to the ANP amendment procedure and should therefore be examined on a case-by-case basis. Advice on this issue can be obtained from the ICAO Regional Office(s). Any multinational arrangements for the provision of air navigation services should be registered with ICAO (Article 83 of the Convention (Doc 7300) and *Rules for Registration with ICAO of Aeronautical Agreements and Arrangements* (Doc 6685)).

APPENDIX A - PROCEDURE FOR THE AMENDMENT OF REGIONAL AIR NAVIGATION PLANS

*(Approved by Council on **18 June 2014**)*

1. Introduction

1.1. The procedure outlined below has been evolved to provide a means of maintaining the regional air navigation plans using an ANP web based platform.

2. General criteria

2.1. The Assembly has resolved that regional plans should be revised when it becomes apparent that they are no longer consistent with current and foreseen requirements of international civil aviation and that, when the nature of a required change permits, the associated amendment of the regional plan should be undertaken by correspondence between the Organization and the States and international organizations concerned.

2.2. When a State cannot immediately implement a particular part or a specific detail of a regional plan although it intends to do so, when practicable, this in itself should not lead to the State proposing an amendment to the plan.

2.3. The general structure of the regional plans for the parts which concern an air navigation field in Volumes I and II consists of an “Introduction”, “General Regional Requirements” and “Specific Regional Requirements”. As the section “General Regional Requirements” is harmonized for all regions, an amendment of the provisions (text) in “General Regional Requirements” will lead to amendment of Volumes I and II of the regional plans of all regions.

2.4. The amendment process of Volume III is under the responsibility of the relevant Planning and Implementation Regional Group (PIRG). The Parts 0 (Introduction) and I (General Planning Aspects) of Volume III are harmonized for all regions and the amendment of these parts should be made following inter-regional coordination.

3. User rights

3.1. Access to the ANP web based platform to develop and submit amendment proposals to the regional plan and to comment on an officially issued amendment proposal should be provided through controlled access by the State’s or international organization’s designated Focal Points. The State or international organization should officially inform their respective Regional Office of the registration of their designated Focal Points.

4. States and international organizations to be consulted

4.1. The Secretary General, through the relevant Regional Office, will determine the States and international organizations to be consulted on the amendment proposal. These will generally only include the provider and user States and international organizations that have a direct and obvious interest in the amendment in question.

PART A — AIR NAVIGATION PLANS, VOLUME I

5. Procedure for amendment of Volume I

5.1. If, in the light of the above general criteria, any State (or group of States) wishes to effect a change in the approved air navigation plan for that region, it should propose to the Secretary General, through the Regional Office accredited to that State, an appropriate amendment to the plan, adequately documented; the proposal should include the facts that lead the State (or group of States) to the conclusion that the amendment is necessary. Such amendments may include additions, modifications or deletions. (This procedure does not preclude a State having previous consultation with other States before submitting an amendment proposal to the Regional Office.) This proposed amendment should be submitted via the web based tool and/or by correspondence to the Regional Office.

5.2. Upon studying the proposal, if the Secretary General considers that the proposed amendment requires further coordination through the relevant Planning and Implementation Regional Group (PIRG), the proposal will be presented, adequately documented, to the PIRG. The views of the PIRG will be coordinated with the originating State and the proposed amendment will be uploaded via the ANP web based platform for processing proposals for amendment for approval by the Council.

5.3. If the proposal concerns an amendment of the provisions (text) in "General Regional Requirements", the Secretary General will coordinate and circulate, through all Regional Offices, an amendment of all the regional plans.

5.4. If the Secretary General considers that the proposed amendment conflicts with established ICAO policy, or that it raises questions which the Secretary General considers should be brought to the attention of the Air Navigation Commission, the proposal will be presented, adequately documented, to the Commission. In such cases, the Commission will decide the action to be taken on the proposal.

5.5. The Secretary General, through the Regional Office, will circulate the proposal, adequately documented, with a request for comments to all provider and user States of the region considered affected as well as to user States outside the region and international organizations which may be invited to attend suitable ICAO meetings and which may be concerned with the proposal. The States and international organizations concerned should either send their comments/agreement/objection via the ANP web based platform and/or by correspondence to the Regional Office. Any comment or objection should be adequately supported by reasons for the comment or objection.

5.6. If, in reply to the Secretary General's inquiry, no objection is raised to the proposal by a specified date, the proposal should be submitted to the President of the Council, who is authorized to approve the amendment on behalf of the Council. The approved amendment should be incorporated into Volume I of the regional plan.

5.7. If, in reply to the Secretary General's inquiry, any objection is raised, and if objection remains after further consultation, the matter will be documented for discussion by the respective planning and implementation regional group (PIRG) and, ultimately for formal consideration by the Air Navigation Commission, if it remains unresolved. If the Commission concludes that the amendment is acceptable in its original or other form, it will present appropriate recommendations to the Council.

5.8. Proposals for the amendment of Volume I of the regional plan submitted by international organizations directly concerned with the operation of aircraft, which may be invited to attend suitable ICAO meetings and which attended the meeting(s) where the relevant regional plan is managed, will be dealt with in the same manner as those received from States, except that, before circulating a proposal to States and selected international organizations, the Secretary General will ascertain whether it has adequate support from the State or States whose facilities will be affected. If such support is not forthcoming, the proposal will be presented to the Commission, and the Commission will decide on the action to be taken on the proposal.

5.9. Proposals for the amendment of Volume I of the regional plan may also be initiated by the Secretary General, through the Regional Office accredited to that State, provided that the State or States whose facilities will be affected have expressed their concurrence with the proposal.

5.10. Amendments to Volume I of the regional plan which have been approved in accordance with the above procedure will be published in the ANP web based platform at convenient intervals.

PART B — AIR NAVIGATION PLANS, VOLUME II

6. Procedure for amendment of Volume II

6.1. Amendments of Volume II of the regional plan should be effected on the basis of an adequately documented proposal submitted by a State (or a group of States) or the relevant PIRG to the Secretary General, through the Regional Office accredited to that State. The proposal should include the facts that lead to the conclusion that the amendment is necessary. Such amendments may include additions, modifications or deletions to Volume II of the regional plan. (This procedure does not preclude a State having previous consultation with other States before submitting an amendment proposal to the Regional Office.) This proposed amendment should be submitted via the ANP web based platform and/or by correspondence to the Regional Office.

6.2. If the proposal concerns an amendment of the provisions (text) in "General Regional Requirements", the Secretary General will coordinate and circulate, through all Regional Offices, an amendment of all the regional plans.

6.3. The ICAO Regional Office will circulate the proposal, adequately documented, with a request for comments to all provider and user States of the region considered affected as well as to user States outside the region and international organizations which may be invited to attend suitable ICAO meetings and which may be concerned with the proposal. The States and international organizations concerned should either send their comments/agreement/objection via the ANP web based platform and/or by correspondence to the Regional Office. Any comment or objection should be adequately supported by reasons for the comment or objection.

6.4. If, in reply to the ICAO Regional Office's inquiry, no objection is raised to the proposal by a specified date, it will be deemed that a regional agreement (involving the relevant PIRG) on the subject has been reached and the proposed amendment should be incorporated into Volume II of the regional plan.

6.5. If, in reply to the ICAO Regional Office's inquiry, any objection is raised, and if objection remains after further consultation, the matter will be documented for discussion by the respective planning and implementation regional group (PIRG) and, ultimately for formal consideration by the Air Navigation Commission, if it remains unresolved. If the Commission concludes that the amendment is acceptable in its original or other form, it will present appropriate recommendations to the Council.

6.6. Proposals for the amendment of Volume II of the regional plan submitted by international organizations directly concerned with the operation of aircraft, which may be invited to attend suitable ICAO meetings, where the relevant regional plan is managed, will be dealt with in the same manner as those received from States, except that, before circulating a proposal to States and selected international organizations, the Secretary General will ascertain whether the proposal has adequate support from the State or States whose facilities or services will be affected. If such support is not forthcoming, the proposal will not be pursued.

6.7. Proposals for the amendment of Volume II of the regional plan may also be initiated by the Secretary General, through the Regional Office accredited to that State, provided that the State or States whose facilities or services will be affected have expressed their concurrence with the proposal.

6.8. Amendments to Volume II of the regional plan which have been approved in accordance with the above procedure will be published in the ANP web based platform at convenient intervals.

PART C — AIR NAVIGATION PLANS, VOLUME III

7. Procedure for amendment of Volume III

7.1. Amendments of Volume III of the regional plan are under the responsibility of the relevant Planning and Implementation Regional Group (PIRG) and not subject to a formal application of the procedure for amendment of the ANP described in Parts A and B above. However, the amendment of the provisions of Part 0 - "Introduction" and Part I - "General Planning Aspects" needs special coordination, as specified in 7.4 below. Since these two Parts are harmonized for all regions, an amendment of the provisions contained therein will lead to amendment of Parts 0 and I of Volume III of the regional plans of all regions.

7.2. Amendments of Volume III of the regional plan should be effected on the basis of an adequately documented proposal submitted to the ICAO Regional Office concerned by:

- a State (or a group of States); or
- the relevant Planning and Implementation Regional Group (PIRG) of the region(s); or
- the ICAO Secretariat; or
- international organisations directly concerned with the operation of aircraft, which may be invited to attend suitable ICAO meetings and/or which attended the meeting(s) where the relevant Volume III amendments were agreed.

7.3. This procedure does not preclude a State (or group of States) having previous consultation with other States before submitting an amendment proposal to the Regional Office. Such amendments may include additions, modifications or deletions to Volume III of the regional plan. In addition, the facts that led to the conclusion that the amendment should be included.

7.4. If the proposal concerns an amendment of the provisions in Part 0 - "Introduction" or Part I - "General Planning Aspects", the ICAO Regional Office concerned will submit the proposal to ICAO Headquarters (Air Navigation Bureau) for coordination with all ICAO Regional Offices. The views of the ICAO Regional Offices will be taken into consideration in the consolidation/approval of the amendment by the ANB. The approved amendment will be published in Volume III of all regional plans at convenient intervals.

7.5. The mechanism for the amendment of Part II of Volume III of the regional plan should be developed, agreed by the relevant PIRG and reflected in the corresponding PIRG Handbook.

APAC ANP, VOLUME I

PART I – GENERAL PLANNING ASPECTS (GEN)

1. GEOGRAPHICAL SCOPE

1.1 The APAC ANP is related to the ICAO Asia and Pacific air navigation regions. The ANP may call for the provision of basic facilities and services beyond the charted boundaries of a region where such facilities and services are necessary to meet the requirements of international air navigation within that region.

1.2 A number of States within the ICAO Asia and Pacific Regions are members of one or more sub-regional groupings which have development plans to improve air navigation services; such plans contribute to the regional implementation of the ICAO *Global Air Navigation Plan* (GANP) (Doc 9750). Regional subgroups include the:

- ***Association of South East Asian Nations (ASEAN)***

2. FLIGHT INFORMATION REGIONS

2.1 **Table GEN I-1** shows the current Flight Information Regions (FIR)/Upper Information Regions (UIR) which are part of the ICAO Asia and Pacific Regions. More details of the FIRs and UIRs within the Asia and Pacific air navigation regions are contained in **Table ATM I-1** and **Charts ATM I-1** and **ATM I-2**.

3. STATES' RESPONSIBILITIES

3.1 Each Contracting State is responsible for the provision of facilities and services in its territory under Article 28 of the Convention as well as within the airspace over the high seas for which it has accepted the responsibility for the provision of services. The Council has recommended that these facilities and services include those specified in the ANPs.

3.2 The inclusion of the basic facilities and services provided by non-Contracting States and territories in regional ANPs is simply recognition that they are needed by or likely to affect international civil aircraft operations of Contracting States or the facilities and services of these States.

Note. — Non-Contracting State in the APAC Region is: Tuvalu

4. APAC REGIONAL PLANNING

4.1 The regional planning and implementation process is the principal engine of ICAO's planning framework. It is here that the top-down approach comprising global guidance and regional harmonization measures converges with the bottom-up approach constituted by national planning by States.

4.2 PERFORMANCE BASED APPROACH

4.2.1 Global Approach

4.2.1.1 In an effort to assist planners in weighing outcomes and making appropriate decisions, the *Manual on Global Performance of the Air Navigation System* (Doc 9883) has been developed. In this respect ICAO has defined 11 Key Performance Areas (KPA), one for each of the *Global ATM Operational Concept* (Doc 9854) expectations outlined below.

4.2.1.2 These general expectations are relative to the effective operation of the ATM system. The ICAO planning objective is to achieve a performance based global Air Traffic Management (ATM) system through the implementation of air navigation systems and procedures in a safe, progressive, cost-effective and cooperative manner.

5. RELATIONSHIP BETWEEN GLOBAL, REGIONAL AND NATIONAL PLANNING

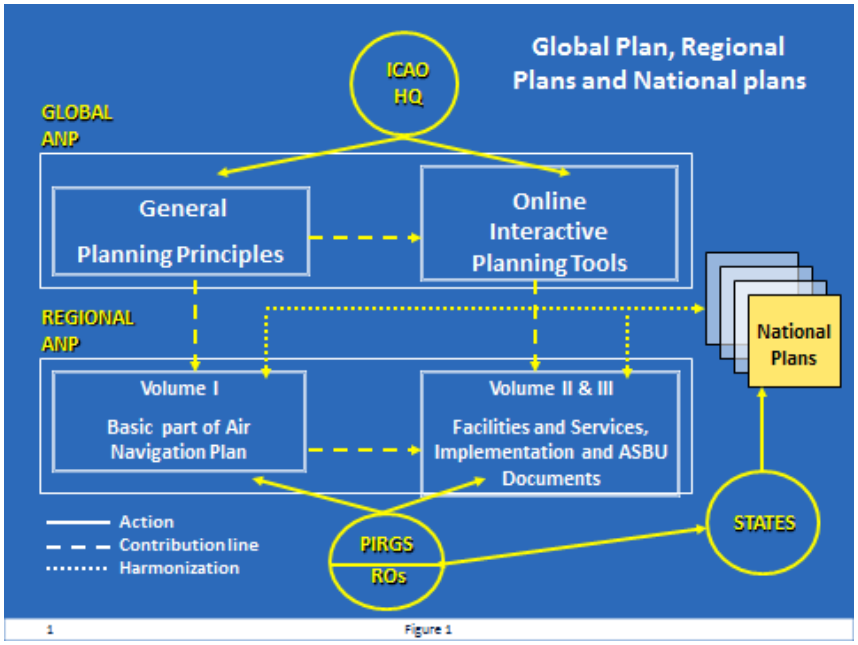

Figure-1: Relationship between global, regional and national plans

5.1 Planning takes place at global, regional and national levels. Planning is accomplished with the help of planning tools and methodologies that are used primarily at the regional and national levels, conditioned by guidance from the global level. The basis for effective planning is the GANP (Doc 9750), which should guide the development of regional and national implementation plans that will support system architectures.

6. HUMAN RESOURCE PLANNING

6.1 Human resource planning can be considered "*the systematic and continuing process of analysing an organisation's human resource needs under changing conditions and developing personnel policies appropriate to the longer-term effectiveness of the organisation. It is an integral part of corporate planning and budgeting procedures since human resource costs and forecasts both affect and are affected by longer-term corporate plans.*"[1]

6.2 Estimating current and future requirements for civil aviation personnel and training capacity is essential for human resource planning, institutional capacity building, and related funding and policy measures. Such planning will need to take into account the interdependencies for supply and demand of qualified personnel at national, regional and global levels.

6.3 Human Performance

6.3.1 The high level of automation and interdependencies across aviation disciplines will only increase with evolving air navigation systems. To maximise potential safety and efficiency benefits that these offer, the development of human-driven, rather than engineering-driven interfaces is required, making it easier for the human operator to make sound decisions and take correct actions. Similarly, as part of a safety management systems approach, procedures need to be identified for the use of current and new technologies that take into account human capabilities and manage the risk associated with human limitations.

[1] Defined by the UK Institute of Personnel and Development

6.3.2 States should:

a) Identify a certification process that requires at the design stage:

i) recognition of the potential human performance issues that the proposed new technology attempts to address; and

ii) consideration of the potential human performance issues, including changes in roles and the effects on individual and team behaviours that may be introduced by the proposed new technology.

b) Identify processes for the implementation of new technologies, systems and procedures that describes the means by which human performance considerations can be addressed within operational contexts.

c) Consider the management of human performance-related risks as a necessary and essential aspect of the oversight of safety management systems.

d) Ensure that their technical personnel have exposure to training in human factors.

6.4 Training

6.4.1 A major goal of CNS/ATM systems is to create a seamless air navigation system. A seamless air navigation environment will require adequately qualified personnel prepared to perform their jobs in an evolving environment. At the same time, shortcomings in human resource planning and training are frequently mentioned as one of the reasons for the lack of implementation of regional ANPs. Human resource development challenges will be compounded during the transition period to CNS/ATM systems. As the existing and emerging air navigation technologies will co-exist in parallel for a period of time, civil aviation personnel will need to learn new skills, whilst retaining those needed to operate and maintain existing systems. To meet this challenge, a cooperative approach should be used in civil aviation training within the region. This approach should:

a) ensure that the training needs for the region are identified, documented and kept up to date;

b) facilitate the access to specialized types of training needed within the region or sub-regions that individual States cannot justify based on their national training needs alone;

c) ensure that a balanced market exists to support the development and on-going implementation of high-quality training in one or more training centres within the region or sub-regions;

d) endeavour to distribute equitably regional training activities among the training centres established within the region or sub-regions.

e) take advantage of readily available training materials including those available through the TRAINAIR Plus sharing system.

6.4.2 Appropriate bodies should be established to facilitate regional and sub-regional training planning. A quantitative approach should be used to determine the training capabilities needed within a region or sub-region. Decisions concerning required training capabilities should be based on an aggregate of training needs for existing air navigation technologies, as well as emerging technologies. A State consultation process should be used to formulate a plan for the establishment of specific regional training centres.

6.5 Training of technical personnel

6.5.1 States should develop and implement comprehensive training programmes and periodic training plans for all technical staff, including initial, on-the-job, recurrent and specialized training.

7. SAFETY CONSIDERATIONS

7.1 Safety fundamentally contributes to the sustainable growth of a sound and economically viable civil aviation system that continues to foster economic prosperity and social development. With air traffic projected to double in the next 15 years, safety risks must be addressed proactively to ensure that this significant capacity expansion is carefully managed and supported through strategic regulatory and infrastructure developments. It is imperative therefore that States and regions remain focused on their safety priorities as they continue to encourage expansion of their air transport sectors.

7.2 Acceptable safety levels are related to the establishment of State Safety Programmes (SSPs) that are able to anticipate and effectively respond to safety-related occurrences, resulting in continual improvements to an already low global accident rate. The *Global Aviation Safety Plan* (GASP) specifically establishes targeted safety objectives and initiatives that support SSP implementation while ensuring the efficient and effective coordination of complementary safety activities between all stakeholders.

7.3 PIRGs should harmonize activities undertaken to address aviation safety issues on a regional basis with the Regional Aviation Safety Groups (RASGs). In addition, PIRGs should coordinate relevant safety matters with RASGs to ensure consistency and avoid overlap.

7.4 PIRGs should ensure that air navigation services development programmes are consistent with the GASP safety objectives and initiatives. States are responsible for the prompt elimination of their air navigation deficiencies. Detailed information on the process of identifying and managing air navigation deficiencies is contained in the APANPIRG Procedural Handbook.

7.5 Adherence to the ICAO SARPs will significantly contribute to aviation safety. States should therefore ensure that they have the necessary regulatory framework in place to reinforce the adoption of the ICAO SARPs within their national regulations. States should also ensure that any differences to the ICAO SARPs have been assessed in respect of safety and are notified in accordance with ICAO requirements.

7.6 Unsatisfactory Conditions Reporting

7.6.1 States should act on any serious problems encountered due to the lack of implementation or prolonged unavailability of air navigation facilities or services required by the ANPs as reported by users of air navigation facilities and services.

8. ENVIRONMENT CONSIDERATIONS

8.1 It is an ICAO Strategic Objective to minimize the adverse effects of global civil aviation on the environment. PIRGs should ensure that environmental factors are taken into consideration when performance based systems implementation plans are developed and may wish to coordinate their plans with the State Action Plans on CO_2 Emissions Reduction. The results of environmental analysis can be useful in providing national decision-makers within the various sub-regions with information upon which to base airspace architecture decisions and in providing information on what the aviation industry is doing now to protect the environment in the future. Tools such as the ICAO Fuel Savings Estimation Tool (IFSET) are available from the ICAO public website to help quantify the environmental benefits from operational improvements. Environmental considerations should, however, not compromise acceptable levels of safety and be balanced against operational and economic considerations.

9. AIR TRAFFIC FORECASTS

9.1 Regional traffic forecasting supports the regional air navigation system planning. All States generally prepare individual forecasts, taking account of the regional information, for national planning purposes. A uniform strategy has been adopted by ICAO for the purpose of preparing traffic forecasts and other planning parameters in support of the regional planning process. This information should be shared through at least the sub-regional groupings to enable effective regional planning development.

10. CONTINGENCY PLANNING

10.1 Contingency plans may constitute a temporary deviation from the approved ANPs; such deviations are approved, as necessary, by the President of the ICAO Council on behalf of the Council.

10.2 The effects of disruption of services in particular portions of airspace are likely to affect significantly the services in adjacent airspace. States should co-ordinate with neighbouring States in the development and implementation of contingency plans, which in some cases may be developed on a sub-regional basis.

10.3 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 in the event that the authorities cannot adequately discharge their responsibility for the provision of such services to ensure the safety of international civil aviation operations. 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.

10.4 Regional contingency plans will be developed, approved and maintained by APANPIRG with the support of ICAO and other organizations.

10.5 States should prepare their contingency plans in advance and ensure their availability or accessibility to the ICAO Regional Office. The plans should be reviewed at regular intervals and updated as required.

TABLE GEN I-1
FLIGHT INFORMATION REGIONS (FIR)/UPPER INFORMATION REGIONS (UIR) OF THE ICAO ASIA/PACIFIC REGIONS

EXPLANATION OF TABLE

Column		
1	**State**	**Name of State**
2	**FIR/UIR**	**Name of FIR**

STATE	FIR/UIR
Afghanistan	KABUL
Australia	BRISBANE
Australia	MELBOURNE
Bangladesh	DHAKA
Cambodia	PHNOM PENH
China	BEIJING
China	GUANGZHOU
China	HONG KONG
China	KUNMING
China	LANZHOU
China	SANYA
China	SHANGHAI
China	SHENYANG
China	TAIBEI
China	URUMQI
China	WUHAN
Democratic People's Republic of Korea	PYONGYANG
French Polynesia (France)	TAHITI
India	CHENNAI
India	DELHI
India	KOLKATA
India	MUMBAI
Indonesia	JAKARTA
Indonesia	UJUNG PANDANG
Fiji	NADI
Japan	FUKUOKA
Lao People's Democratic Republic	VIENTIANE
Malaysia	KOTA KINABALU
Malaysia	KUALA LUMPUR
Maldives	MALE
Mongolia	ULAANBAATAR
Myanmar	YANGON
Nauru	NAURU
Nepal	KATHMANDU
New Zealand	AUCKLAND OCEANIC
New Zealand	NEW ZEALAND
Pakistan	KARACHI
Pakistan	LAHORE
Papua New Guinea	PORT MORESBY
Philippines	MANILA
Republic of Korea	INCHEON
Singapore	SINGAPORE

STATE	FIR/UIR
Solomon Islands	HONIARA
Sri Lanka	COLOMBO
Thailand	BANGKOK
United States of America	ANCHORAGE OCEANIC
United States of America	OAKLAND OCEANIC
Viet Nam	HA NOI
Viet Nam	HO CHI MINH

APAC ANP, VOLUME I

PART II – AERODROMES / AERODROME OPERATIONS (AOP)

1. INTRODUCTION

1.1 This part of the APAC ANP constitutes the agreed regional requirements considered to be the minimum necessary for effective planning and implementation of Aerodromes Operations (AOP) facilities and services in the Asia and Pacific Regions and complements the provisions of ICAO SARPs and PANS related to AOP. It contains stable plan elements related to the assignment of responsibilities to States for the provision of aerodrome facilities and services within the Region(s) in accordance with Article 28 of the *Convention on International Civil Aviation* (Doc 7300) and mandatory requirements related to the AOP facilities and services to be implemented by States in accordance with regional air navigation agreements.

1.2 The dynamic plan elements related to the assignment of responsibilities to States for the provision of the aerodrome facilities and services including the mandatory requirements based on regional air navigation agreements related to the AOP are contained in the APAC ANP Volume II Part II - AOP.

1.3 The APAC ANP Volume III contains dynamic/flexible plan elements related to the implementation of air navigation systems and their modernization in line with the ICAO Aviation System Block Upgrades (ASBUs) methodology and associated technology roadmaps described in the Global Air Navigation Plan. The ASBU modules are aimed at increasing capacity and improving efficiency of the aviation system whilst maintaining or enhancing safety level, and achieving the necessary harmonization and interoperability at regional and global level. This includes the regionally agreed ASBU modules applicable to the specified ICAO region/sub-region and associated elements/enablers necessary for the monitoring of the status of implementation of these ASBU modules.

Standards and Recommended Practices and Procedures for Air Navigation Services

1.4 The SARPs and PANS and associated guidance material applicable to the provision of AOP are contained in:

a) Annex 14 — *Aerodromes*, Volumes I and II;

b) *Procedures for Air Navigation Services – Aerodromes* (PANS-Aerodromes) (Doc 9981);

c) *Airport Planning Manual* (Doc 9184);

d) *Aerodrome Design Manual* (Doc 9157);

e) *Airport Services Manual* (Doc 9137);

f) *Manual on Certification of Aerodromes* (Doc 9774);

g) *Assessment, Measurement and Reporting of Runway Surface Conditions* (Cir 329);

h) *Operation of New Larger Aeroplanes at existing aerodromes* (Cir 305);

i) *Advanced Surface Movement Guidance and Control Systems (A-SMGCS) Manual* (Doc 9830);

j) *Manual of Surface Movement Guidance and Control Systems (SMGCS)* (Doc 9476);

k) *Heliport Manual* (Doc 9261);

l) *Manual on the prevention of runway incursions* (Doc 9870);

m) *Stolport Manual* (Doc 9150);

n) *ICAO Bird Strike Information System Manual* (Doc 9332); and

o) *Manual on Civil Aviation Jet Fuel Supply* (Doc 9977).

2. GENERAL REGIONAL REQUIREMENTS

2.1 Regular aerodromes and their alternates required for international commercial air transport operations should be determined through regional agreements, based on the list of international aerodromes designated by States and the needs of the international commercial flights. Consideration should also be given to the needs of international general aviation flights as identified by user requirements. The alternate aerodromes should be planned/selected, to the greatest practicable extent, from the list of existing regular aerodromes used for international aircraft operations. However, where in specific cases the designation of another aerodrome in close proximity to a regular aerodrome would result in appreciable fuel conservation or other operational advantages, this aerodrome may be designated for use as an alternate aerodrome only. Planning of alternate aerodromes should be made on the basis of the following objectives:

a) to ensure that at least one suitable alternate is available for each international aircraft operation; and

b) to ensure that the facilities at the designated alternate aerodrome(s) are appropriate for the alternate aircraft operations.

2.2 The list of regular and alternate aerodromes (including their designations) required in the Region(s) to serve international civil aviation operations (international scheduled air transport, non-scheduled air transport and general aviation operations) is given in **Table AOP I-1**. Each Contracting State should ensure the provision of aerodrome facilities and services at the international aerodromes under its jurisdiction.

3. SPECIFIC REGIONAL REQUIREMENTS

3.1 None

Table AOP I-1

INTERNATIONAL AERODROMES REQUIRED IN THE ASIA/PACIFIC REGIONS

EXPLANATION OF THE TABLE

City/Aerodrome: Name of the city and aerodrome, preceded by the location indicator.
Designation: Designation of the aerodrome as:
RS — international scheduled air transport, regular use;
RNS — international non-scheduled air transport, regular use;
AS — international scheduled air transport, alternate use;
ANS — international non-scheduled air transport, alternate use.

Note 1 — when an aerodrome is needed for more than one type of use, normally only the use highest on the above list is shown.

[Example — an aerodrome required for both RS and AS use would only be shown as RS in the list.]

Note 2 — when the aerodrome is located on an island and no particular city or town is served by the aerodrome, the name of the island is included instead of the name of a city.

Table AOP I-1

Location Indicator	Name of City/Aerodrome	Designation
AFGHANISTAN		
OAKB	KABUL/Kabul Intl	RS
OAKN	KANDAHAR/Kandahar Intl	AS
AMERICAN SAMOA (United States)		
NSTU	PAGO PAGO/Pago Pago Intl	RS
AUSTRALIA		
YPAD	ADELAIDE/Adelaide	RS
YBAS	ALICE SPRINGS/Alice Springs	AS
YMAV	AVALON/Avalon	RS
YBLN	BUSSELTON/Busselton Margaret River	AS
YBBN	BRISBANE/Brisbane	RS
YBRM	BROOME/Broome Intl	RS
YBCS	CAIRNS/Cairns Intl	RS
YSCB	CANBERRA/Canberra	RS
YPXM	CHRISTMAS I./Christmas I.	RS
YPCC	COCOS I./Cocos (Keeling) I.	RS
YCFS	COFFS HARBOUR/Coffs Harbour	RS
YPDN	DARWIN/Darwin	RS
YGEL	GERALDTON/Geraldton	AS
YBCG	GOLD COAST/Gold Coast	RS
YMHB	HOBART/Hobart	RS
YHID	HORN I./Horn I.	RNS
YPKG	KALGOORLIE/Kalgoorlie-Boulder	AS
YMLT	LAUNCESTON/Launceston	AS
YPLM	LEARMONTH/Learmonth	AS[1]
YLHI	LORD HOWE ISLAND/ Lord Howe I.	RS
YMML	MELBOURNE/Melbourne	RS
YSNF	NORFOLK I./Norfolk I.	RS
YPPH	PERTH/Perth	RS
YPPD	PORT HEDLAND/Port Hedland	RS
YBRK	ROCKHAMPTON/Rockhampton	AS
YBSU	SUNSHINE COAST/Sunshine Coast	RS
YSSY	SYDNEY/Kingsford Smith	RS
YPTN	TINDAL/Tindal	AS[1]
YBWW	TOOWOOMBA/Brisbane West Wellcamp	RS
YBTL	TOWNSVILLE/Townsville Intl	RS
YWLM	WILLIAMTOWN/Williamtown	AS[1]
BANGLADESH		
VGEG	CHATTOGRAM/Shah Amanat Intl	RS
VGHS	DHAKA/Hazrat Shahjalal Intl	RS
VGSY	SYLHET/Osmani Intl	RS
BHUTAN		
VQGP	GELEPHU/Gelephu Intl	RS
VQPR	PARO/Paro Intl	RS

[1] YPLM, YPTN and YWLM are military ADs without civil certification that are available for international civil operations as per requirements in Australian AIP

Table AOP I-1

Location Indicator	Name of City/Aerodrome	Designation
BRUNEI DARUSSALAM		
WBSB	BRUNEI/Brunei Intl	RS
CAMBODIA		
VDTI	PHNOM PENH/Techo Intl	RS
VDSV	PREAH SIHANOUK/Sihanouk Intl	RS
VDSA	SIEM REAP/Siem Reap Angkor Intl	RS
CANADA[1]		
CYXX	ABBOTSFORD/Abbotsford	AS
CYYC	CALGARY/Calgary Intl	RS
CYQQ	COMOX/Comox	AS
CYEG	EDMONTON/Edmonton Intl	RS
CYVR	VANCOUVER/Vancouver Intl	RS
CYYJ	VICTORIA/Victoria Intl	RNS
CHINA		
ZBOW	BAOTOU/Donghe	RS
ZGBH	BEIHAI/Fucheng	RS
ZBAA	BEIJING/Capital	RS
ZBAD	BEIJING/Daxing	RS
ZYCC	CHANGCHUN/Longjia	RS
ZGHA	CHANGSHA/Huanghua	RS
ZSCG	CHANGZHOU/Benniu	RS
ZUUU	CHENGDU/Shuangliu	RS
ZUTF	CHENGDU/Tianfu	RS
ZUCK	CHONGQING/Jiangbei	RS
ZYTL	DALIAN/Zhoushuizi	RS
ZBDT	DATONG/Yungang	RS
ZPMS	DEHONG/Mangshi	RS
ZLDH	DUNHUANG/Mogao	RS
ZHES	ENSHI/Xujiaping	RS
ZBER	ERLIANHOT/Saiwusu	RS
ZHEC	EZHOU/Huahu	RS
ZSFZ	FUZHOU/Changle	RS
RCKH	GAOXIONG/Gaoxiong	RS
ZGGG	GUANGZHOU/Baiyun	RS
ZGKL	GUILIN/Liangjiang	RS
ZUGY	GUIYANG/Longdongbao	RS
ZJHK	HAIKOU/Meilan	RS
ZSHC	HANGZHOU/Xiaoshan	RS
ZYHB	HARBIN/Taiping	RS
ZSOF	HEFEI/Xinqiao	RS
ZBHH	HOHHOT/Baita	RS
ZSSH	HUAI'AN/Lianshui	RS
ZSTX	HUANGSHAN/Tunxi	RS
ZBLA	HULUNBEIER/Hailar	RS
ZYJM	JIAMUSI/Dongjiao	RS
ZGOW	JIEYANG/Chaoshan	RS
ZSJN	JINAN/Yaoqiang	RS
ZWSH	KASHI/Kashi	RS

Table AOP I-1

Location Indicator	Name of City/Aerodrome	Designation
ZPPP	KUNMING/Changshui	RS
ZLLL	LANZHOU/Zhongchuan	RS
ZULS	LHASA/Konggar	RS
ZSLG	LIANYUNGANG/Huaguoshan	RS
ZPLJ	LIJIANG/Sanyi	RS
ZSLY	LINYI/Qiyang	RS
ZHLY	LUOYANG/Beijiao	RS
ZBMZ	MANZHOULI/Xijiao	RS
ZGMX	MEIZHOU/Meixian	RS
ZYMD	MUDANJIANG/Hailang	RS
ZSCN	NANCHANG/Changbei	RS
ZSNJ	NANJING/Lukou	RS
ZGNN	NANNING/Wuxu	RS
ZSNT	NANTONG/Xingdong	RS
ZSNB	NINGBO/Lishe	RS
ZBDS	ORDOS/Ejin Horo	RS
ZSQD	QINGDAO/Jiaodong	RS
ZJQH	QIONGHAI/Boao	RS
ZYQQ	QIQIHAR/Sanjiazi	RS
ZSQZ	QUANZHOU/Jinjiang	RS
ZJSY	SANYA/Phoenix	RS
ZSSS	SHANGHAI/Hongqiao	RS
ZSPD	SHANGHAI/Pudong	RS
ZYTX	SHENYANG/Taoxian	RS
ZGSZ	SHENZHEN/Bao'an	RS

Location Indicator	Name of City/Aerodrome	Designation
ZBSJ	SHIJIAZHUANG/Zhengding	RS
RCSS	TAIBEI/Songshan	RS
RCTP	TAIBEI CITY/Taibei Intl	RS
ZBYN	TAIYUAN/Wusu	RS
ZBTJ	TIANJIN/Binhai	RS
ZWWW	URUMQI/Diwopu	RS
ZUWX	WANZHOU/Wuqiao	RS
ZSWH	WEIHAI/Dashuipo	RS
ZSWZ	WENZHOU/Longwan	RS
ZHHH	WUHAN/Tianhe	RS
ZSWX	WUXI/Shuofang	RS
ZSWY	WUYISHAN/Wuyishan	RS
ZSAM	XIAMEN/Gaoqi	RS
ZLXY	XI'AN/Xianyang	RS
ZUXC	XICHANG/Qingshan	RS
ZLXN	XINING/Caojiabao	RS
ZPJH	XISHUANGBANNA/Gasa	RS
ZSXZ	XUZHOU/Guanyin	RS
ZSYN	YANCHENG/Nanyang	RS
ZSYA	YANGZHOU/Taizhou	RS
ZYYJ	YANJI/Chaoyangchuan	RS
ZSYT	YANTAI/Penglai	RS
ZHYC	YICHANG/Sanxia	RS
ZLIC	YINCHUAN/Hedong	RS
ZWYN	YINING/Yining	RS

Table AOP I-1

Location Indicator	Name of City/Aerodrome	Designation
ZSYW	YIWU/Yiwu	RS
ZBYC	YUNCHENG/Yanhu	RS
ZGDY	ZHANGJIAJIE/Hehua	RS
ZGZJ	ZHANJIANG/Wuchuan	RS
ZHCC	ZHENGZHOU/Xinzheng	RS
ZSZS	ZHOUSHAN/Putuoshan	RS
ZUZY	ZUNYI/Xinzhou	RS
COOK IS.		
NCAI	AITUTAKI/Aitutaki	ANS
NCRG	RAROTONGA/Rarotonga Intl	RS
DEMOCRATIC PEOPLE'S REPUBLIC OF KOREA		
ZKWS	KALMA/Kalma	RNS
ZKPY	PYONGYANG/Sunan	RS
FIJI		
NFFN	NADI/Nadi Intl	RS
NFSU	SUVA/Nausori	RS
FRENCH POLYNESIA (France)		
NTAA	TAHITI/Faaa	RS
GUAM (United States)		
PGUA	GUAM I./Andersen AFB	AS
PGUM	GUAM I./Guam Intl	RS
HONG KONG, China		
VHHH	HONG KONG/Hong Kong Intl	RS
INDIA		
VAAH	AHMEDABAD/Sardar Vallabhbhai Patel Intl	RS
VIAR	AMRITSAR/Sri Guru Ram Das Jee Intl	RS
VEAY	AYODHYA/Ayodhya	RS
VOBL	BANGALORE/Kempegowda Intl	RS
VABP	BHOPAL/ Raja Bhoj	RS
VEBS	BHUBANESWAR/Biju Patnaik Intl	RS
VOCL	CALICUT/Calicut	RS
VOMM	CHENNAI/Chennai Intl	RS
VOCI	COCHIN/Cochin Intl	RS
VOCB	COIMBATORE/Coimbatore	RS
VEGY	GAYA/Gaya	RS
VOGA	GOA/Manohar Intl	RS
VEGT	GUWAHATI/Lokpriya Gopinath Bordoloi Intl	RS
VOHS	HYDERABAD/Rajiv Gandhi Intl	RS
VAID	INDORE/Devi Ahilya Bai Holkar	RS
VIJP	JAIPUR/Jaipur Intl	RS
VOKN	KANNUR/Kannur Intl	RS
VECC	KOLKATA/Netaji Subhash Chandra Bose Intl	RS
VILK	LUCKNOW/Chaudhary Charan Singh Intl	RS

Table AOP I-1

Location Indicator	Name of City/Aerodrome	Designation
VOMD	MADURAI/ Madurai	RS
VOML	MANGALORE/Mangaluru Intl	RS
VABB	MUMBAI/Chhatrapati Shivaji Maharaj Intl	RS
VANP	NAGPUR/Dr. Babasaheb Ambedkar Intl	RS
VIDP	NEW DELHI/Indira Gandhi Intl	RS
VEPT	PATNA/Jai Prakash Narayan Intl	RS
VAHS	RAJKOT/Rajkot Intl	RS
VASU	SURAT/Surat	RS
VOTR	THIRUCIRAPALLI/Tiruchirappalli	RS
VOTV	TRIVANDRUM/Thiruvananthapuram Intl	RS
VIBN	VARANASI/Lal Bahadur Shastri	RS
VOBZ	VIJAYAWADA/Vijayawada	RS
INDONESIA		
WITT	ACEH/Sultan Iskandar Muda	RS
WAPP	AMBON/Pattimura	AS
WADD	BALI/I Gusti Ngurah Rai	RS
WALL	BALIKPAPAN/Sultan Aji Muhammad Sulaiman Sepinggan	RS
WICC	BANDUNG/Husein Sastranegara	RS
WAOO	BANJARMASIN/Syamsudin Noor	RNS
WADY	BANYUWANGI/Banyuwangi	AS
WIDD	BATAM/Hang Nadim	RS
WABB	BIAK/Frans Kaisiepo	AS
WIHH	JAKARTA/Halim Perdanakusuma	RS
WIII	JAKARTA/Soekarno Hatta	RS

Location Indicator	Name of City/Aerodrome	Designation
WAJJ	JAYAPURA/Sentani	AS
WICA	KERTAJATI/Kertajati	AS
WATT	KUPANG/El Tari	AS
WILL	LAMPUNG/Radin Inten II	AS
WADL	LOMBOK/Lombok	RS
WAAA	MAKASSAR/Sultan Hasanuddin	RS
WAMM	MANADO/Sam Ratulangi	RS
WIMM	MEDAN/Kualanamu	RS
WAKK	MERAUKE/Mopah	AS
WIEE	PADANG/Minangkabau	RS
WIPP	PALEMBANG/Sultan Mahmud Badaruddin II	RS
WIBB	PEKANBARU/Sultan Syarif Kasim II	RS
WIOO	PONTIANAK/Supadio	RS
WIAB	SABANG/Maimun Saleh	AS
WAHS	SEMARANG/Ahmad Yani	RS
WIMN	SIBORONGBORONG/Raja Sisingamangaraja XII	RS
WAHQ	SOLO/Adi Soemarmo	RS
WARR	SURABAYA/Juanda	RS
WIKT	TANJUNG PANDAN/H. AS. Hanandjoeddin	RS
WIDN	TANJUNG PINANG/Raja Haji Fisabilillah Int'l	AS
WAQQ	TARAKAN/Juwata	RS
WAHI	YOGYAKARTA/Yogyakarta	RS
JAPAN		
RJSK	AKITA/Akita	RS

Table AOP I-1

Location Indicator	Name of City/Aerodrome	Designation
RJSA	AOMORI/Aomori	RS
RJEC	ASAHIKAWA/Asahikawa	RS
RJFF	FUKUOKA/Fukuoka	RS
RJSF	FUKUSHIMA/Fukushima	RS
RJCH	HAKODATE/Hakodate	RS
RJSI	HANAMAKI/Hanamaki	RS
RJOA	HIROSHIMA/Hiroshima	RS
ROIG	ISHIGAKI/New Ishigaki	RS
RJFK	KAGOSHIMA/Kagoshima	RS
RJBB	KANSAI/Kansai Intl	RS
RJFR	KITAKYUSHU/Kitakyushu	RS
RJBE	KOBE/Kobe	RNS
RJFT	KUMAMOTO/Kumamoto	RS
RJCK	KUSHIRO/Kushiro	RS
RJOM	MATSUYAMA/Matsuyama	RS
RJFM	MIYAZAKI/Miyazaki	RS
RJFU	NAGASAKI/Nagasaki	RS
RJGG	NAGOYA/Chubu Centrair Intl	RS
ROAH	NAHA/Naha	RS
RJSN	NIIGATA/Niigata	RS
RJCB	OBIHIRO/Obihiro	RS
RJFO	OITA/Oita	RS
RJOB	OKAYAMA/Okayama	RS
RJFS	SAGA/Saga	RS
RJCC	SAPPORO/New Chitose	RS
RJSS	SENDAI/Sendai	RS
RORS	SHIMOJISHIMA/Shimojishima	RS
RJNS	SHIZUOKA/Shizuoka	RS
RJOT	TAKAMATSU/Takamatsu	RS
RJAA	TOKYO/Narita Intl	RS
RJTT	TOKYO/Tokyo Intl	RS
RJNT	TOYAMA/Toyama	RS
RJDC	YAMAGUCHI/Yamaguchi-Ube	RS
JOHNSTON I. (United States)		
PJON	JOHNSTON ATOLL/Johnston I.	RS
KIRIBATI		
PLCH	KIRITIMATI I./Christmas I.	RS
NGTA	TARAWA/Bonriki Intl	RS
LAO PEOPLE'S DEMOCRATIC REPUBLIC		
VLVT	VIENTIANE/Wattay Intl	RS
VLLB	LUANGPRABANG/Luangprabang Intl	RS
VLSK	KAISONPHOMVIHAN/Savannakhet Intl	RS
VLPS	PAKSE/Pakse Intl	RS
MACAO, China		
VMMC	MACAO/Macao Intl	RS

Table AOP I-1

Location Indicator	Name of City/Aerodrome	Designation
MALAYSIA		
WMKA	ALOR SETAR/Sultan Abdul Halim	RNS
WBGB	BINTULU/Bintulu	RNS
WMKI	IPOH/Sultan Azlan Shah	RNS
WMKJ	JOHOR BAHRU/Senai Intl	RS
WMKC	KOTA BHARU/Sultan Ismail Petra	RNS
WBKK	KOTA KINABALU/Kota Kinabalu Intl	RS
WMKN	KUALA TERENGGANU/Sultan Mahmud	RNS
WMKD	KUANTAN/Haji Ahmad Shah	RNS
WBGG	KUCHING/Kuching Intl	RS
WBKL	LABUAN/Labuan	RNS
WMKM	MALACCA/Malacca	RNS
WBGR	MIRI/Miri	RNS
WMKP	PENANG/Penang Intl	RS
WMKL	PULAU LANGKAWI/Pulau Langkawi	RS
WBKS	SANDAKAN/Sandakan	RNS
WMKK	SEPANG/KL Intl	RS
WBGS	SIBU/Sibu	RNS
WMSA	SUBANG/Sultan Abdul Aziz Shah	RNS
WBKW	TAWAU/Tawau	RNS
MALDIVES		
VRMG	GAN/Gan Intl Airport	RS
VRMH	HANIMAADHOO/Hanimaadhoo Intl Airport	RS
VRDA	MAAFARU/Maafaru Intl Airport	RS
VRMV	MAAMIGILI/Villa Intl Airport Maamigili	RS
VRMM	MALE/Velana Intl Airport	RS
MARSHALL IS.		
PKMJ	MAJURO ATOLL/Marshall Is. Intl	RS
MICRONESIA (FEDERATED STATES OF)		
PTPN	POHNPEI I./Pohnpei Intl	RS
PTKK	WENO I./FM Chuuk Intl	RS
PTYA	YAP I./Yap Intl	RS
MONGOLIA		
ZMUB	ULAANBAATAR/Buyant-Ukhaa Intl	RS
ZMCK	ULAANBAATAR/Chinggis Khaan Intl (to be commissioned)	RS
MYANMAR		
VYMD	MANDALAY/Mandalay Intl	RS
VYNT	NAYPYITAW/Naypyitaw Intl	RS
VYYY	YANGON/Yangon Intl	RS
NAURU		
AUUU	NAURU I./Nauru I.	RS
NEPAL		
VNBW	BHAIRAHAWA/Gautam Buddha Intl	RS
VNKT	KATHMANDU/Tribhuvan Intl	RS
VNPR	POKHARA/Pokhara Intl (Under Construction)	RS

Table AOP I-1

Location Indicator	Name of City/Aerodrome	Designation
NEW CALEDONIA (France)		
NWWW	NOUMEA/La Tontouta	RS
NEW ZEALAND		
NZAA	AUCKLAND/Auckland Intl	RS
NZCH	CHRISTCHURCH/Christchurch Intl	RS
NZWN	WELLINGTON/Wellington Intl	RS
NZDN	DUNEDIN/Dunedin	RS
NZHN	HAMILTON/Hamilton Intl	RS
NZOH	OHAKEA/Ohakea	AS
NZQN	QUEENSTOWN/Queenstown	RS
NIUE (New Zealand)		
NIUE	NIUE/Hanan Intl	RS
NORTHERN MARIANA IS. (United States)		
PGSN	OBYAN/Saipan Intl	RS
PGRO	ROTA I./Rota Intl	RS
PAKISTAN		
OPFA	FAISALABAD/Faisalabad Intl	RS
OPGD	GWADAR/Gwadar	RS
OPIS	ISLAMABAD/Islamabad Intl	RS
OPKC	KARACHI/Jinnah Intl	RS
OPLA	LAHORE/Allama Iqbal Intl	RS

Location Indicator	Name of City/Aerodrome	Designation
OPMT	MULTAN/Multan Intl	RS
OPNH	NAWABSHAH/Nawabshah	AS
OPPS	PESHAWAR/Peshawar	RS
OPQT	QUETTA/Quetta Intl	RS
OPSD	SKARDU/Skardu Intl	RS
PALAU		
PTRO	BABELTHAUP I./Koror	RS
PAPUA NEW GUINEA		
AYPY	PORT MORESBY/Port Moresby	RS
AYVN	VANIMO/Vanimo	RS
PHILIPPINES		
RPMD	DAVAO/Francisco Bangoy Intl	RNS
RPVI	ILOILO/Iloilo Intl	RS
RPVK	KALIBO, AKLAN/Kalibo Intl Airport	RS
RPLI	LAOAG/Laoag Intl	AS
RPVM	LAPU-LAPU/Mactan Cebu	RS
RPLL	MANILA/Ninoy Aquino Intl	RS
RPLC	PAMPANGA/Clark Intl	RS
RPVP	PUERTO PRINCESA CITY/Puerto Princesa Intl Airport	RS
RPSP	PANGLAO /Bohol-Panglao Intl Airport	RS
REPUBLIC OF KOREA		
RKTU	CHEONGJU/Cheongju Intl	RS

Table AOP I-1

Location Indicator	Name of City/Aerodrome	Designation
RKTN	DAEGU/Daegu Intl	RS
RKPK	GIMHAE/Gimhae Intl	RS
RKSS	GIMPO/Gimpo Intl	RNS
RKSI	INCHEON/Incheon Intl	RS
RKPC	JEJU/Jeju Intl	RS
RKJB	MUAN/Muan Intl	RS
RKNY	YANGYANG/Yangyang Intl	RS
SAMOA		
NSFI	FAGALI'I/Fagali'i Intl	RS
NSFA	FALEOLO/Faleolo Intl	RS
SINGAPORE		
WSAP	PAYA LEBAR/Paya Lebar (RSAF)	AS
WSSL	SELETAR/Seletar	RS
WSSS	SINGAPORE/Changi	RS
SOLOMON IS.		
AGGH	HONIARA/Henderson	RS
SRI LANKA		
VCBI	COLOMBO/Bandaranaike Intl	RS
VCCJ	JAFFNA/Jaffna Intl	RS
VCRI	MATTALA/Mattala Rajapaksa Intl	RS
VCCC	RATHMALANA/Colombo Intl	RNS
THAILAND		
VTBD	BANGKOK/Don Mueang Intl	RS
VTBS	BANGKOK/Suvarnabhumi Intl	RS
VTCC	CHIANG MAI/Chiang Mai Intl	RS
VTCT	CHIANG RAI/Mae Fah Luang-Chiang Rai Intl	RS
VTSG	KRABI/Krabi	RS
VTSP	PHUKET/Phuket Intl	RS
VTBU	RAYONG/U-Tapao Rayong Pattaya Intl	RS
VTSS	SONGKHLA/Hat Yai Intl	RS
VTSM	SURAT THANI/Samui	RS
VTSB	SURAT THANI/Surat Thani	RS
TIMOR-LESTE		
WPDL	DILI/Presidente Nicolau Lobato Intl	RS
WPDB	SUAI/Commander-in-Chief of the FALINTIL – Kay Rala Xanana Gusmão Intl	RNS
TONGA		
NFTF	FUA'AMOTU/Fua'amotu Intl	RS
NFTV	VAVA'U/Vava'u	RS
TUVALU		
NGFU	FUNAFUTI/Funafuti Intl	RS
UNITED STATES[1]		
PANC	ANCHORAGE/Anchorage Intl	RS
PAED	ANCHORAGE/Elemendorf AFB	AS

Table AOP I-1

Location Indicator	Name of City/Aerodrome	Designation
PACD	COLD BAY/Cold Bay	AS
KPAE	EVERETT/Snohomish County-Paine Field	AS
PAEI	FAIRBANKS/Eielson AFB	AS
PAFA	FAIRBANKS/Fairbanks Intl	RS
KFAT	FRESNO/Fresno Air Terminal	AS
PHTO	HILO/Hilo Intl	AS
PHNL	HONOLULU/Oahu Intl	RS
PHOG	KAHULUI/Kahului	AS
PAKN	KING SALMON/King Salmon	AS
KLAX	LOS ANGELES/Los Angeles Intl	RS
KOAK	OAKLAND/Metropolitan Oakland	AS
KONT	ONTARIO/Ontario Intl	AS
KPMD	PALMDALE/Palmdale P.F.T.I.	AS
KPDX	PORTLAND/Portland Intl	AS
KSMF	SACRAMENTO/Metropolitan	AS
KSAN	SAN DIEGO/San Diego (AFSS)	AS
KSFO	SAN FRANCISCO/San Francisco Intl	RS
KSJC	SAN JOSE/San Jose Intl	RS
KBFI	SEATTLE BOEING FIELD/King County Intl	AS
KSEA	SEATTLE/Seattle-Tacoma Intl	RS
KGEG	SPOKANE/Spokane Intl	AS
KSCK	STOCKTON/Metropolitan	AS
KIAD	WASHINGTON/Dulles Intl	RS

Location Indicator	Name of City/Aerodrome	Designation
VANUATU		
NVVV	PORT VILA/Bauerfield	RS
NVSS	SANTO/Pekoa	RS
VIET NAM		
VVCT	CAN THO/Can Tho	RS
VVDN	DA NANG/Da Nang	RS
VVNB	HA NOI/Noi Bai	RS
VVCI	HAI PHONG/Cat Bi	RS
VVTS	HO CHI MINH/Tan Son Nhat	RS
VVPB	HUE/Phu Bai	RS
VVCR	KHANH HOA/Cam Ranh	RS
VVPQ	KIEN GIANG/Phu Quoc	RS
VVVD	QUANG NINH/Van Don	RS
WALLIS AND FUTUNA IS. (France)		
NLWW	WALLIS/Hihifo	RS

Note 1.— Outside ASIA/PAC. Indicated for coordination

APAC ANP, VOLUME I

PART III – COMMUNICATIONS, NAVIGATION AND SURVEILLANCE (CNS)

1. INTRODUCTION

1.1 This part of the APAC ANP constitutes the agreed regional requirements considered to be the minimum necessary for effective planning and implementation of Communications, Navigation and Surveillance (CNS) facilities and services in the Asia and Pacific Regions and complements the provisions of ICAO SARPs related to CNS. It contains stable plan elements related to the assignment of responsibilities to States for the provision of CNS facilities and services within the ICAO Asia and Pacific Regions in accordance with Article 28 of the Convention on International Civil Aviation (Doc 7300) and mandatory requirements related to the CNS facilities and services to be implemented by States in accordance with regional air navigation agreements.

1.2 The dynamic plan elements related to the assignment of responsibilities to States for the provision of CNS facilities and services and the mandatory requirements based on regional air navigation agreements related to CNS are contained in the APAC ANP Volume II, Part III – CNS.

1.3 The APAC ANP Volume III contains dynamic/flexible plan elements related to the implementation of certain air navigation systems, based mainly on the Aviation System Block Upgrades (ASBU) modules aimed at increasing capacity and improving efficiency of the aviation system whilst maintaining or enhancing safety level, and help achieve the necessary harmonization and interoperability at regional and global level. This includes the regionally agreed ASBU modules applicable to the specified ICAO region/sub-region and associated elements/enablers necessary for the monitoring of the status of implementation of these ASBU modules.

1.4 In planning for these elements, economy and efficiency should be taken into account in order to ensure that the requirements for the provision of CNS facilities and services can be kept to a minimum. CNS facilities and services should fulfil multiple functions whenever this is feasible.

Standards, Recommended Practices and Procedures

1.5 The Standards, Recommended Practices and Procedures and related guidance material applicable to the provision of CNS are contained in:

a) Annex 10 – *Aeronautical Telecommunications*, Volumes I, II, III, IV and V;

b) Annex 2 – *Rules of the Air;*

c) Annex 3 – *Meteorological Service for international air navigation*;

d) Annex 6 – *Operation of Aircraft*, Parts I (Chapter 7), II (Chapter 7) and III (Chapter 5);

e) Annex 11 – *Air Traffic Services*;

f) Annex 12 – *Search and Rescue*;

g) Annex 15 – *Aeronautical Information Services*;

h) *Procedures for Air Navigation Services – Air Traffic Management* (PANS-ATM) (Doc 4444);

i) *Regional Supplementary Procedures* (Doc 7030);

j) *GNSS Manual* (Doc 9849);

k) *Manual on Detailed Technical Specifications for the Aeronautical Telecommunication Network (ATN) using ISO/OSI Standards and Protocols* (Doc 9880);

l) *ICAO Aeronautical Telecommunication Network (ATN) Manual for the ATN using IPS Standards and Protocols* (Doc 9896);

m) *Manual of Testing of Radio Navigation Aids* (Doc 8071);

n) *Manual on the Planning and Engineering of the Aeronautical Fixed Telecommunications Network* (Doc 8259);

o) *Manual on Required Communication Performance (RCP)* (Doc 9869);

p) *Training Manual* (Doc 7192);

q) *Performance-based Navigation Manual* (Doc 9613);

r) *Handbook on Radio Frequency Spectrum Requirements for Civil Aviation* (Doc 9718);

s) *Manual on Airborne Surveillance Applications* (Doc 9994); and

t) *Manual of Air Traffic Services Data Link Applications* (Doc 9694).

2. GENERAL REGIONAL REQUIREMENTS

Communications

Aeronautical Fixed Service (AFS)

2.1 The Aeronautical Fixed Service (AFS) should satisfy the communication requirements of ATS, AIS/AIM, MET and SAR, including specific requirements in terms of system reliability, message integrity and transit times, with respect to printed as well as digital data and speech communications. If need be, it should, following agreement between individual States and aircraft operators, satisfy the requirements for airline operational control.

The Aeronautical Telecommunication Network (ATN)

2.2 The ATN of the Region should have sufficient capacity to meet the minimum requirements for data communications for the services mentioned in paragraph 2.1 above.

Aeronautical Mobile Service (AMS)

2.3 Air-ground communications facilities should meet the agreed communication requirements of the air traffic services, as well as all other types of communications which are acceptable on the AMS to the extent that the latter types of communications can be accommodated.

Air-ground communications for ATS

2.4 Air-ground communications for ATS purposes should be so designed to require the least number of frequency and channel changes for aircraft in flight compatible with the provision of the required service. They should also provide for the minimum amount of coordination between ATS units and provide for optimum economy in the frequency spectrum used for this purpose.

Air-ground data link communications

2.5 Air-ground data link communications should be implemented in such a way that they are regionally and globally harmonised and make efficient use of available communication means and ensure optimum economy in frequency spectrum use and system automation.

Navigation

2.6 Planning of aeronautical radio navigation services should be done on a total system basis, taking full account of the navigation capabilities as well as cost effectiveness. The total system composed of

station-referenced navigation aids, satellite-based navigation systems and airborne capabilities should meet the Performance Based Navigation (PBN) requirements for all aircraft using the system and should form an adequate basis for the provision of positioning, guidance and air traffic services.

2.7 Account should be taken of the fact that certain aircraft may be able to meet their navigation needs by means of self-contained or satellite-based aids, thus eliminating the need for the provision of station-referenced aids along the ATS routes used by such aircraft, as well as the need to carry on board excessive redundancies.

Surveillance

2.8 Planning of aeronautical surveillance systems should be made based on a system approach concept, where collaboration and sharing of data sources should be considered in support of an efficient use of the airspace.

Frequency Management

2.9 Frequency assignment planning in the Region(s) should be carried out in accordance with the provisions of Annex 10 and *ICAO Handbook on Radio Frequency Spectrum for Civil Aviation* (Doc 9718), supplemented, as necessary, by regional recommendations and technical criteria developed for this purpose.

3. SPECIFIC REGIONAL REQUIREMENTS

Communications

AFTN

3.1 The AFTN inter-regional entry/exit points:

a) between APAC and AFI should be Brisbane and Mumbai;
b) between APAC and EUR should be Bangkok, Singapore and Tokyo;
c) between APAC and MID should be Karachi, Mumbai and Singapore;
d) between APAC and NAM should be Brisbane, Nadi and Tokyo; and
e) between APAC and CAR/SAM should be Brisbane.
[APANPIRG/11, Conc.11/6]

3.2 The trunk circuits interconnecting main AFTN communication centres should be provided to operate at a modulation rate commensurate with operational requirements, and employ International Alphabet Number 5 (IA-5) and character-oriented data link control procedures -system category B, or bit-oriented data link control procedures as defined in Annex 10, Volume III, Part I, Chapter 8.

3.3 The circuits connecting tributary AFTN communication centres with main AFTN communication centres, or with other tributary AFTN communication centres, or with AFTN stations should be provided with, a modulation rate commensurate with operational requirements employing IA-5 code and procedures and an appropriately controlled circuit protocol.
[ASIA/PAC AFS RPG/3, Rec. 3/1]

ATN/AMHS implementation

3.4 Considering the inclusion of ATN over IPS SARPs in ICAO Annex 10, Volume III and to support global harmonization of ATN implementation, States hosting BBIS should implement ATN over IPS in addition to ATN over OSI and complete this implementation of Dual Stack ATN (ATN/OSI and ATN/IPS) by 2011.
[APANPIRG 19/20]

3.5 States should permit non-backbone States, and States in other regions with connections to ASIA/PAC Region, to connect their Message Transfer Agents (MTAs) to backbone States using either the OSI-based ATN Internet Communications Services (ICS) or the ATN IPS on a bilateral basis.
[APANPIRG 21/20]

HF en-route communications

3.6 States should be urged to coordinate on a national basis with the appropriate national regulators, a programme directed towards achieving the elimination of the interference currently being experienced on some of the frequencies allocated to the Aeronautical Mobile (R) Service in the ASIA/PAC Region. When reviewing methods for developing such a national programme, consideration should be given to the procedures in Article S15 of the ITU Radio Regulations.

Frequency management

3.7 States in the ASIA/PAC Region should coordinate, as necessary, with the ICAO Regional Office all radio frequency assignments for both national and inter-national facilities in the 190--526.50 kHz, 108-117.975 MHZ, 960-1215 MHZ and 117.975-137 MHZ bands.
[ASIA/PAC/3, Conc. 11/4, 11/5 and 12/9]

Navigation

GNSS minimum requirement for RNP

3.8 State aviation authorities, in partnership with other agencies of the State are requested to prohibit malicious and unintentional interference to GNSS and regulate legitimate uses of technology to preserve aviation utility of GNSS.
[APANPIRG/22, Conc. 22/28]

APAC ANP, VOLUME I

PART IV - AIR TRAFFIC MANAGEMENT (ATM)

1. INTRODUCTION

1.1 This part of the APAC ANP constitutes the agreed regional requirements considered to be the minimum necessary for effective planning and implementation of Air Traffic Management (ATM) facilities and services in the Asia and Pacific Regions and complements the provisions of ICAO SARPs and PANS related to ATM. It contains stable plan elements related to the assignment of responsibilities to States for the ATM system requirements to be applied within the ICAO Asia and Pacific Regions in accordance with Article 28 of the *Convention on International Civil Aviation* (Doc 7300) and mandatory requirements related to the ATM facilities and services to be implemented by States in accordance with regional air navigation agreements.

1.2 The dynamic plan elements related to the assignment of States' responsibilities for the implementation of the ATM system mandatory requirements based on regional air navigation agreements related to ATM are contained in APAC ANP Volume II, Part IV - ATM.

1.3 The APAC ANP Volume III contains dynamic/flexible plan elements related to the implementation of air navigation systems and their modernization in line with the ICAO Aviation System Block Upgrades (ASBUs) methodology and associated technology roadmaps described in the Global Air Navigation Plan. The Aviation System Block Upgrades (ASBU) modules are aimed at increasing capacity and improving efficiency of the aviation system whilst maintaining or enhancing safety level, and achieving the necessary harmonization and interoperability at regional and global level. This includes the regionally agreed ASBU modules applicable to the specified ICAO region/sub-region and associated elements/enablers necessary for the monitoring of the status of implementation of these ASBU modules.

Standards, Recommended Practices and Procedures

1.4 The Standards, Recommended Practices and Procedures (SARPs) and related guidance material applicable to the provision of ATM are contained in:

a) Annex 2 — *Rules of the Air*;

b) Annex 6 — *Operation of Aircraft*;

c) Annex 11 — *Air Traffic Services*;

d) *Procedures for Air Navigation Services — Air Traffic Management* (PANS-ATM) (Doc 4444);

e) *Procedures for Air Navigation Services — Aircraft Operations* (PANS-OPS) (Doc 8168); and

f) *Regional Supplementary Procedures* (Doc 7030).

2. GENERAL REGIONAL REQUIREMENTS

2.1 The description of the current Flight Information Regions (FIR)/Upper Information Regions (UIR), as approved by the ICAO Council, are contained in **Table ATM I-1** and depicted in the **Charts ATM I-1** and **ATM I-2**, respectively.

2.2 States should ensure that the provision of Air Traffic Services (ATS) covers its own territory and those areas over the high seas for which it is responsible for the provision of those services, in accordance with **Charts ATM I-1** and **ATM I-2**.

Regional ATS Routes and organized track structures

2.3 PIRGs are responsible for the optimization of the traffic flows through the continuous improvement of the regional ATS route network and organized track systems and implementation of random routing areas and free route airspace in the Region(s). Where applicable, details of the ATS routes within the Region(s) are contained in Volume II.

ICARD Global Database

2.4 The five-letter name-codes assigned to significant points should be coordinated through the ICAO Regional Office(s) and obtained from the ICAO International Codes and Routes Designators (ICARD) Global Database.

Aircraft Identification - SSR Code Assignments

2.5 The management of Secondary Surveillance Radar (SSR) codes is a key element of ATM in order to ensure continuous and unambiguous aircraft identification. The requirements related to the SSR code assignment system used in the Region(s) is contained in Volume II.

Performance-based Navigation (PBN)

2.6 PIRGs are responsible for the development of the Regional PBN Plan. States' PBN Plans should be consistent with the Regional PBN Plan.

Flexible Use of Airspace

2.7 States should implement civil/military cooperation and coordination mechanisms to enhance the application of the Flexible Use of Airspace concept, which will contribute to more direct routing with a commensurate saving in fuel and associated emissions. States should arrange for close liaison and coordination between civil ATS units and relevant military operational control and/or air defence units in order to ensure integration of civil and military air traffic or its segregation, if required. Such arrangements would also contribute to increasing airspace capacity and to improving the efficiency and flexibility of aircraft operations.

Reduced Vertical Separation Minimum (RVSM)/Regional Monitoring Agencies

2.8 The Asia and Pacific Region's Regional Monitoring Agencies (RMAs) are designated by the Regional Airspace Safety Monitoring Advisory Group (RASMAG) and are responsible for monitoring the height-keeping performance and approval status of aircraft operating at these levels, in order to ensure that the continued application of RVSM meets the agreed regional safety objectives as set out by the APANPIRG.

3. SPECIFIC REGIONAL REQUIREMENTS

3.1 None

Table ATM I-1
FLIGHT INFORMATION REGIONS (FIR)/UPPER INFORMATION REGIONS (UIR) IN THE ASIA/PACIFIC REGIONS

EXPLANATION OF THE TABLE

Column:

1 Name of the FIR/UIR / Location Indicator according to Doc 7910

2 Description of FIR/UIR lateral limits;

a. Describe separately in the table the limits of the UIRs if they are not similar to the FIRs limits.

3 Remarks — additional information, if necessary.

a. Describe vertical limits if necessary.

FIR/UIR Location Indicator	Lateral limits coordinates	Remarks
1	2	3
Anchorage Oceanic (PAZA)	FIR Anchorage Oceanic A line joining 544009N 1700000E 513000N 1700000E 510500N 1734400E 500800N 1763400W 454200N 1625500E 500500N 1590000E 540000N 1690000E 544009N 1700000E.	Vertical limits: SFC to UNL
Auckland Oceanic (NZZO)	FIR Auckland Oceanic 300000S 1310000W 900000S 0000000E 300000S 1630000E 280000S 1680000E 250000S 1712500E 250000S 1800000E 153245.1S 1754031.2W 050000S 1710000W 050000S 1570000W 300000S 1570000W 300000S 1310000W excluding the New Zealand FIR.	Vertical limits: SFC to FL999
Bangkok (VTBB)	FIR Bangkok *To be incorporated*	
Beijing (ZBPE)	FIR Beijing A line joining	Vertical limits: SFC to UNL

FIR/UIR Location Indicator	Lateral limits coordinates	Remarks
1	2	3
	452317N 1152115E 431442N 1173100E 421500N 1180500E 395400N 1192100E 393000N 1195200E 381500N 1200000E 380700N 1193300E 372912N 1173000E 364000N 1152400E 361900N 1143000E 360400N 1134836E 343200N 1101500E 353200N 1101800E 372800N 1104400E 382200N 1103600E 384400N 1094100E 392600N 1083000E 401842N 1070012E 404300N 1055500E 414451N 1051345E thence following the national boundary of the People's Republic of China to 452317N 1152115E.	
Brisbane FIR (YBBB)	FIR Brisbane 140000S 1611500E 174000S 1630000E 450000S 1630000E 450000S 1500000E 443357S 1500000E 435103S 1503953E 430000S 1510000E 381119S 1501914E 365643S 1504503E then along the anticlockwise arc of a circle of 120.00NM radius centred on 345700S 1503200E to 351859S 1525550E 342822S 1514929E then along the anticlockwise arc of a circle of 45NM radius centred on 335638S 1511057E (SY/DME) to 331611S 1504709E 333003S 1501311E 331836S 1500031E 331103S 1495213E 324914S 1492824E 324303S 1492142E 320540S 1484951E 290000S 1463200E 290000S 1433000E 261331S 1382324E 221751S 1363807E	Vertical limits: SFC to UNL

FIR/UIR Location Indicator	Lateral limits coordinates	Remarks
1	2	3
	215132S 1362225E 212959S 1361944E 211209S 1315024E 231313S 1282749E 232349S 1260332E 213119S 1243304E 200318S 1214022E 190000S 1201500E 140813S 1150832E 120000S 1143000E 120000S 1232000E 092000S 1265000E 070000S 1350000E 095000S 1394000E 095000S 1410000E 093700S 1410200E 091542S 1420330E 091248S 1420624E 091154S 1420836E 091200S 1421018E 091124S 1421254E 091136S 1421406E 091354S 1421624E 091606S 1422042E 092206S 1422942E 092148S 1423130E 092236S 1423330E 092124S 1423530E 092024S 1424142E 092018S 1424354E 091924S 1424818E 090800S 1435230E 092400S 1441400E 095634S 1440521E 100515S 1435852E 100850S 1435711E 101751S 1435445E 102244S 1435525E 102638S 1435424E 103110S 1435441E 103457S 1435536E 104114S 1435810E 104641S 1435959E 105205S 1440046E 105900S 1440200E 110224S 1440233E 110637S 1440351E 111107S 1440421E 111413S 1440338E 111510S 1440307E 112935S 1440131E 113000S 1440136E 114330S 1440420E 120000S 1440000E	

FIR/UIR Location Indicator	Lateral limits coordinates	Remarks
1	2	3
	120000S 1550000E 140000S 1550000E 140000S 1611500E.	
Chennai (VOMF)	FIR Chennai A line joining 133000N 0942500E 060000N 0942500E 060000N 0920000E 100000N 0820000E 100000N 0800000E 060000N 0780000E 060000N 0740000E 073000N 0740000E 073000N 0720000E 150000N 0720000E 150000N 0733500E 161700N 0730000E 162200N 0733400E 162600N 0741100E 163600N 0752800E 164000N 0760000E 180000N 0760000E 191900N 0760000E 194300N 0771000E 184300N 0820000E 184100N 0824900E 154200N 0855400E 140000N 0920000E 133000N 0942500E.	Vertical limits: SFC to UNL
Colombo (VCCF)	FIR Colombo A line joining 060000N 0920000E 020000S 0920000E 020000S 0780000E 060000N 0780000E 100000N 0800000E 100000N 0820000E 060000N 0920000E.	Vertical limits: SFC to UNL
Delhi (VIDF)	FIR Delhi A line joining 273424N 0824443E 270922N 0813300E 264531N 0805340E 262401N 0801154E 251701N 0794954E 253601N 0793554E 250801N 0785955E 250001N 0790455E 250000N 0705500E	Vertical limits: SFC to UNL

FIR/UIR Location Indicator	Lateral limits coordinates	Remarks
1	2	3
	thence following the national boundary to 273424N 0824443E.	
Note 1.— **Dhaka** *Note 2.*— **(VGFR)**	FIR Dhaka *To be incorporated*	
Fukuoka (RJJJ)	FIR Fukuoka *To be incorporated*	
Guangzhou (ZGZU)	FIR Guangzhou *To be incorporated*	
Ha Noi (VVHN)	FIR Ha Noi *To be incorporated*	
Ho Chi Minh (VVHM)	FIR Ho Chi Minh *To be incorporated*	
Hong Kong (VHHK)	FIR Hong Kong *To be incorporated*	
Honiara (AGGG)	FIR Honiara 103000S 1664500E 114800S 1665200E 140000S 1630000E 140000S 1550000E 071900S 1550000E 065533S 1553808E 065533S 1554137E 065050S 1555523E 064104S 1560136E 063950S 1560223E 063300S 1560209E 045000S 1590000E 045000S 1600000E 103000S 1664500E.	Vertical limits: SFC to UNL Remarks: The responsibility for provision of air traffic services in Honiara Flight Information Region (FIR) between FL 245 and FL 600, is vested with Brisbane Area Control Centre (ACC).
Incheon (RKRR)	FIR Incheon *To be incorporated*	
Jakarta (WIIF)	FIR Jakarta 011300N 1133500E 030000S 1102300E 082000S 1102300E 120000S 1143000E 120000S 1070000E 020000S 0920000E 060000N 0920000E 060000N 0942500E 060000N 0973000E 013900N 1021000E 011300N 1033000E	Vertical limits: SFC to UNL Remarks: The responsibility for providing air traffic services to flights within the following portion of the Jakarta FIR is delegated by Indonesia to Singapore: The area bounded by 031727N 1052959E, 012450N 1061648E,

FIR/UIR Location Indicator	Lateral limits coordinates	Remarks
1	2	3
	011408N 1033142E 011200N 1033900E 011046N 1034015E 010800N 1034500E 011500N 1040000E 011800N 1043000E 012921N 1043441E 011947N 1044606E 021838N 1052205E 023641N 1051311E 024348N 1050854E 025010N 1051210E 031453N 1052619E 031727N 1052959E 033045N 1055130E 041312N 1071743E 043820N 1073315E 045203N 1074625E 045904N 1075525E 050012N 1080132E 045700N 1081619E 025050N 1091629E 021500N 1083000E 010000N 1083000E 010000N 1085400E thence along Kalimantan west coast to the national boundary of Indonesia/Malaysia to 011300N 1133500E.	001030N 1045656E, 000000N 1050340E, 000000N 1044330E, thence around the arc of a circle radius 90 NM centered on 011324N 1035124E to 013430N 1022353E, 011300N 1033000E, 011408N 1033142E, 011200N 1033900E, 011046N 1034015E, 010800N 1034500E, 011500N 1040000E, 011800N 1043000E, 012921N 1043441E, 011947N 1044606E, 021838N 1052205E, 023641N 1051311E, 024348N 1050854E, 025010N 1051210E, 031453N 1052619E, 031727N 1052959E, excluding the Tanjungpinang terminal control area (TMA) and control zone Vertical limit: SFC to FL370
Kabul (OAKX)	FIR Kabul 371105N 0674723E thence following the national boundary to 371105N 0674723E.	Vertical limits: SFC to FL510
Karachi (OPKR)	FIR Karachi 300000N 0733500E thence following the national boundary to 234000N 0681000E 233000N 0682300E 233000N 0643000E 233000N 0612000E 244000N 0612000E 251040N 0613550E thence following the national boundary to 300000N 0661900E 300000N 0733500E.	Vertical limits: SFC to UNL
Kathmandu (VNSM)	FIR Kathmandu 302645N 0813744E thence following the national boundary to	Vertical limits: SFC to UNL

FIR/UIR Location Indicator	Lateral limits coordinates	Remarks
1	2	3
	302645N 0813744E.	
Kolkata (VECF)	FIR Kolkata *To be incorporated*	
Kota Kinabalu (WBFC)	FIR Kota Kinabalu 082500N 1163000E 073000N 1173000E 040000N 1200000E 040000N 1180000E thence along the national boundary of Malaysia and Indonesia to 010000N 1085400E 010000N 1083000E 021500N 1083000E 082500N 1163000E.	Vertical limits: SFC to UNL
Kuala Lumpur (WMFC)	FIR Kuala Lumpur 064500N 1024000E 045000N 1034400E 034000N 1034000E 023600N 1044500E 012000N 1042000E thence along 012000N to the national boundary of Malaysia/Singapore; thence along the national boundary of Malaysia/Singapore to 011700N 1033600E 011300N 1033000E 013900N 1021000E 060000N 0973000E 060000N 0942500E 100000N 0942500E 100000N 0963000E 071500N 0980000E 063000N 0993000E thence along the national boundary of Malaysia/Thailand to 061500N 1021500E 064500N 1024000E.	Vertical limits: SFC to UNL
Kunming (ZPKM)	FIR Kunming *To be incorporated*	
Lahore (OPLR)	FIR Lahore *To be incorporated*	
Lanzhou (ZLHW)	FIR Lanzhou A line joining 414451N 1051345E	Vertical limits: SFC to UNL

FIR/UIR Location Indicator	Lateral limits coordinates	Remarks
1	2	3
	404300N 1055500E 401842N 1070012E 392600N 1083000E 384400N 1094100E 382200N 1103600E 372800N 1104400E 353200N 1101800E 343200N 1101500E 340500N 1102900E 333200N 1105200E 315400N 1093100E 321400N 1072400E 322700N 1054900E 333500N 1035300E 325500N 1014200E 314900N 0983500E 320600N 0970000E 325200N 0915500E 360200N 0890100E 362500N 0872300E 382100N 0901300E 414800N 0950800E 425500N 0962014E thence following the national boundary of the People's Republic of China to 414451N 1051345E.	
Male (VRMF)	FIR Male A line joining 060000N 0780000E 020000S 0780000E 060000S 0750000E 060000S 0680000E 000000N/S 0680000E 030500N 0700000E 073000N 0700000E 073000N 0720000E 073000N 0740000E 060000N 0740000E 060000N 0780000E.	Vertical limits: SFC to UNL
Manila (RPHI)	FIR Manila A line joining 210000N 1300000E 070000N 1300000E 040000N 1323200E 040000N 1200000E 073000N 1173000E 082500N 1163000E 103000N 1140000E 164000N 1140000E 210000N 1173000E	Vertical limits: SFC to UNL

FIR/UIR Location Indicator	Lateral limits coordinates	Remarks
1	2	3
	210000N 1300000E.	
Melbourne (YMMM)	FIR Melbourne 290000S 1463200E 320540S 1484951E 324303S 1492142E 324914S 1492824E 331103S 1495213E 331836S 1500031E 333003S 1501311E 331611S 1504709E then along the clockwise arc of a circle of 45NM radius centred on 335638S 1511057E (SY/DME) to 342822S 1514929E 351859S 1525550E then along the clockwise arc of a circle of 120NM radius centred on 345700S 1503200E to 365643S 1504503E 381119S 1501914E 430000S 1510000E 435103S 1503953E 443357S 1500000E 450000S 1500000E 450000S 1630000E 900000S 0000000W/E (South Pole) 060000S 0750000E 020000S 0780000E 020000S 0920000E 120000S 1070000E 120000S 1143000E 140813S 1150832E 190000S 1201500E 200318S 1214022E 213119S 1243304E 232349S 1260332E 231313S 1282749E 211209S 1315024E 212959S 1361944E 215132S 1362225E 221751S 1363807E 261331S 1382324E 290000S 1433000E 290000S 1463200E.	Vertical limits: SFC to UNL
Mumbai (VABF)	FIR Mumbai A line joining 250001N 0790455E 231049N 0800334E 222850N 0802116E 213009N 0803537E	Vertical limits: SFC to UNL

FIR/UIR Location Indicator	Lateral limits coordinates	Remarks
1	2	3
	184300N 0820000E 194300N 0771000E 191900N 0760000E 180000N 0760000E 164000N 0760000E 163600N 0752800E 162600N 0741100E 162200N 0733400E 161700N 0730000E 150000N 0733500E 150000N 0720000E 073000N 0720000E 073000N 0700000E 030500N 0700000E 000000N 0680000E 060000S 0680000E 060000S 0600000E 194800N 0600000E 233000N 0643000E then eastwards along 233000N parallel until it meets the Indian coastline at 233000N 682300E then northwards along the coastline to 234000N 0681000E then along the common border between India and Pakistan to 250000N 0705500E 250001N 0790455E.	
Nadi (NFFF)	FIR Nadi A line joining 033000N 1800000W/E 050000S 1800000W/E 050000S 1710000W 153245.1S 1754031.2W 250000S 1800000W/E 250000S 1712500E 280000S 1680000E 300000S 1630000E 174000S 1630000E 140000S 1611500E 140000S 1630000E 100000S 1700000E 033000N 1700000E 033000N 1800000W/E.	Vertical limits: SFC to UNL
Nauru (ANAU)	FIR Nauru 033000N 1700000E 100000S 1700000E 114800S 1665200E 103000S 1664500E 045000S 1600000E	Vertical limits: SFC to UNL

FIR/UIR Location Indicator	Lateral limits coordinates	Remarks
1	2	3
	033000N 1600000E 033000N 1700000E.	
New Zealand (NZZC) (Christchurch FIR)	FIR New Zealand 382700S 1794400W 425130S 1750300E 480900S 1681600E 455500S 1651800E 412527S 1702324E the arc of a circle of 200 NM radius centered on 412014S 1744901.1E from 412527S 1702324E clockwise to 390738.1S 1713321.7E the arc of a circle of 200 NM radius centered on 370016.7S 1744849.1E from 390738.1S 1713321.7E clockwise to 373229.5S 1785608.9E a line joining 373229.5S 1785608.9E 382700S 1794400W.	Vertical limits: SFC to 999
Oakland Oceanic (KZAK)	FIR Oakland Oceanic A line joining 524300N 1350000W 510000N 1334500W 482000N 1280000W 450000N 1263000W 405900N 1265400W 405000N 1270000W 373023N 1270000W 362743N 1265600W 353000N 1255000W 360000N 1241200W 343000N 1231500W 304500N 1205000W 300000N 1200000W 033000N 1200000W 033000N 1450000W 050000S 1550000W 050000S 1800000W/E 033000N 1800000W/E 033000N 1600000E 000000N/S 1600000E 000000N/S 1410000E 033000N 1410000E 033000N 1330000E 070000N 1300000E 210000N 1300000E 210000N 1550000E 270000N 1550000E	Vertical limits: SFC to UNL

FIR/UIR Location Indicator	Lateral limits coordinates	Remarks
1	2	3
	270000N 1650000E 430000N 1650000E 454200N 1625500E 500800N 1763400W 512400N 1674900W 533000N 1600000W 560000N 1530000W 564542N 1514500W 532203N 1370000W 524300N 1350000W.	
Phnom Penh (VDPF)	FIR Phnom Penh *To be incorporated*	
Port Moresby (AYPM)	FIR Port Moresby 000000N/S 1600000E 045000S 1600000E 045000S 1590000E 063300S 1560209E 063950S 1560223E 064104S 1560136E 065050S 1555523E 065533S 1554137E 065533S 1553808E 071900S 1550000E 120000S 1550000E 120000S 1440000E 114330S 1440420E 113000S 1440136E 112935S 1440131E 111510S 1440307E 111413S 1440338E 111107S 1440421E 110637S 1440351E 110224S 1440233E 105900S 1440200E 105205S 1440046E 104641S 1435959E 104114S 1435810E 103457S 1435536E 103110S 1435441E 102638S 1435424E 102244S 1435525E 101751S 1435445E 100850S 1435711E 100515S 1435852E 095634S 1440521E 092400S 1441400E 090800S 1435230E 091924S 1424818E 092018S 1424354E 092024S 1424142E 092124S 1423530E	Vertical limits: SFC to UNL

FIR/UIR Location Indicator	Lateral limits coordinates	Remarks
1	2	3
	092236S 1423330E 092148S 1423130E 092206S 1422942E 091606S 1422042E 091354S 1421624E 091136S 1421406E 091124S 1421254E 091200S 1421018E 091154S 1420836E 091248S 1420624E 091542S 1420330E 093700S 1410200E 065334S 1410106E thence following the Fly River to 061914S 1410000E 000000N/S 1410000E 000000N/S 1600000E.	
Pyongyang (ZKKP)	FIR Pyongyang *To be incorporated*	
Sanya (ZJSA)	FIR Sanya A line joining 203000N 1113000E 193000N 1113000E 164000N 1140000E 143000N 1140000E 143000N 1120000E 182028N 1074053E 191604N 1071123E 195733N 1075547E 203000N 1080300E 203000N 1113000E.	Vertical limits: SFC to UNL
Shanghai (ZSHA)	FIR Shanghai *To be incorporated*	
Shenyang (ZYSH)	FIR Shenyang *To be incorporated*	
Singapore (WSJC)	FIR Singapore 082500N 1163000E 025050N 1091629E 045700N 1081619E 050012N 1080132E 045904N 1075525E 045203N 1074625E 043820N 1073315E 041312N 1071743E 033045N 1055130E 031727N 1052959E 031453N 1052619E	Vertical limits: SFC to UNL Remarks: The responsibility for providing air traffic services to flights within the following portions of the Singapore FIR is vested in the Kuala Lumpur ACC: The airspace between a line from 023600N 1044500E to 022715N 1051750E 023641N 1051311E

FIR/UIR Location Indicator	Lateral limits coordinates	Remarks
1	2	3
	025010N 1051210E 024348N 1050854E 023641N 1051311E 021838N 1052205E 011947N 1044606E 012921N 1043441E 011800N 1043000E 011500N 1040000E 010800N 1034500E 011046N 1034015E 011200N 1033900E 011408N 1033142E 011700N 1033600E thence east along the national boundary of Singapore/Malaysia, thence along 012000N to 012000N 1042000E 023600N 1044500E 034000N 1034000E 045000N 1034400E 064500N 1024000E 070000N 1030000E 070000N 1080000E 103000N 1140000E 082500N 1163000E.	024348N 1050854E 025010N 1051210E 031453N 1052619E 031727N 1052959E 033045N 1055130E 041312N 1071743E 043820N 1073315E 045203N 1074625E 045904N 1075525E 050012N 1080132E 045700N 1081619E 025050N 1091629E, in the south, and a line along 060000N in the north, and from surface level to FL150 west of longitude 105E and from surface level to FL200 east of longitude 105E.
Tahiti	FIR Tahiti *To be incorporated*	
Taibei	FIR Taibei *To be incorporated*	
Ujung Pandang (WAAF)	FIR Ujung Pandang 033000N 1410000E 061914S 1410000E thence following the national boundary of Indonesia/Papua New Guinea to 065334S 1410106E 093700S 1410200E 095000S 1410000E 095000S 1394000E 070000S 1350000E 092000S 1265000E 120000S 1232000E 120000S 1143000E 082000S 1102300E 030000S 1102300E 011300N 1133500E thence following the national boundary of Indonesia/Malaysia to 040000N 1180000E 040000N 1323200E	Vertical limits: SFC to UNL

FIR/UIR Location Indicator	Lateral limits coordinates	Remarks
1	2	3
	033000N 1330000E 033000N 1410000E.	
Ulaanbaatar (ZMUB)	FIR Ulaanbaatar 495044.4N 1164249.3E thence following the national boundary to 495044.4N 1164249.3E.	Vertical limits: SFC to UNL
Urumqi (ZWUQ)	FIR Uramqi *To be incorporated*	
Vientiane (VLAO)	FIR Vientiane 170000N 1063258E thence following the national boundary to 170000N 1063258E.	Vertical limits: SFC to UNL
Wuhan (ZHWH)	FIR Wuhan A line joining 364000N 1152400E 351448N 1152700E 343100N 1155430E 325430N 1154848E 300500N 1155600E 290200N 1143400E 292300N 1130712E 293100N 1092400E 315400N 1093100E 333200N 1105200E 340500N 1102900E 343200N 1101500E 360400N 1134836E 361900N 1143000E 364000N 1152400E.	Vertical limits: SFC to UNL
Yangon (VYYY)	FIR Yangon *To be incorporated*	

APAC ANP, VOLUME I

PART V – METEOROLOGY (MET)

1. INTRODUCTION

1.1 This part of the APAC ANP constitutes the agreed regional requirements considered to be the minimum necessary for effective planning and implementation of aeronautical Meteorology (MET) facilities and services in the Asia and Pacific Regions and complements the provisions of ICAO SARPs and PANS related to MET. It contains stable plan elements related to the assignment of responsibilities to States for the provision of MET facilities and services within the ICAO Asia and Pacific Regions in accordance with Article 28 of the *Convention on International Civil Aviation* (Doc 7300) and mandatory requirements related to the MET facilities and services to be implemented by States in accordance with regional air navigation agreements.

1.2 The dynamic plan element related to the assignment of responsibilities to States for the provision of MET facilities and services and the mandatory requirements based on regional air navigation agreements related to MET are contained in the APAC ANP Volume II, Part V - MET.

1.3 The APAC ANP Volume III contains dynamic/flexible plan elements related to the implementation of air navigation systems and their modernization in line with the ICAO Aviation System Block Upgrades (ASBUs) methodology and associated technology roadmaps described in the Global Air Navigation Plan. The Aviation System Block Upgrades (ASBUs) modules are aimed at increasing capacity and improving efficiency of the aviation system whilst maintaining or enhancing safety level and achieving the necessary harmonization and interoperability at regional and global level. This includes the regionally agreed ASBU modules applicable to the specified ICAO region/sub-region and associated elements/enablers necessary for the monitoring of the status of implementation of these ASBU modules.

Standards, Recommended Practices and Procedures

1.4 The Standards, Recommended Practices and Procedures (SARPs) and related guidance material applicable to the provision of MET are contained in:

a) Annex 3 - *Meteorological Service for International Air Navigation*;

b) *Regional Supplementary Procedures (Doc 7030);*

c) Handbook on the IAVW (Doc 9766);

d) Manual on Volcanic Ash, Radioactive Material and Toxic Chemical Clouds (Doc 9691); and

e) Manual of Aeronautical Meteorological Practice (Doc 8896).

2. GENERAL REGIONAL REQUIREMENTS

World area forecast system (WAFS) and meteorological offices

2.1 In the Asia and Pacific Regions, WAFC **London and Washington** have been designated as the centres for the operation of the aeronautical fixed service satellite distribution system, the Internet-based Secure SADIS FTP service and the WAFS Internet File Service (SADIS 2G, Secure SADIS FTP and WIFS, respectively). The status of implementation of SADIS and WIFS by States in the Asia and Pacific Regions is detailed in Volume III.

2.2 In the Asia and Pacific Regions, WAFS products in digital form should be disseminated by WAFC **London** using the SADIS 2G satellite broadcast and the Secure SADIS FTP service and by WAFC **Washington** using WIFS.

Volcanic Ash

2.3 Volcanic Ash Advisory Centres (VAACs) **Anchorage, Darwin, Tokyo, Toulouse, Washington** and **Wellington** have been designated to prepare volcanic ash advisory information for the Asia and Pacific Regions. The status of implementation of volcanic ash advisory information is detailed in Volume III.

2.4 Selected State volcano observatories have been designated for notification of significant pre-eruption volcanic activity, a volcanic eruption and/or volcanic ash in the atmosphere for the Asia and Pacific Regions to their corresponding ACC/FIC, MWO and VAAC, as indicated at **Table MET I-1**. The status of implementation of Volcano Observatory Notice for Aviation (VONA) is detailed in Volume III.

Tropical Cyclone

2.5 Tropical Cyclone Advisory Centres (TCACs) **Darwin, Honolulu, Nadi, New Delhi, Reunion** and **Tokyo** have been designated to prepare tropical cyclone advisory information for the Asia and Pacific Regions. The status of implementation of tropical cyclone advisory information is detailed in Volume III.

3. SPECIFIC REGIONAL REQUIREMENTS

3.1 *None*

TABLE MET I-1
STATE VOLCANO OBSERVATORIES

Explanation of the Table

Column

1 Name of the State responsible for the provision of a volcano observatory

2 Name of the volcano observatory

State	Volcano observatory
1	**2**
China	Heilongjiang Wudalianchi Volcano Observatory
China	Jilin Changbai Mountain Tianchi Volcano Observatory
Japan	Fukuoka Regional Volcanic Observation and Warning Center, Japan Meteorological Agency
Japan	Kagoshima Meteorological Office, Japan Meteorological Agency
Japan	Sapporo Regional Volcanic Observation and Warning Center, Japan Meteorological Agency
Japan	Sendai Regional Volcanic Observation and Warning Center, Japan Meteorological Agency
Japan	Volcanic Observation and Warning Center, Japan Meteorological Agency
India	TBD
Indonesia	Centre of Volcanology and Geological Hazard Mitigation (CVGHM)
New Zealand	Earth Sciences New Zealand
Papua New Guinea	Rabaul Volcanological Observatory
Philippines	Philippine Institute of Volcanology and Seismology (PHIVOLCS)
Samoa	Samoa Meteorology Division
Solomon Islands	Geological Survey Division
Tonga	Tonga Geological Service
United States (N. Mariana Islands)	Alaska Volcano Observatory (AVO)
United States (American Samoa)	Hawaiian Volcano Observatory (HVO)
Vanuatu	Vanuatu Meteorology and Geohazards Department

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APAC ANP, VOLUME I

PART VI - SEARCH AND RESCUE (SAR)

1. INTRODUCTION

1.1 This part of the APAC ANP constitutes the agreed regional requirements considered to be the minimum necessary for effective planning and implementation of search and rescue (SAR) facilities and services in the Asia and Pacific Regions and complements the provisions of ICAO SARP's and PANS related to SAR. It contains stable plan elements related to the assignment of responsibilities to States for the provision of SAR facilities and services within the ICAO Asia and Pacific Regions in accordance with Article 28 of the *Convention on International Civil Aviation* (Doc 7300) and mandatory requirements related to the SAR facilities and services to be implemented by States in accordance with regional air navigation agreements.

1.2 The dynamic plan elements related to the assignment of States' responsibilities for the provision of SAR facilities and services and the mandatory requirements based on regional air navigation agreements related to SAR are contained in the Asia and Pacific Regions Volume II, Part VI – SAR.

Standards, Recommended Practices and Procedures

1.3 The Standards, Recommended Practices and Procedures (SARPs) and related guidance material applicable to the provision of SAR are contained in:

a) Annex 12 – *Search and Rescue*;
b) Annex 6 — *Operation of Aircraft*;
c) *Procedures for Air Navigation Services — Air Traffic Management* (PANS-ATM) (Doc 4444);
d) *Regional Supplementary Procedures* (Doc 7030); and
e) *International Aeronautical and Maritime Search and Rescue Manual* (Doc 9731-AN/958).

2. GENERAL REGIONAL REQUIREMENTS

2.1 Each Contracting State should ensure that the provision of search and rescue services covers its own territory and those areas over the high seas for which it is responsible for the provision of those services. The description of the current Search and Rescue Regions (SRRs), as approved by the ICAO Council, are contained in **Table SAR I-1** and depicted in the **Chart SAR I-1**. The list of Rescue Coordination Centres (RCCs) and Rescue Sub-centres (RSCs) in the Region(s) are detailed in Volume II.

2.2 The three volumes of the *IAMSAR Manual* (Doc 9731) provide guidance for a common aviation and maritime approach to organizing and providing SAR services. States are invited to use the *IAMSAR Manual* to ensure the availability of effective aeronautical SAR services and to cooperate with neighbouring States.

2.3 States which rely on military authorities and/or other sources for the provision of SAR facilities should ensure that adequate arrangements are in place for coordination of SAR activities between all entities involved.

2.4 Arrangements should be made to permit a call on any national services likely to be able to render assistance on an ad-hoc basis, in those cases when the scope of SAR operations requires such assistance.

3. SPECIFIC REGIONAL REQUIREMENTS

3.1 None.

TABLE SAR I-1

SEARCH AND RESCUE REGIONS (SRR) OF THE ASIA/PACIFIC REGIONS

EXPLANATION OF THE TABLE

Column:

1 Name of the SRR
2 Description of SRR lateral limits;
3 Remarks — additional information, if necessary.

SRR	Lateral limits coordinates	Remarks
1	2	3
Australia SRR	SRR Australia 140000S 1611500E 174000S 1630000E 450000S 1630000E 900000S 0000000W/E (South Pole) 060000S 0750000E 020000S 0780000E 020000S 0920000E 120000S 1070000E 120000S 1232000E 092000S 1265000E 070000S 1350000E 095000S 1394000E 095000S 1410000E 093700S 1410200E 091542S 1420330E 091248S 1420624E 091154S 1420836E 091200S 1421018E 091124S 1421254E 091136S 1421406E 091354S 1421624E 091606S 1422042E 092206S 1422942E 092148S 1423130E 092236S 1423330E 092124S 1423530E 092024S 1424142E 092018S 1424354E 091924S 1424818E 090800S 1435230E 092400S 1441400E 095634S 1440521E 100515S 1435852E 100850S 1435711E 101751S 1435445E 102244S 1435525E 102638S 1435424E 103110S 1435441E 103457S 1435536E 104114S 1435810E 104641S 1435959E 105205S 1440046E 105900S 1440200E 110224S 1440233E 110637S 1440351E 111107S 1440421E 111413S 1440338E 111510S 1440307E 112935S 1440131E 113000S 1440136E 114330S 1440420E	Vertical limits: SFC to UNL

	120000S 1440000E 120000S 1550000E 140000S 1550000E 140000S 1611500E.	
Bali SRR	SRR Bali *To be incorporated*	
Bangkok SRR	SRR Bangkok *To be incorporated*	
Beijing SRR	SRR Beijing A line joining 452317N 1152115E 431442N 1173100E 421500N 1180500E 395400N 1192100E 393000N 1195200E 381500N 1200000E 380700N 1193300E 372912N 1173000E 364000N 1152400E 361900N 1143000E 360400N 1134836E 343200N 1101500E 353200N 1101800E 372800N 1104400E 382200N 1103600E 384400N 1094100E 392600N 1083000E 401842N 1070012E 404300N 1055500E 414451N 1051345E thence following the national boundary of the People's Republic of China to 452317N 1152115E.	Vertical limits: SFC to UNL
Biak SRR	SRR Biak *To be incorporated*	
Bombay SRR	SRR Bombay *To be incorporated*	
Calcutta SRR	SRR Calcutta *To be incorporated*	
Colombo SRR	SRR Colombo *To be incorporated*	
Delhi SRR	SRR Delhi *To be incorporated*	
Dhaka SRR	SRR Dhaka *To be incorporated*	
Guangzhou SRR	SRR Guangzhou	

	To be incorporated	
Ha Noi SRR	SRR Ha Noi *To be incorporated*	
Ho Chi Minh SRR	SRR Ho Chi Minh *To be incorporated*	
Hong Kong SRR	SRR Hong Kong *To be incorporated*	
Honiara SRR	SRR Honiara *To be incorporated*	
Honolulu SRR	SRR Honolulu *To be incorporated*	
Jakarta SRR	SRR Jakarta 011300N 1133500E 030000S 1102300E 082000S 1102300E 120000S 1143000E 120000S 1070000E 020000S 0920000E 060000N 0920000E 060000N 0942500E 060000N 0973000E 013900N 1021000E 011300N 1033000E 011408N 1033142E 011200N 1033900E 011046N 1034015E 010800N 1034500E 011500N 1040000E 011800N 1043000E 012921N 1043441E 011947N 1044606E 021838N 1052205E 023641N 1051311E 024348N 1050854E 025010N 1051210E 031453N 1052619E 031727N 1052959E 033045N 1055130E 041312N 1071743E 043820N 1073315E 045203N 1074625E 045904N 1075525E 050012N 1080132E 045700N 1081619E 025050N 1091629E 021500N 1083000E 010000N 1083000E 010000N 1085400E	Vertical limits: SFC to UNL Remarks: For portions of the Jakarta FIR where the provision of air traffic services is delegated by Indonesia to Singapore, as documented in APAC ANP Volume I, Part IV, ATM Table I-1, Search and rescue (SAR) services are provided jointly by Indonesia and Singapore.

	thence along Kalimantan west coast to the national boundary of Indonesia/Malaysia to 011300N 1133500E.	
Juneau SRR	SRR Juneau *To be incorporated*	
Kabul SRR	SRR Kabul *To be incorporated*	
Karachi SRR	SRR Karachi *To be incorporated*	
Kathmandu SRR	SRR Kathmandu 302645N 0813744E thence following the national boundary to 302645N 0813744E.	Vertical limits: SFC to UNL
Kota Kinabalu SRR	SRR Kota Kinabalu 082500N 1163000E 082500N 1163000E 073000N 1173000E 040000N 1200000E 040000N 1180000E thence along the national boundary of Malaysia and Indonesia to 010000N 1085400E 010000N 1083000E 021500N 1083000E 082500N 1163000E.	Vertical limits: SFC to UNL
Kuala Lumpur SRR	SRR Kuala Lumpur 064500N 1024000E 045000N 1034400E 034000N 1034000E 023600N 1044500E 012000N 1042000E thence along 012000N to the national boundary of Malaysia/Singapore; thence along the national boundary of Malaysia/Singapore to 011700N 1033600E 011300N 1033000E 013900N 1021000E 060000N 0973000E 060000N 0942500E 100000N 0942500E 100000N 0963000E 071500N 0980000E 063000N 0993000E thence along the national boundary of Malaysia/Thailand to	Vertical limits: SFC to UNL

	061500N 1021500E 064500N 1024000E.	
Kunming SRR	SRR Kunming *To be incorporated*	
Lahore SRR	SRR Lahore *To be incorporated*	
Lanzhou SRR	SRR Lanzhou A line joining 414451N 1051345E 404300N 1055500E 401842N 1070012E 392600N 1083000E 384400N 1094100E 382200N 1103600E 372800N 1104400E 353200N 1101800E 343200N 1101500E 340500N 1102900E 333200N 1105200E 315400N 1093100E 321400N 1072400E 322700N 1054900E 333500N 1035300E 325500N 1014200E 314900N 0983500E 320600N 0970000E 325200N 0915500E 360200N 0890100E 362500N 0872300E 382100N 0901300E 414800N 0950800E 425500N 0962014E thence following the national boundary of the People's Republic of China to 414451N 1051345E.	Vertical limits: SFC to UNL
Madras SRR	SRR Madras *To be incorporated*	
Male SRR	SRR Male A line joining 060000N 0780000E 020000S 0780000E 060000S 0750000E 060000S 0680000E 000000N/S 0680000E 030500N 0700000E 073000N 0700000E 073000N 0720000E 073000N 0740000E 060000N 0740000E	Vertical limits: SFC to UNL

	060000N 0780000E.	
Manila SRR	SRR Manila *To be incorporated*	
Nadi SRR	SRR Nadi *To be incorporated*	
Nauru SRR	SRR Nauru 033000N 1700000E 100000S 1700000E 114800S 1665200E 103000S 1664500E 045000S 1600000E 033000N 1600000E 033000N 1700000E.	Vertical limits: SFC to UNL
New Zealand SRR	SRR New Zealand *To be incorporated*	
Phnom Penh SRR	SRR Phnom Penh *To be incorporated*	
Port Moresby SRR	SRR Port Moresby 000000N/S 1600000E 045000S 1600000E 045000S 1590000E 063300S 1560209E 063950S 1560223E 064104S 1560136E 065050S 1555523E 065533S 1554137E 065533S 1553808E 071900S 1550000E 120000S 1550000E 120000S 1440000E 114330S 1440420E 113000S 1440136E 112935S 1440131E 111510S 1440307E 111413S 1440338E 111107S 1440421E 110637S 1440351E 110224S 1440233E 105900S 1440200E 105205S 1440046E 104641S 1435959E 104114S 1435810E 103457S 1435536E 103110S 1435441E 102638S 1435424E 102244S 1435525E 101751S 1435445E 100850S 1435711E	Vertical limits: SFC to UNL

	100515S 1435852E 095634S 1440521E 092400S 1441400E 090800S 1435230E 091924S 1424818E 092018S 1424354E 092024S 1424142E 092124S 1423530E 092236S 1423330E 092148S 1423130E 092206S 1422942E 091606S 1422042E 091354S 1421624E 091136S 1421406E 091124S 1421254E 091200S 1421018E 091154S 1420836E 091248S 1420624E 091542S 1420330E 093700S 1410200E 065334S 1410106E thence following the Fly River to 061914S 1410000E 000000N/S 1410000E 000000N/S 1600000E.	
Pyongyang SRR	SRR Pyongyang *To be incorporated*	
Sanya SRR	SRR Sanya A line joining 203000N 1113000E 193000N 1113000E 164000N 1140000E 143000N 1140000E 143000N 1120000E 182028N 1074053E 191604N 1071123E 195733N 1075547E 203000N 1080300E 203000N 1113000E.	Vertical limits: SFC to UNL
Shanghai SRR	SRR Shanghai *To be incorporated*	
Shenyang SRR	SRR Shenyang *To be incorporated*	
Singapore SRR	SRR Singapore 082500N 1163000E 025050N 1091629E 045700N 1081619E 050012N 1080132E 045904N 1075525E	Vertical limits: SFC to UNL

	045203N 1074625E 043820N 1073315E 041312N 1071743E 033045N 1055130E 031727N 1052959E 031453N 1052619E 025010N 1051210E 024348N 1050854E 023641N 1051311E 021838N 1052205E 011947N 1044606E 012921N 1043441E 011800N 1043000E 011500N 1040000E 010800N 1034500E 011046N 1034015E 011200N 1033900E 011408N 1033142E 011700N 1033600E thence east along the national boundary of Singapore/Malaysia, thence along 012000N to 012000N 1042000E 023600N 1044500E 034000N 1034000E 045000N 1034400E 064500N 1024000E 070000N 1030000E 070000N 1080000E 103000N 1140000E 082500N 1163000E.	
Taegu SRR	SRR Taegu *To be incorporated*	
Tahiti SRR	SRR Tahiti *To be incorporated*	
Taibei SRR	SRR Taibei *To be incorporated*	
Tokyo SRR	SRR Tokyo *To be incorporated*	
Ujung Pandang SRR	SRR Ujung Pandang *To be incorporated*	
Ulaanbaatar SRR	SRR Ulaanbaatar 495044.4N 1164249.3E thence following the national boundary to 495044.4N 1164249.3E.	Vertical limits: SFC to UNL
Urumqi SRR	SRR Uramqi *To be incorporated*	

Vientiane SRR	SRR Vientiane 170000N 1063258E thence following the national boundary to 170000N 1063258E.	Vertical limits: SFC to UNL
Wuhan SRR	SRR Wuhan A line joining 364000N 1152400E 351448N 1152700E 343100N 1155430E 325430N 1154848E 300500N 1155600E 290200N 1143400E 292300N 1130712E 293100N 1092400E 315400N 1093100E 333200N 1105200E 340500N 1102900E 343200N 1101500E 360400N 1134836E 361900N 1143000E 364000N 1152400E.	Vertical limits: SFC to UNL
Yangon SRR	SRR Yangon *To be incorporated*	

APAC ANP, VOLUME I

PART VII - AERONAUTICAL INFORMATION MANAGEMENT (AIM)

1. INTRODUCTION

1.1 This part of the APAC ANP constitutes the agreed regional requirements considered to be the minimum necessary for effective planning and implementation of Aeronautical Information Services (AIS) and Aeronautical Information Management (AIM) facilities and services in the Asia and Pacific Regions and complements the provisions of ICAO SARP's and PANS related to AIS/AIM. It contains stable plan elements related to the assignment of responsibilities to States for the provision of AIS/AIM facilities and services within the ICAO Asia and Pacific Regions in accordance with Article 28 of the *Convention on International Civil Aviation* (Doc 7300); and mandatory requirements related to the AIS/AIM facilities and services to be implemented by States in accordance with regional air navigation agreements.

1.2 The dynamic plan elements related to the assignment of responsibilities to States for the provision of AIS/AIM facilities and services and the mandatory requirements based on regional air navigation agreements related to the AIS/AIM facilities and services are contained in the APAC ANP Volume II, Part VII – AIM.

1.3 The APAC ANP Volume III contains dynamic/flexible plan elements related to the implementation of air navigation systems and their modernization in line with the ICAO Aviation System Block Upgrades (ASBUs) methodology and associated technology roadmaps described in the Global Air Navigation Plan. The ASBU modules are aimed at increasing capacity and improving efficiency of the aviation system whilst maintaining or enhancing safety level, and achieving the necessary harmonization and interoperability at regional and global level. This includes the regionally agreed ASBU modules applicable to the specified ICAO region/sub-region and associated elements/enablers necessary for the monitoring of the status of implementation of these ASBU modules, which include service improvement through digital aeronautical information management and interoperability and data through globally interoperable System Wide Information Management (SWIM).

Standards, Recommended Practices and Procedures for Air Navigation Services

1.4 The SARPs and PANS and related guidance material applicable to the provision of AIS, and ultimately AIM, are contained in:

a) Annex 4 – *Aeronautical Charts*;

b) Annex 15 – Aeronautical Information Services;

c) *Regional Supplementary Procedures* (Doc 7030);

d) *Aeronautical Information Services Provided by States* (Doc 7383);

e) *Location Indicators* (Doc 7910);

f) *Aeronautical Information Services Manual* (Doc 8126);

g) *Procedures for Air Navigation Services – Aircraft Operations – Construction of Visual and Instrument Flight Procedures* (PANS-OPS, Volume I and Volume II) (Doc 8168);

h) *ICAO Abbreviations and Codes* (PANS-ABC) (Doc 8168);

i) *Aeronautical Charts Manual* (Doc 8697);

j) *Manual on Coordination between Air Traffic Services, Aeronautical Information Services and Aeronautical Meteorological Services* (Doc 9377);

k) *World Geodetic System (1984) Manual* (Doc 9674);

l) *Guidelines on the Use of the Public Internet for Aeronautical Applications* (Doc 9855);

m) *Guidelines for Electronic Terrain, Obstacle and Aerodrome Mapping Information* (Doc 9881);

n) *Flight Procedure Design Quality Assurance System*, Volume I (Doc 9906);

o) "*AIM QMS Manual*" (Doc 9839) (Draft); and

p) "*Training Manual for AIM*" (Doc 9991) (Draft).

2. GENERAL REGIONAL REQUIREMENTS

2.1 States should ensure that the provision of aeronautical data and aeronautical information covers its own territory and those areas over the high seas for which it is responsible for the provision of air traffic services, in accordance with **Charts ATM I-1 and ATM I-2**.

2.2 States are responsible for the aeronautical information/data published by its aeronautical information service or by another State or a non-governmental agency on its behalf.

2.3 Aeronautical information published for and on behalf of a State should clearly indicate that it is published under the authority of that State.

2.4 The responsibility for the provision of AIS/AIM facilities and services in the Asia and Pacific Regions is reflected in the Volume II.

3. SPECIFIC REGIONAL REQUIREMENTS

3.1 None.