



International Civil Aviation Organization

**Third Meeting of the Asia/Pacific Regional Search and Rescue Task Force  
(APSAR/TF/3)**

Maldives, 25 – 29 January 2015

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**Agenda Item 2: Review Outcomes of Related Meetings**

**RELATED MEETING OUTCOMES**

(Presented by the Secretariat)

**SUMMARY**

This paper presents information on search and rescue from relevant meetings.

**1. INTRODUCTION**

1.1 The Second Meeting of the APANPIRG Air Traffic Management Sub-Group (ATM/SG/2) was held in Hong Kong, China from 04 to 08 August 2014.

1.2 The Twenty Fifth Meeting of the Asia/Pacific Air Navigation Planning and Implementation Regional Group (APANPIRG/25) was held in Kuala Lumpur, Malaysia, from 08 to 12 September 2014.

1.3 The 21st meeting of the ICAO/IMO Joint Working Group on Harmonization of Aeronautical and Maritime Search and Rescue (JWG) was held from 15 to 19 September, 2014. A brief verbal update is expected to be provided by the JWG Chair on significant matters, particularly the International Aeronautical and Maritime SAR Manual (IAMSAR) update due in 2016.

1.4 The Report of the Aircraft Tracking Task Force (ATTF) was presented on 11 November, 2014 (a separate working paper WP13 by Australia will present the outcomes).

1.5 The Fifty First Conference of Directors General of Civil Aviation, Asia and Pacific Regions (DGCA/51) was held from 24 to 26 November 2014.

**2. DISCUSSION**

ATM/SG/2

2.1 ATM/SG/2 had the following key discussion points regarding SAR.

*Seamless ATM Reporting and Monitoring (WP06)*

*The meeting also noted that Air Navigation Report Forms (ANRFs) had replaced the Performance Framework Forms (PFF). The ANRF were intended to be a means of setting milestones, targets, and metrics for each of the key planning elements. The ATM/SG/2 had no comment on the draft ANRFs.*

2.2 Included with the 18 Aviation System Block Upgrade (ASBU) ANRFs was a draft SAR ANRF (**Attachment A**), which was intended to be submitted to APANPIRG/26 in 2015 after review by the APSAR/TF.

*Alignment of the RANP with the Global Air Navigation Plan (WP08)*

ICAO reported on the work of the eANP Working Group (eANP WG) which was formed in follow-up to the 12th Air Navigation Conference Recommendation 6/1 Regional Performance Framework – Planning Methodologies and Tools regarding the alignment of regional air navigation plans with the Fourth Edition of the GANP, and proposals to develop a new Asia/Pacific Regional Air Navigation Plan (RANP) document.

The eANP WG had agreed that the ANP data related to the air navigation facilities and services could be classified as: stable, dynamic or flexible. In this regard, it was agreed that the new ANP should be composed of three volumes.

- a) **Volume I** should contain stable plan elements the amendment of which require approval by the Council;
- b) **Volume II** should contain dynamic plan elements, the amendment of which does not require approval by the Council; and
- c) **Volume III** should contain dynamic/flexible plan elements [not subject to the reporting of Deficiencies] providing implementation planning guidance for air navigation systems and their modernization taking into consideration emerging programmes such as the ASBUs and associated technology roadmaps described in the GANP.

The ATM/SG/2 agreed with the following work plan (**Table 1**) to assist the Regional Office (RO) through electronic means and established meetings to populate or develop the new Asia/Pacific RANP, so agreement on its content might be reached by mid-2015:

<b>Reference</b>	<b>Detail</b>	<b>Notes</b>
Vol. I, Part VI	SAR Special Regional Requirements, if any	APSAR/TF; RO (ATM)
Vol. I, Part VI	Table SAR I-1 Search and Rescue Regions	ICAOHQ data; RO (ATM)
Vol. II, Part VI	SAR Special Regional Facility Requirements, if any	RANP; RO (ATM)
Vol. II, Part VI	Table SAR II-1 Search and Rescue Facilities	ICAOHQ data; RO (ATM)

**Table 1:** RANP Work Plan

*Asia/Pacific SAR Task Force (WP25)*

WP25 noted that the mystery of Malaysia Airlines flight MH 370 was still unfolding; however, there may be SAR concerns similar to those revealed by other aircraft incidents at sea in recent years, including Air France AF 447 in 2009. Moreover, the global community would benefit by gathering the experiences and lessons learned from this incident before they are forgotten.

The United States recognised that the draft Asia/Pacific Search and Rescue Plan would require an extensive effort to finalize its text at the next session of the APSAR/TF, noting that the Plan was already being discussed within ICAO Headquarters, and would greatly enhance and improve SAR capabilities within the Asia/Pacific Region and adjacent regions. They urged Asia/Pacific States to review the Plan and provide their advice to the APSAR/TF or, preferably, participate in the APSAR/TF/3, scheduled for January 2015.

Malaysia thanked the United States for the paper, agreeing with the United States that lessons from the MH370 incident needed to be learnt and SAR systems improved as soon as possible.

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*Asia/Pacific Search and Rescue Task Force Outcomes (WP26)*

*The APSAR/TF/2 noted that unless there was a worldwide agreement to ban Personal Locator Beacons (PLBs), it was necessary to urgently address and manage issues of systems capacity and system distribution (such as PLB alerts going to a local police agency). The ATM/SG/2 meeting agreed to Draft Conclusions for APANPIRG's consideration.*

*The regional overview (indicated significant Annex 12 compliance weaknesses in South Asia and the Southwest Pacific areas, and some weaknesses in Southeast Asia and the Democratic People's Republic of Korea. Improvements were noted in French Polynesia, Maldives, Mongolia and Sri Lanka since APSAR/TF/1. The United States commended the Regional Office for its work on the regional picture, stressing that honest reporting of status by States was important to ensure changes and resources were made available for SAR improvement.*

*The United States noted that ICAO Headquarters Montreal did not have a dedicated SAR technical officer, and that the ICAO/IMO JWG was concerned about this lack of SAR resource. The ATM/SG/2 meeting agreed to a Draft Conclusion for APANPIRG's consideration on this matter.*

*The United States announced that it would develop a SAR library on a web site that would be available to other national SAR authorities. The ATM/SG/2 meeting agreed to a Draft Decision for APANPIRG's consideration.*

*SAR Activity Sharing of Information using the Internet (WP27)*

*Japan noted that a new Internet-based function appeared to be an effective means of sharing information, not just among the State's internal organizations but also for other States participating in an international SAR activity, such as that conducted during the SAR response to the Malaysia Airlines MH 370 event.*

*MH370 SAR Response – JRCC Australia (WP30)*

*The meeting participants stood for a moment of silence, recognising those lost from the MH370 tragedy. In addition, the meeting acknowledged that the day (07 November 2014) was the formal Official Day of Mourning in Australia for the MH17 downing. Malaysia asked the meeting to place on record its deep appreciation of thanks for the recognition of the tragedies.*

*Australia provided a detailed update overview of the Australian SAR response to Malaysia Airlines Flight MH370 which went missing following its departure from Kuala Lumpur, Malaysia, for Beijing, China on 08 March 2014. It also provided a comparison from a SAR perspective between the MH370 incident and the Air France Flight AF447 incident of 2009 and invited States involved in the MH370 incident to consider providing inputs to ICAO for any improvements to the global and regional SAR system.*

*The ATM/SG/2 recalled that the search for Air France Flight AF447 which crashed into the Atlantic Ocean in 2009 was of a significant scale and presented many challenges. During the search operation for MH370, Australia had taken note of the valuable experience, lessons learned and recommendations provided in regard to AF447. The MH370 incident was a highly valuable opportunity to the global SAR community to not only share the experiences and any lessons learned from all the States involved in the SAR response, but to also improve the existing SAR system where appropriate.*

*Australia noted that Annex 12, Search and Rescue, Recommendation 5.9.2 reiterated that RCCs should prepare appraisals of actual SAR operations, and submit these to ICAO for information and dissemination as appropriate. The MH370 operation was continuing and pending investigation, so States who were involved in the recovery effort may not yet be in a position to collate lessons learned and opportunities for improvement. Notwithstanding this, any useful lessons that are already self-evident should be discussed to urgently improve SAR systems where possible and enhance the Asia/Pacific SAR Plan before its completion.*

*In that regard, the Secretariat outlined a number of discussion issues as follows that the MH370 event had highlighted, which needed to be discussed by the AP SAR/TF and possibly incorporated into the Asia/Pacific SAR Plan and/or global SAR material.*

- a) CIVIL/MILITARY: It was apparent that a higher degree of civil/military coordination may have revealed the possibility of the MH370 course reversal much earlier after the initial alert advice from Viet Nam ATC, and saved as much as a week of fruitless searching in the wrong area, while reducing the chances of finding the ULB given its limited battery life.*
- b) SAR PHASES: The time lapses of more than 16 minutes between the transfer of control point at IGARI and the advisory to Kuala Lumpur ACC that MH370 had disappeared, 38 minutes for the issuance of an INCERFA SAR phase, and 7 hours and 21 minutes for the issuance of an ALERFA/DETRESFA SAR phases indicated that the Annex 12 SAR phases and actions may need to be revised to take into account the expectations and capabilities of a modern ATS surveillance environment (the SAR phases were designed in a procedural environment). The SAR actions should include the need for civil/military coordination where appropriate, and advisories to all neighbouring ACCs in the case of uncertainty of the aircraft's track.*
- c) SAR PREPAREDNESS: Poor SAR preparedness and ad hoc SAR coordination between States needed to be addressed. Past APANPIRG Conclusions meant to address SAR coordination weaknesses had been largely ignored. In some cases SAR Agreements were hindered by political barriers whereby States can take many years to progress documents through government ministries. This may require a high level political agreement to change the manner in which SAR agreements and operational coordination is prioritized and managed. In addition, the region needs to conduct properly organized SAREX that actually test the SAR system on a regular basis and report the outcomes to APANPIRG, instead of this being done on an ad hoc basis between States.*
- d) ANNEX 12/13 TRANSITION: Annex 12 and Annex 13 needed to be updated to include SARPs on transition procedures between the two Annexes, particularly regarding who is responsible during concurrent Annex 12 and Annex 13 activities (i.e.: who is responsible for a rescue operation and when that phase ends, so it became primarily a recovery/investigation operation under Annex 13).*
- e) MULTIPLE SRRS/FIRS: Annex 12 had no reference in paragraph 5.2.4 as to responsibility when more than two SRRs were involved, especially if the airspace concerned was not part of the original flight plan.*
- f) SRR DESIGNATION Aeronautical SRR designation by States (as it is written in Annex 12 at present) instead of the ICAO Council was not the most optimal method, and did not align with the process used to designate FIRs; thus there were areas where there was an overlap of SAR responsibility or no clear responsibility.*

*The ATM/SG/2 meeting agreed that there was a need to emphasise the importance of civil/military cooperation in respect of SAR information and response.*

*Efficient SAR Actions – Review of Annex 11 Provisions (WP33)*

*India recalled the Annex 11 and 12 SAR alerting phases, stressing that the primary objective of the SAR actions was to organize and extend timely assistance to the aircraft in a state of emergency and averting a situation that might lead to human lives being endangered.*

*IATA advised that they supported a reduction in the SAR response timeframe as suggested by India, but also noted that they would be concerned if a mandate for SATCOM was being considered. The meeting congratulated India for the excellent paper, noting its valuable suggestions and correlation with other submissions in regard to the SAR phases.*

*Considering the content of WP25, WP27, WP30, WP33 and Flimsy 1, the ATM/SG/2 agreed to a Draft Conclusion, for consideration by APANPIRG.*

*Search and Rescue Cooperation and Coordination (IP03)*

*The United States provided a paper on the need to enhance SAR cooperation and coordination, noting that this was consistent with a near-term conclusion from the Special Meeting on Global Flight Tracking (Montreal, 12-13 May 2014). The paper recognised that the ICAO Bangkok Regional Office had already begun effort to address this concern, particularly with its Asia/Pacific SAR Task Force (APSAR/TF), and the experience gained in response to the disappearance of Malaysia flight MH 370 would likely create new questions for SAR authorities to consider in this area. The paper provided a list of possible improvement elements that would be considered by the APSAR/TF/3 meeting in developing the Asia/Pacific Regional SAR Plan.*

*ICAO Multi-disciplinary Meeting regarding Global Tracking (IP05)*

*In response to recent occurrences that raised global concern about the ability to globally track flights, ICAO held a special Multi-disciplinary Meeting regarding Global Tracking (ICAO Headquarters, Montreal, 12 to 13 May 2014). The purpose of the meeting was to explore the need for globally tracking airline flights and existing technologies to support it.*

*An IATA Aircraft Tracking Task Force and an ICAO Ad-Hoc Working Group on Flight Tracking were formed immediately following the meeting. Both groups are currently working towards development of a Draft Concept of Operations on flight tracking with a Final high level concept of operations planned for delivery to the ICAO High Level Safety Conference, in February 2015.*

2.3 Regarding the work to be conducted on the electronic Air Navigation Plan (eANP), APSAR/TF/3 should note the following:

- a) Any SAR Special Requirements that are not contained in the draft Asia/Pacific SAR Plan (or which need emphasising) should be discussed for inclusion in the Vol. I, Part VI, and Vol II, Part VI *SAR Special Regional Requirements*, if any sections of the eANP (the templates in **Appendix 1** and **Appendix 3** refer); and
- b) **Attachment B** is a compilation of all Aeronautical Search and Rescue Region (SRR) data that ICAO has in pictorial form, one page for each SRR, so that the concerned State or Administration can advise whether the information provided is correct or not, and that data entered into the eANP in Vol. I, Part VI, *Table SAR I-1 Search and Rescue Regions* (the template in **Appendix 2** refers, note that the current ANP SRR charts are on the APSAR/TF website under ‘General Information’); and

- c) **Attachment C** is a copy of the current Asia/Pacific Regional Air Navigation Plan (Doc 9673) Facilities and Services Implementation Document (FASID) Part VII on SAR, which will be necessary to assess in terms of the data for the new aANP Vol. II, Part VI *Table SAR II-1 Facilities* (i.e.: each State must update the information contained therein or advise if it is accurate, in order for the correct information to be populated into the new eANP table, the template in **Appendix 4** refers).

#### APANPIRG/25

2.4 Key excerpts from the APANPIRG/25 report regarding SAR are as follows.

##### *Integration of Human Factors in Research, Operations and Acquisition*

3.2.1 *There was considerable discussion by the ATM/SG/2 on the Federal Aviation Administration's (FAA's) use of a multidisciplinary human factors analysis in the development and operations of ATM systems. India, Hong Kong, China and IFATCA all emphasised the importance of human-in-the-loop planning at the earliest stage of project management. The meeting considered that there was a significant need for improvement in human factors knowledge and input into the development of appropriate processes for system engineering, procedure design, procedures and training. APANPIRG/25 noted that a number of States at CNS SG/18 had highlighted the need for integration of Human factors in Research, Acquisition, Operations and Maintenance of CNS/ATM Systems.*

3.2.2 *APANPIRG/25 agreed to the following Conclusion:*

##### **Conclusion APANPIRG/25-11: Human Performance Initiatives**

*That, ICAO be urged to:*

- a) *conduct an Asia/Pacific human performance seminar/workshop for optimal Air Traffic Control (ATC) and Search and Rescue (SAR) operational safety and efficiency; and*
- b) *review the human performance provisions in the Asia/Pacific Seamless ATM Plan.*

3.2.3 *The APSAR/TF/2 had noted that unless there was a worldwide agreement to ban PLBs, it was necessary to urgently address and manage issues of systems capacity and system distribution (such as PLB alerts going to a local police agency) and registering PLBs, (preferably at the point of sale). APANPIRG/25 agreed to the following Conclusions:*

##### **Conclusion APANPIRG/25-18: Cospas-Sarsat Alert Responses**

*That, considering the importance of effective Cospas-Sarsat alerting and monitoring supporting the international Search and Rescue (SAR) system, States be urged to:*

- a) *consider becoming formally associated with the Cospas-Sarsat system;*
- b) *provide up-to-date SAR Point of Contact (SPOC) details to Cospas-Sarsat, and respond promptly to SPOC communications tests;*
- c) *promote registration of 406 MHz distress beacons and make use of the free International Beacon Registration Database (IBRD) facility unless the State has its own readily available registration system;*
- d) *support a simplified, serialised beacon unique identification coding system for next generation beacons;*
- e) *ensure the provision of immediate access by Rescue Coordination Centres (RCCs) to the 406 MHz distress beacon registration data, whether maintained by the State*

or the Cospas-Sarsat IBRD; and

- f) provide post-alert advisories to Cospas-Sarsat on all alert outcomes as soon as practicable as a performance and system improvement measure.

**Conclusion APANPIRG/25-19: Personal Locator Beacon**

That, considering the development of miniaturised Personal Locator Beacons (PLBs) being increasingly carried on persons, marine vessels and aircraft, the possible overload of alerting systems and RCCs, and the obligation of States to respond to safety alerts, ICAO in cooperation with the IMO, be urged to consider means of effectively managing PLB alerts.

3.2.4 The meeting noted that ICAO did not have a dedicated SAR technical officer, and that the ICAO/IMO JWG was concerned about this level of SAR technical resource. The meeting also noted that it was appropriate for regional offices to have increased responsibility for SAR within their region and differences between regions were handled with global focus.

3.2.5 The meeting further noted the intent of the paper, noting that SAR had been left out of the ASBUs and supported enhancing SAR technical resources to provide a greater focus on SAR issues at ICAO. APANPIRG/25 agreed to the following Conclusion:

**Conclusion APANPIRG/25-20: Global SAR Coordination**

That, considering the need for global and inter-regional Search and Rescue (SAR) coordination, ICAO be urged to:

- a) consider securing the necessary technical resources for managing global SAR policy development and inter-regional coordination; and  
b) include SAR as part of the Aviation System Block Upgrades (ASBU).

3.2.6 The United States announced that it would develop a SAR library on a web site that would be available to other national SAR authorities. APANPIRG/25 adopted the following Decision:

**Decision APANPIRG/25-21: Search and Rescue (SAR) Library**

That, States be urged to utilise the SAR Library located at [http://www.uscg.mil/hq/cg5/cg534/SAR\\_Manuals.asp](http://www.uscg.mil/hq/cg5/cg534/SAR_Manuals.asp).

*MH370 SAR Response – JRCC Australia*

3.2.7 The APANPIRG chairman suggested that Malaysia take the lead on collating lessons for future discussion at the APSAR/TF/3 in collaboration with States involved in the SAR efforts together with the ICAO Regional Office, to which Malaysia agreed. Considering the broad discussion on the important lessons to be learnt for the MH370 tragedy, the ATM/SG/2 developed a Draft Conclusion, which was agreed to by APANPIRG/25:

**Conclusion APANPIRG/25-22: Provision of MH370 Feedback**

In accordance with Annex 12, Recommendation 5.9.2, that:

- a) Asia/Pacific States/Administrations involved in the SAR response to MH370 be urged to develop any lessons learned and suggestions for improvement for submission to the APSAR/TF/3 meeting, scheduled for 25-29 January 2015; and  
b) ICAO and IMO be urged to consider lessons learned and feedback in order to update global SAR standards and guidance material.

DGCA/51

2.5 Key Action Items from the DGCA/51 Conference regarding SAR as a result of the MH370 and MH17 tragedies are as follows.

		<b>Agenda Item 3.3 A: Emerging Issues in Aviation</b>
DP/3.3A/1/4	Action Item 51/2	Noting the progress made in the development of a high-level Concept of Operations for the Global Aeronautical Distress and Safety System (GADSS), the Conference  a) urged States and Administrations to contribute to the concerted efforts to improve aircraft tracking and search and rescue;  b) requested ICAO to continue its work on developing solutions to improve aircraft tracking and search and rescue.
DP/3.3A/3	Action Item 51/3	Recognizing that States have the responsibility to ensure the safety of civil aviation operations in their sovereign and delegated airspace, and airspace users have the ultimate responsibility to decide where they are able to operate safely, the Conference:  a) urged States to contribute to the concerted efforts to enhance the sharing of information to mitigate the risks associated with operations over or near conflict zones;  b) requested ICAO to continue its work to develop solutions to enhance the sharing of information to mitigate the risks associated with operations over or near conflict zones.

**3. ACTION BY THE MEETING**

3.1 The meeting is invited to:

- a) note the information contained in this paper;
- b) discuss and agree to the draft SAR ANRF for APANPIRG’s consideration;
- c) discuss the RANP Work Plan regarding:
  - i) SAR Special Regional Requirements, if any;
  - ii) Table SAR I-1 Search and Rescue Regions;
  - iii) Table SAR II-1 SAR Facilities;
- d) present lessons learnt from the MH370 (and QZ8501) tragedies; and
- e) discuss any relevant matters as appropriate.

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## Appendix 1: eANP Vol I Part VI Template

(NAME) ANP, VOLUME I

### PART VI - SEARCH AND RESCUE (SAR)

#### 1. INTRODUCTION

1.1 This part of the (NAME) 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 (NAME) region(s) 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 (NAME) region(s) 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 (NAME) 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 TBD (if necessary).

**Appendix 2: eANP Table SAR I-1 Template**

**TABLE SAR I-1 – SEARCH AND RESCUE REGIONS (SRR) OF THE (NAME) REGION(S)**

**EXPLANATION OF THE TABLE**

Column:

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

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**TABLE SAR I-1 – SEARCH AND RESCUE REGIONS (SRR) OF THE (NAME) REGION(S)**

<b>SRR</b>	<b>Lateral limits coordinates</b>	<b>Remarks</b>
<b>1</b>	<b>2</b>	<b>3</b>
AMSWELL (example)	SRR AMSWELL  5705N 04000W- 5640N 02108W 4331N 02108W- 4124N 03003W 4044N 03711W- 4236N 03700W 4402N 04000W- 4228N 04120W 5251N 04147W- 5705N 04000W Then along the national borders between State X and State Y.	

## Appendix 3: eANP Vol II Part VI Template

### (NAME) ANP, VOLUME II

#### PART VI - SEARCH AND RESCUE (SAR)

##### 1. INTRODUCTION

1.1 This part of the (NAME) ANP, Volume II, complements the provisions in ICAO SARP's and PANS related to search and rescue (SAR). It contains dynamic plan elements related to the assignment of responsibilities to States for the provision of SAR facilities and services within a specified area 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. Such agreement indicates a commitment on the part of the State(s) concerned to implement the requirement(s) specified.

##### 2. GENERAL REGIONAL REQUIREMENTS

2.1 The Rescue Coordination Centres (RCCs) and Rescue Sub-centres (RSCs) for the (NAME) Region(s) are listed in Table SAR II-1 and depicted in Chart SAR I-1.

2.2 In cases where the minimum SAR facilities are temporarily unavailable, alternative suitable means should be made available.

2.3 In cases where a SAR alert is proximate to a search and rescue region (SRR) boundary (e.g. 50 NM or less), or it is unclear if the alert corresponds to a position entirely contained within an SRR, the adjacent RCC or RSC should be notified of the alert immediately.

##### 3. SPECIFIC REGIONAL REQUIREMENTS

3.1 The details of the facilities and/or services to be provided to fulfill the basic requirements of the plan could be found in this part. Such agreement indicates a commitment on the part of the State(s) concerned to implement the requirement(s) specified. [if required]

**Appendix 4: eANP Table SAR II-1 Template**

**TABLE SAR II-1 - SEARCH AND RESCUE FACILITIES IN THE (NAME) REGION(S)**

**EXPLANATION OF THE TABLE**

*Column*

- 1 State
- 2 Name of the Rescue Coordination Centre (RCC) and Rescue Sub-centre (RSC).
- 3 SAR points of contact (SPOC). Name of the SPOC.
- 4 Remarks. Supplementary information such as the type of RCC (e.g. maritime or aviation or joint).

**TABLE SAR II-1 - SEARCH AND RESCUE FACILITIES IN THE (NAME) REGION(S)**

State	Name of and RCC/RSC	SPOC	Remarks
1	2	3	4
<b>BAHRAIN</b>	BAHRAIN RCC Bahrain		



## 1. AIR NAVIGATION REPORT FORM (ANRF)

### APAC Regional Planning

2. REGIONAL/NATIONAL PERFORMANCE OBJECTIVE – Module B0-SAR: Improved Safety and Efficiency through the initial application of Regional SAR Initiatives					
Performance Improvement Area 2: Globally Interoperable Systems and Data					
3. ASBU B0-SAR: Impact on Main Key Performance Areas (KPA)					
	Access & Equity	Capacity	Efficiency	Environment	Safety
Applicable	N	N	Y	Y	Y
4. ASBU B0-SAR: Planning Targets and Implementation Progress					
5. Elements		6. Targets and implementation progress (Ground and Air)			
SAR Regulatory and Coordination Mechanisms		November 2018: All States should develop statutes and related provisions for a SAR organization and its framework, resources, policies and procedures, including a State SAR Plan, international SAR agreements and SAR exercises (SAREX).			
SAR Facilities and Assets		November 2018: All States should establish Rescue Coordination Centres (RCCs) of sufficient size with facilities, tools, and access to SAR Units (SRU) commensurate with the State's responsibilities, or delegate the function as appropriate (all States should investigate the feasibility of establishing Joint Rescue Coordination Centres (JRCCs) and implement where beneficial).			
SAR Information		November 2018: All States should establish a centralised SAR information source, which includes data supporting the Aeronautical Information Publication (AIP), SAR Library, 24 hour Contacts database of SAR facilities, assets and lists of SRUs.			
SAR Improvement		November 2018: All States should implement Quality Assurance (QA) programmes that include continuous improvement and audit processes, gap and safety/quality indicator analysis, and SAR promotion activities.			
7. ASBU B0-SAR: Implementation Challenges					
Elements	Implementation Area				
	Ground System Implementation	Avionics Implementation	Procedures Availability	Operational Approvals	
SAR Regulatory and Coordination Mechanisms	NA	NA	Legislative restrictions and legal problems enacting SAR agreements. Lack of political support.	NA	



<b>7. ASBU B0-SAR: Implementation Challenges</b>				
<b>Elements</b>	<b>Implementation Area</b>			
	<b>Ground System Implementation</b>	<b>Avionics Implementation</b>	<b>Procedures Availability</b>	<b>Operational Approvals</b>
SAR Facilities and Assets	Lack of resources to establish appropriate facilities and SRUs. Cospas-Sarsat facilities or sharing access with other States.	Lack of appropriate communications and direction-finding equipment.	Lack of local, State and regional agreements between agencies to facilitate sharing of SAR resources, including SRUs.	Lack of Civil/Military SAR cooperation, including use of military facilities and SRUs.
SAR Information	Lack of computers and software	NA	Lack of established information support processes.	NA
SAR Improvement	NA	NA	Lack of regional and local training of RCC staff and SRUs. Lack of QA and improvement plans and procedures.	NA

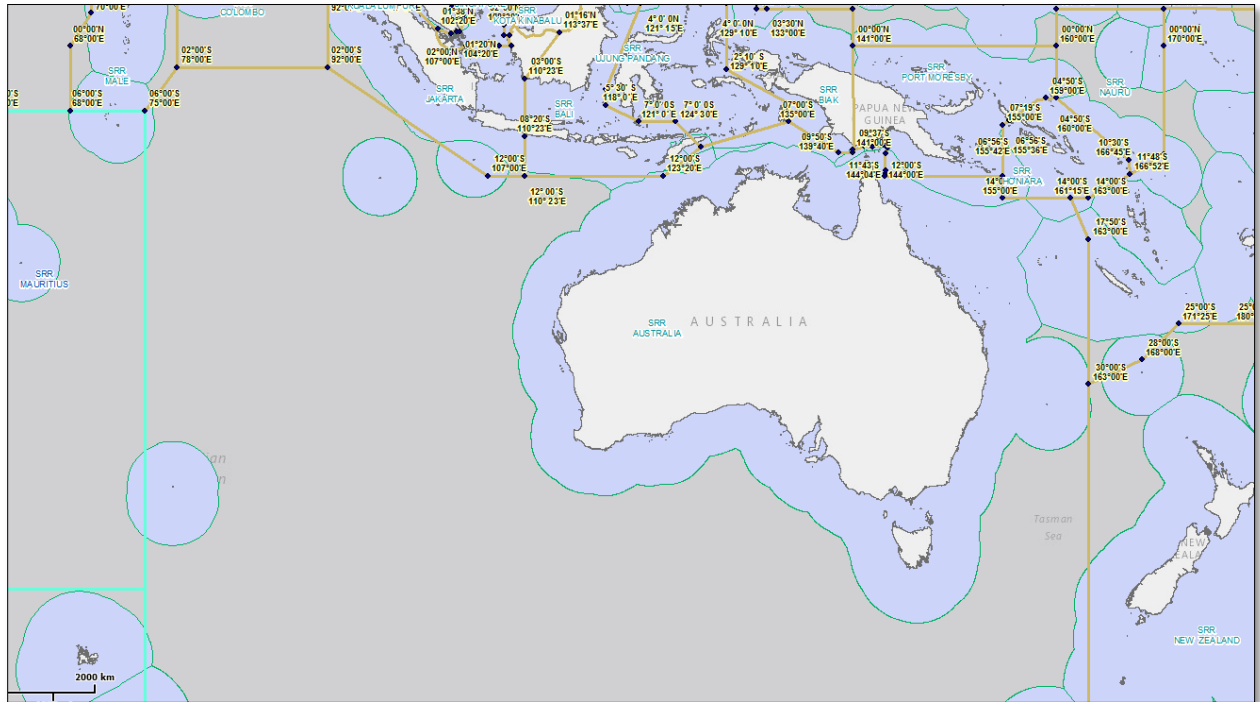
<b>8. ASBU B0-SAR: Performance Monitoring and Measurement</b>	
<b>8A. ASBU B0-SAR: Implementation Monitoring</b>	
<b>Elements</b>	<b>Performance Indicators/Supporting Metrics</b>
SAR Regulatory and Coordination Mechanisms	Indicators: Percentage of States implementing SAR regulatory and coordination mechanisms Supporting metric: Number of States implementing SAR regulatory and coordination mechanisms
SAR Facilities and Assets	Indicators: Percentage of States establishing SAR facilities and assets Supporting metric: Number of States establishing SAR facilities and assets
SAR Information	Indicators: Percentage of States implementing SAR information systems Supporting metric: Number of States implementing SAR information systems
SAR Improvement	Indicators: Percentage of States implementing SAR improvement programmes Supporting metric: Number of States implementing SAR improvement programmes



<b>ASBU B0-SAR: Performance Monitoring and Measurement</b>	
<b>8 B. ASBU B0-SAR: Performance Monitoring</b>	
<b>Key Performance Areas</b>	<b>Metrics ( if not indicate qualitative benefits)</b>
Access & Equity	NA
Capacity	NA
Efficiency	Benefit: enhanced sharing of SRUs and information leading to more efficient responses that involve less time searching.
Environment	Benefit: reduced emissions as a result of reduced fuel burn of airborne, maritime and land based SRUs.
Safety	Benefit: quicker response times to safety of life events, with better information providing SAR Mission Coordinators the opportunity to better match the SRU with the emergency requirement. Improved civil/military cooperation.

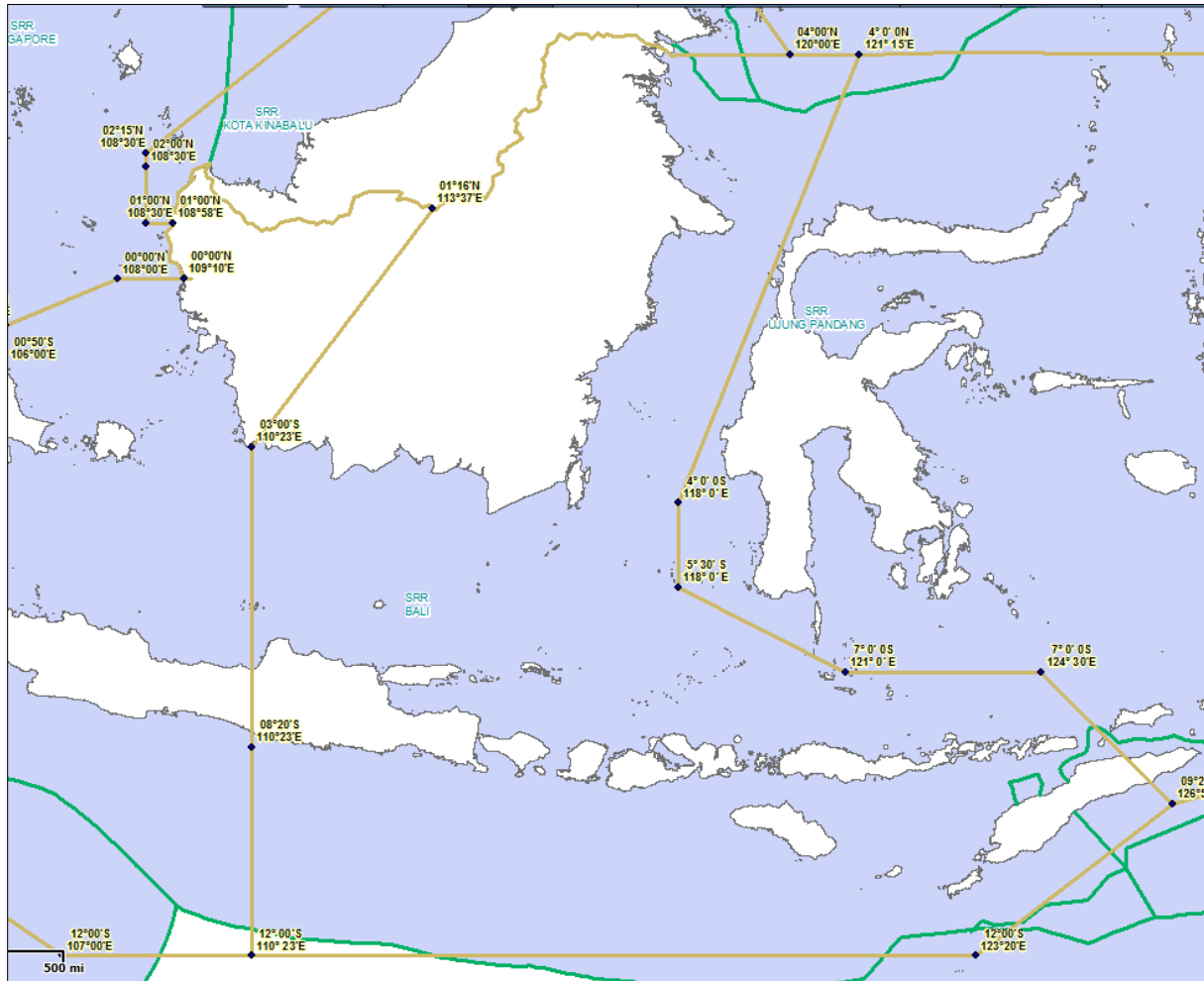
DRAFT

# Australia SRR





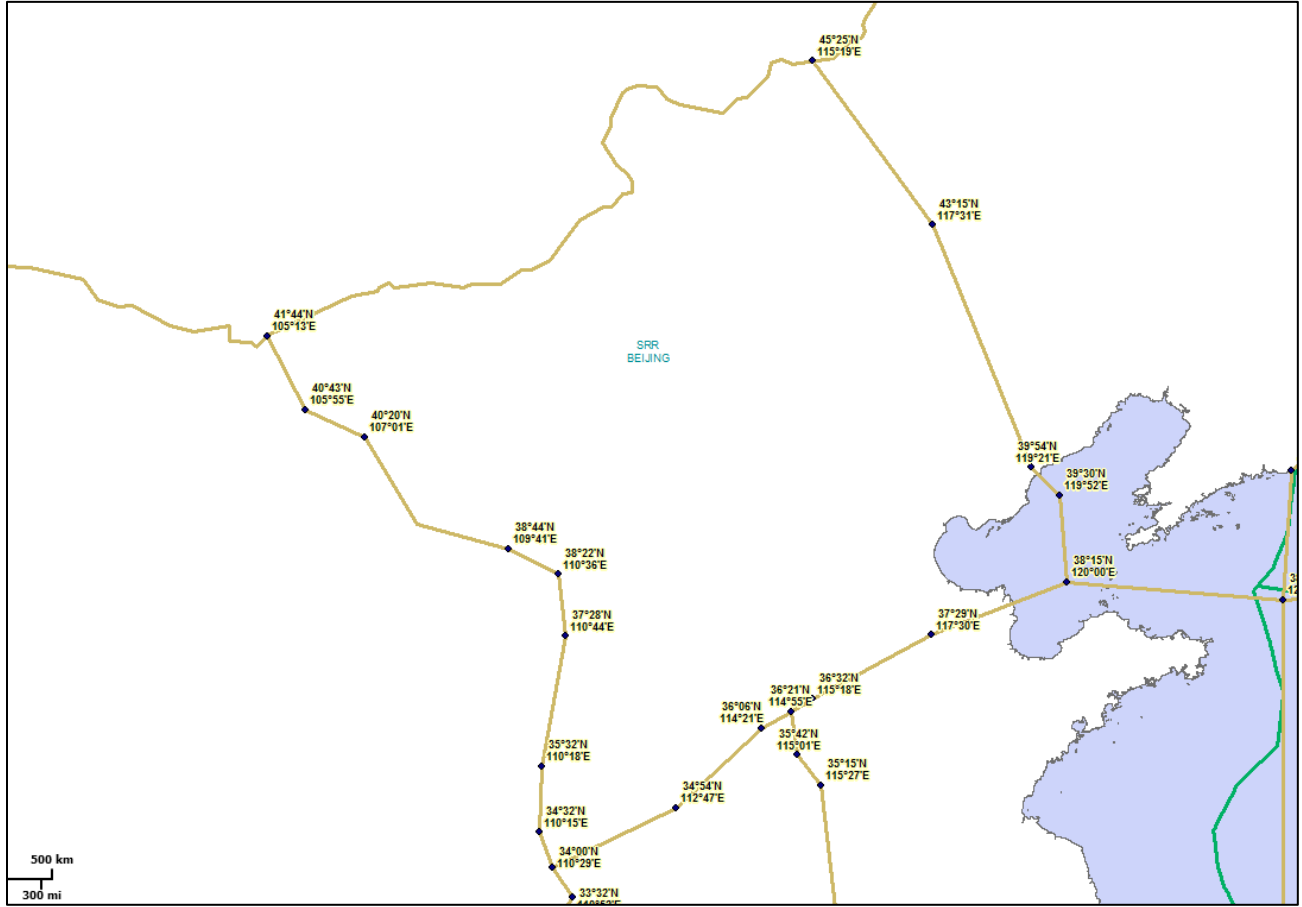
## Bali SRR



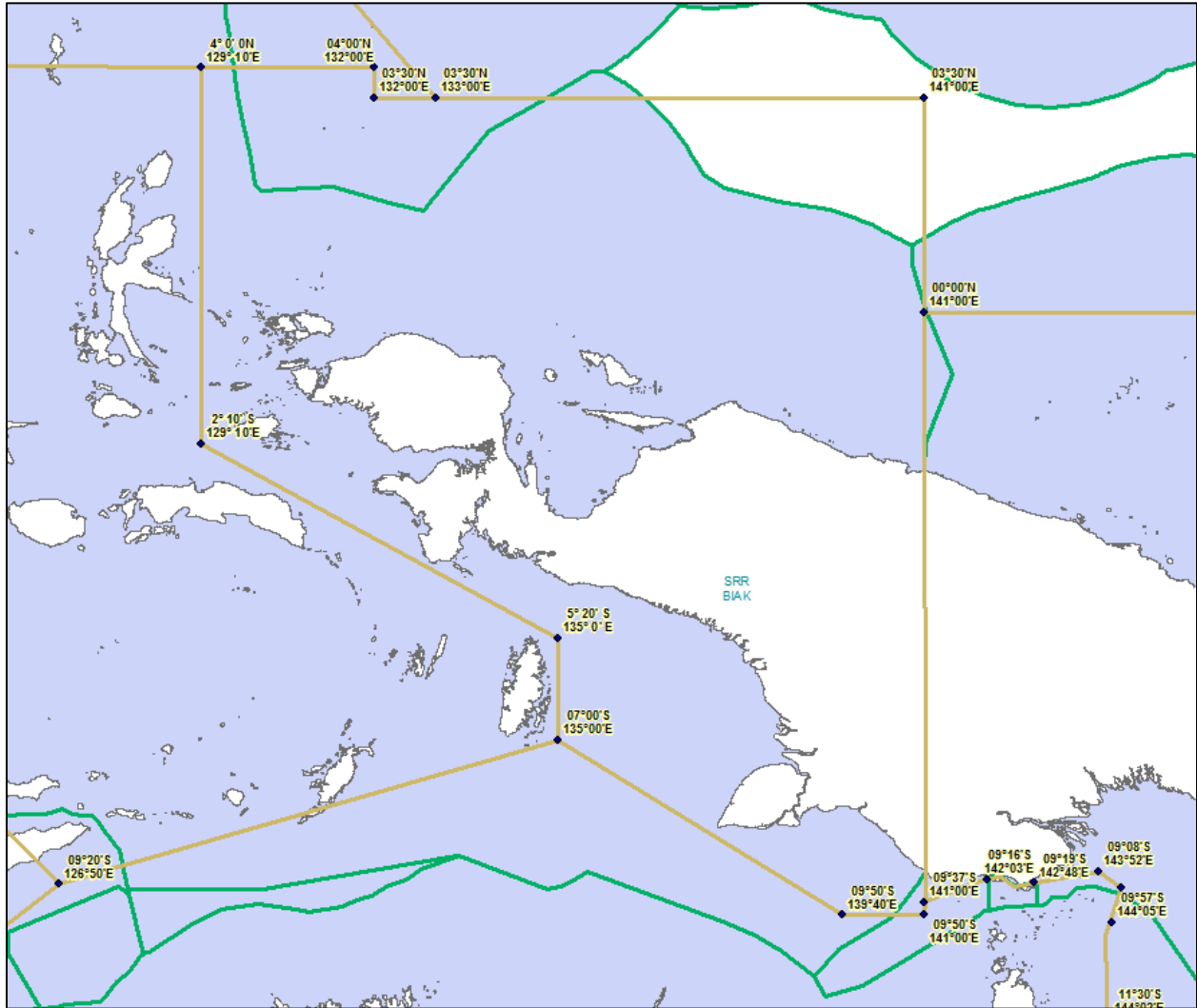
### Note:

- Refer to Asia/Pac FASID, VII – SAR 1-4, the SRR name should be Balikpapan
- Including Surabaya

# Beijing SRR



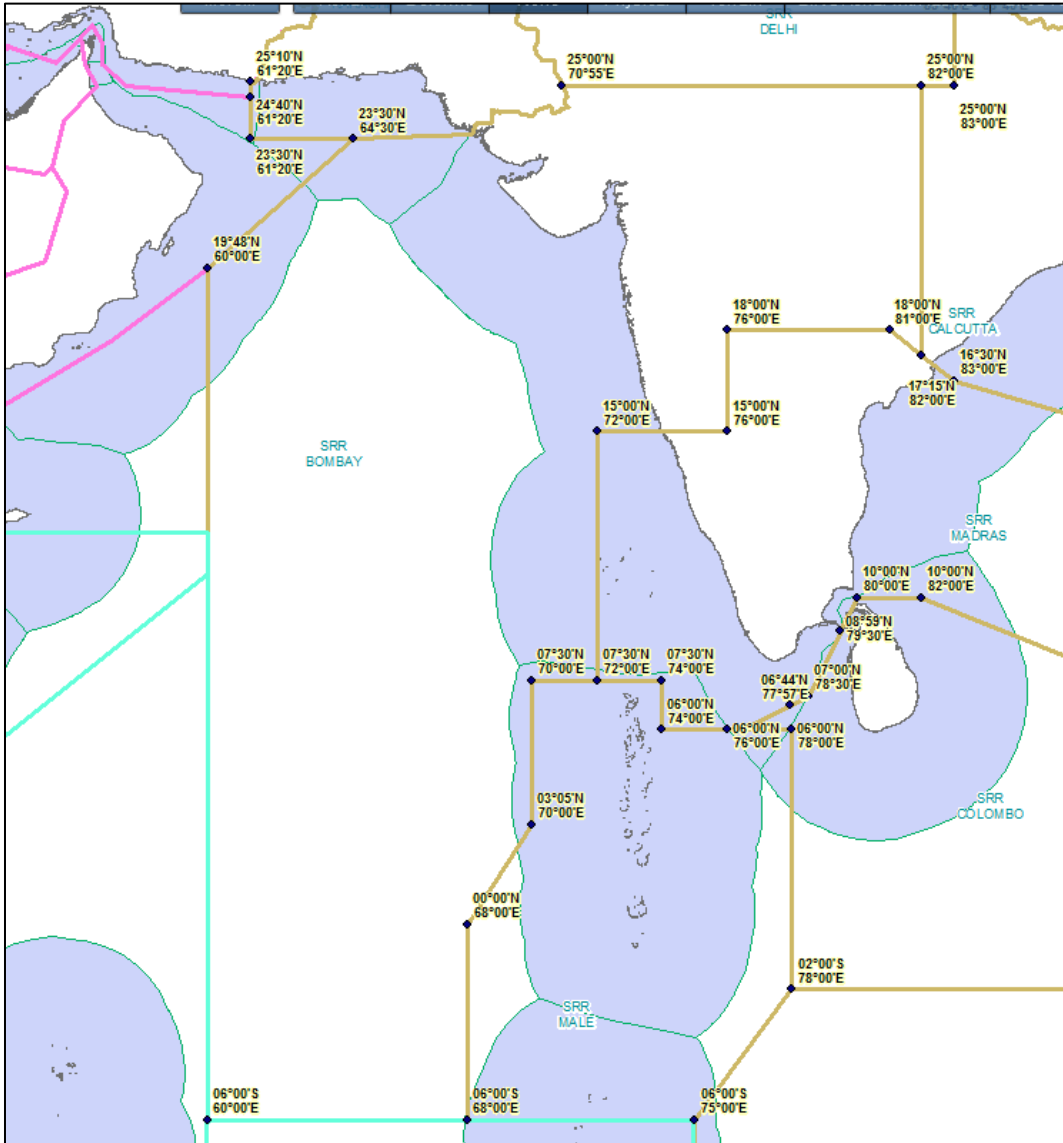
# Biak SRR



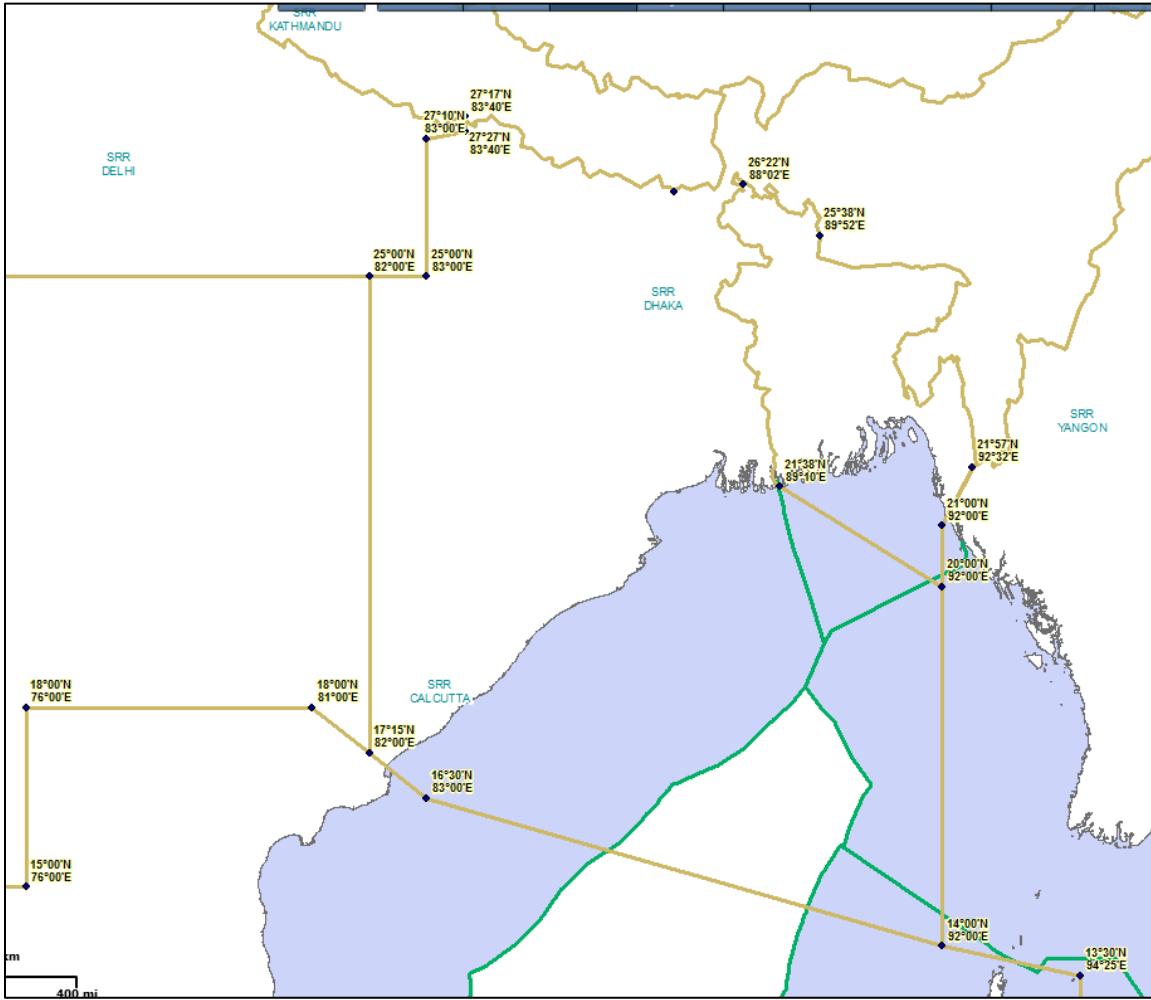
# Bangkok SRR



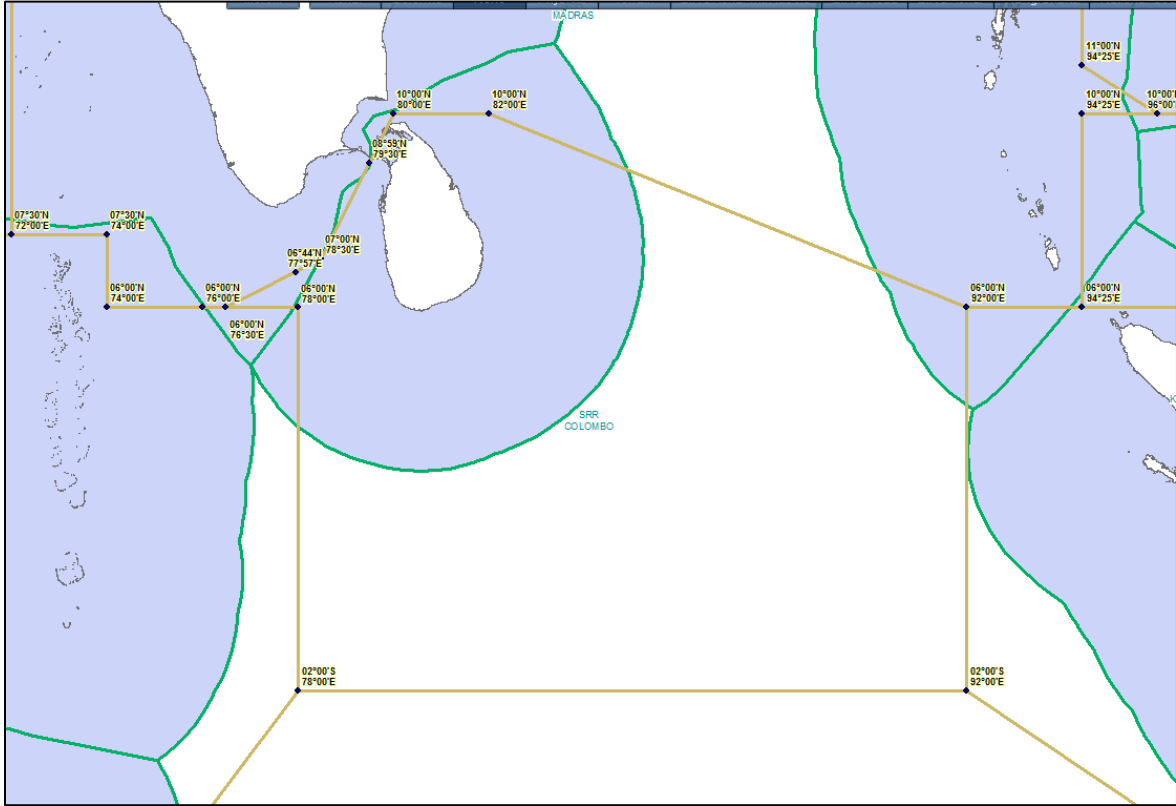
# Bombay SRR



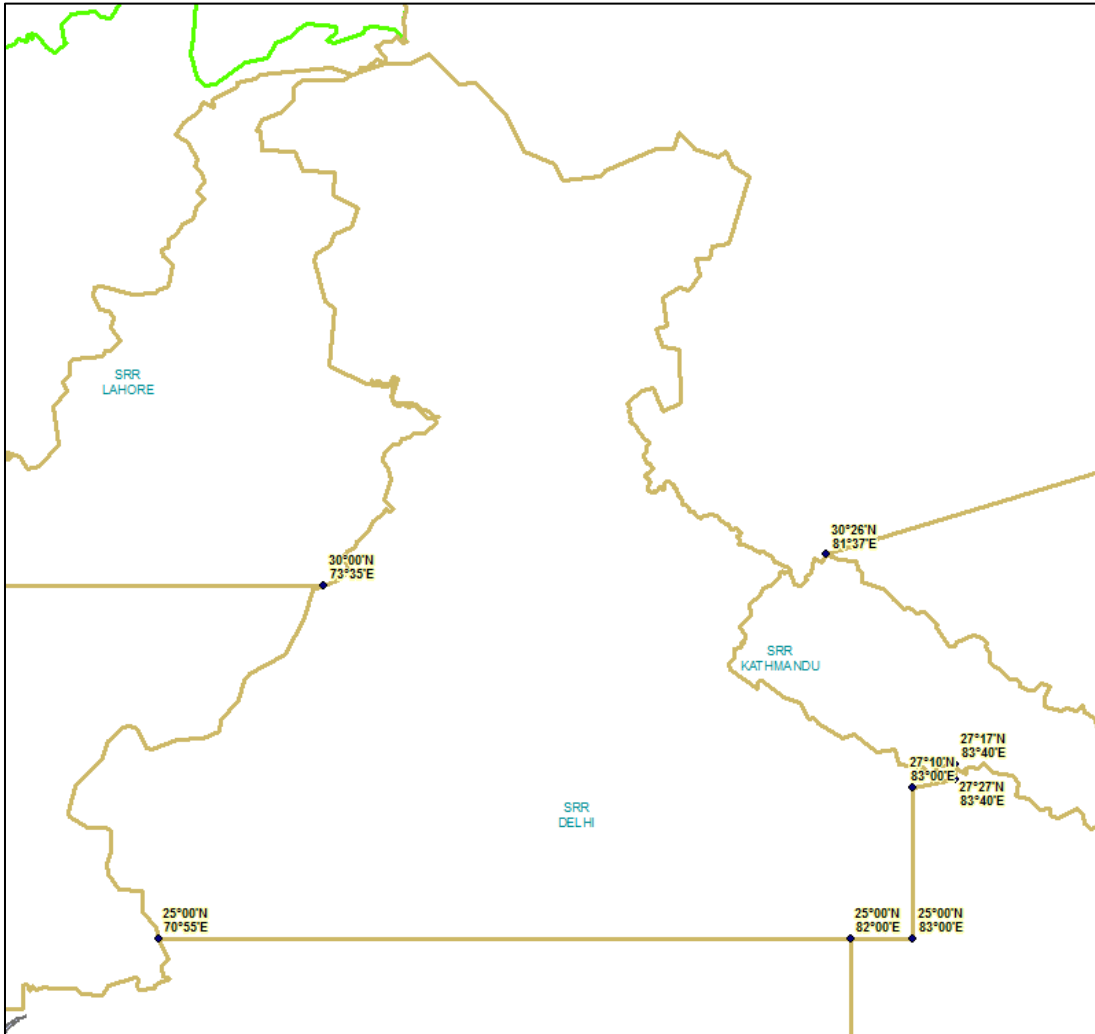
# Calcutta SRR



# Colombo SRR

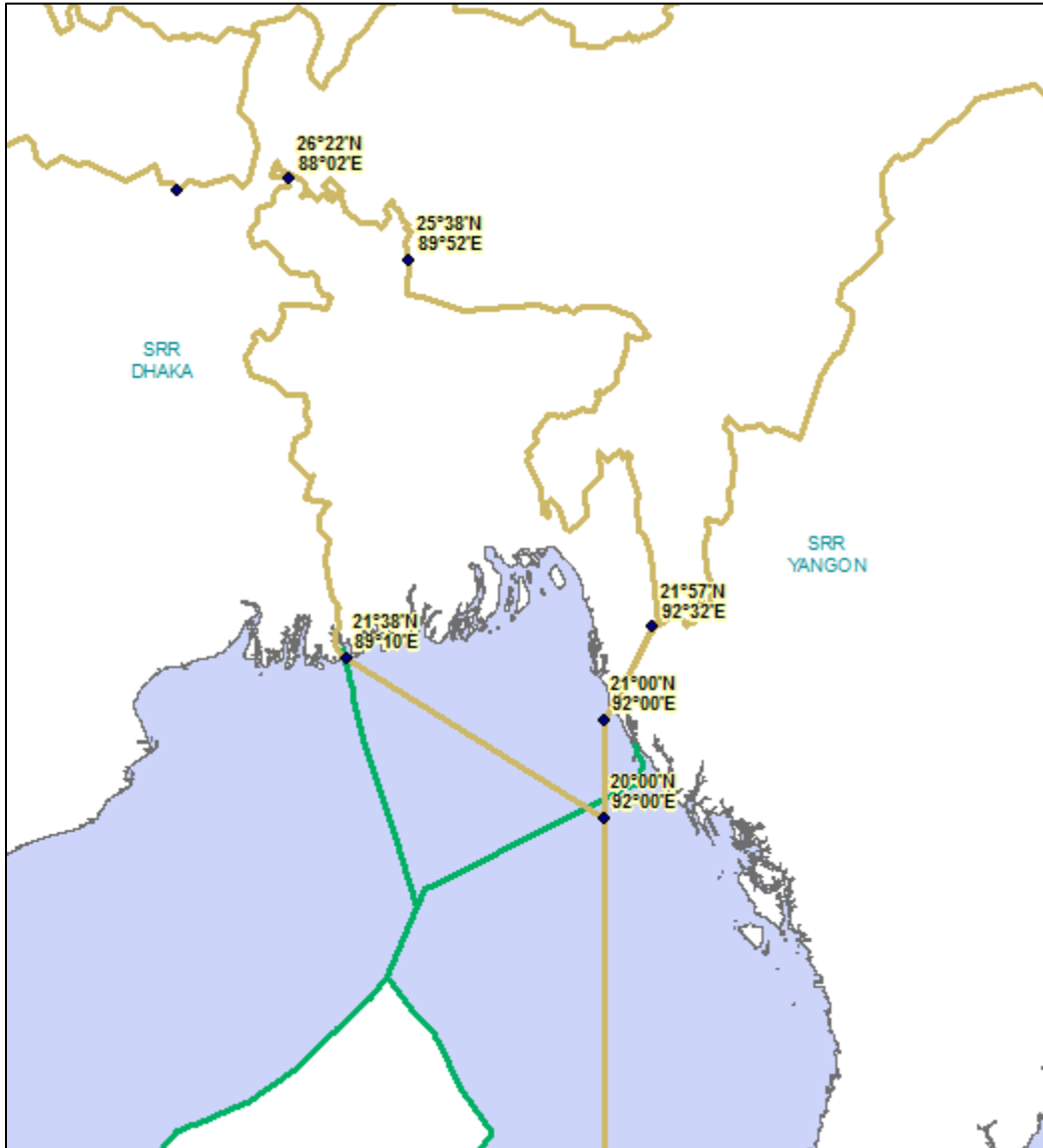


# Delhi SRR

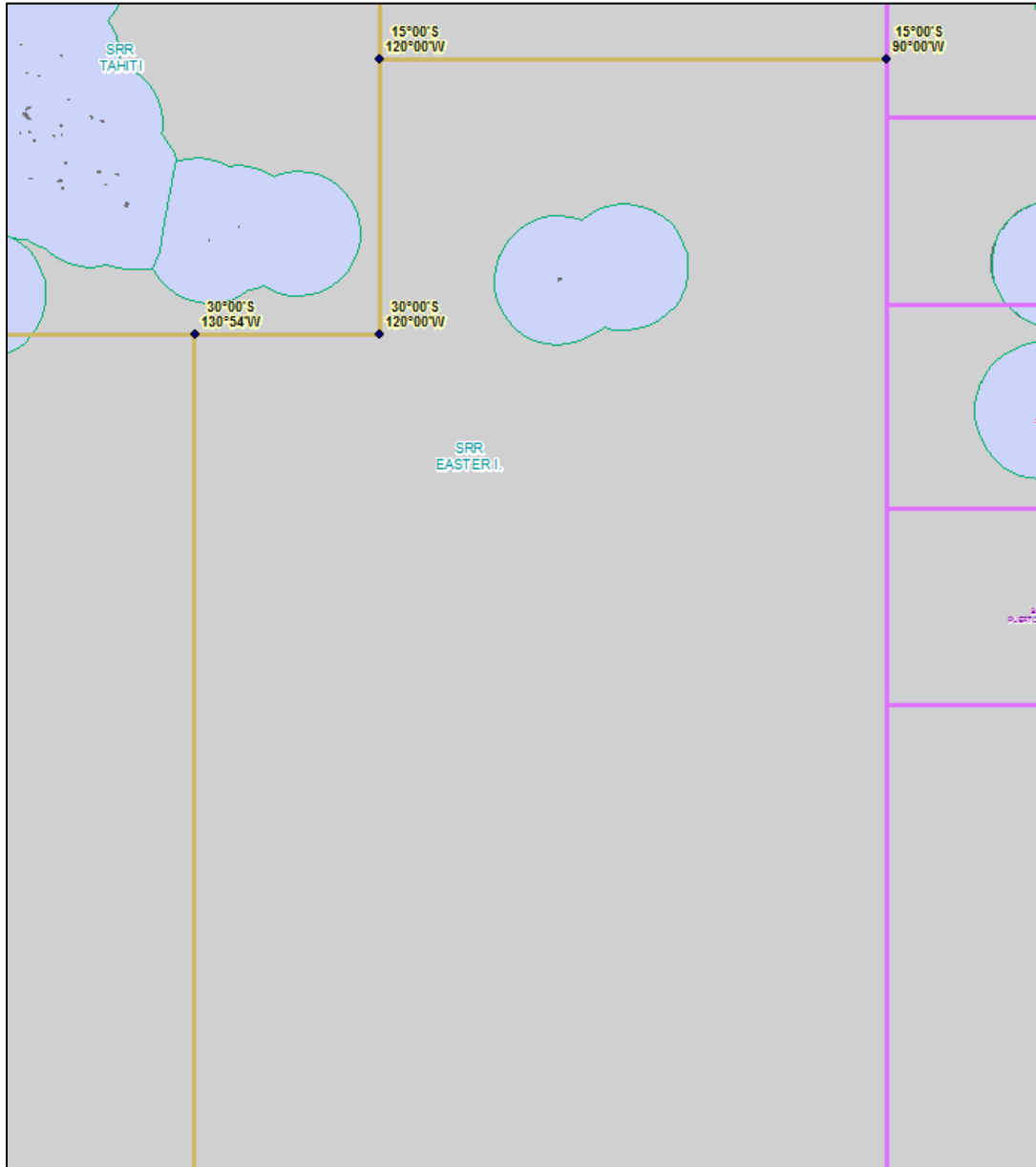




# Dhaka SRR



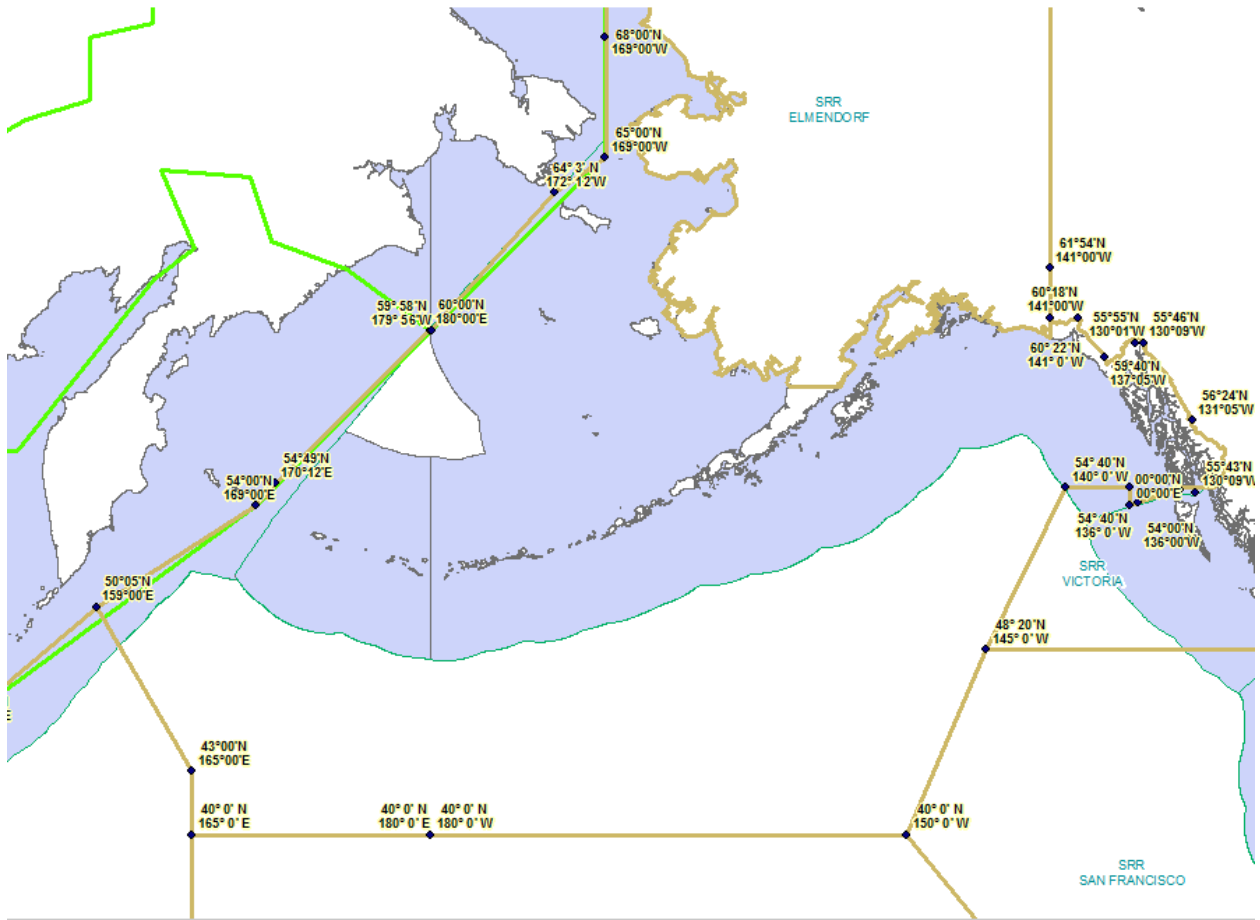
## Easter Island SRR



**Note:**

- The Easter Island Information move to CAR/SAM office by PfA in 2013

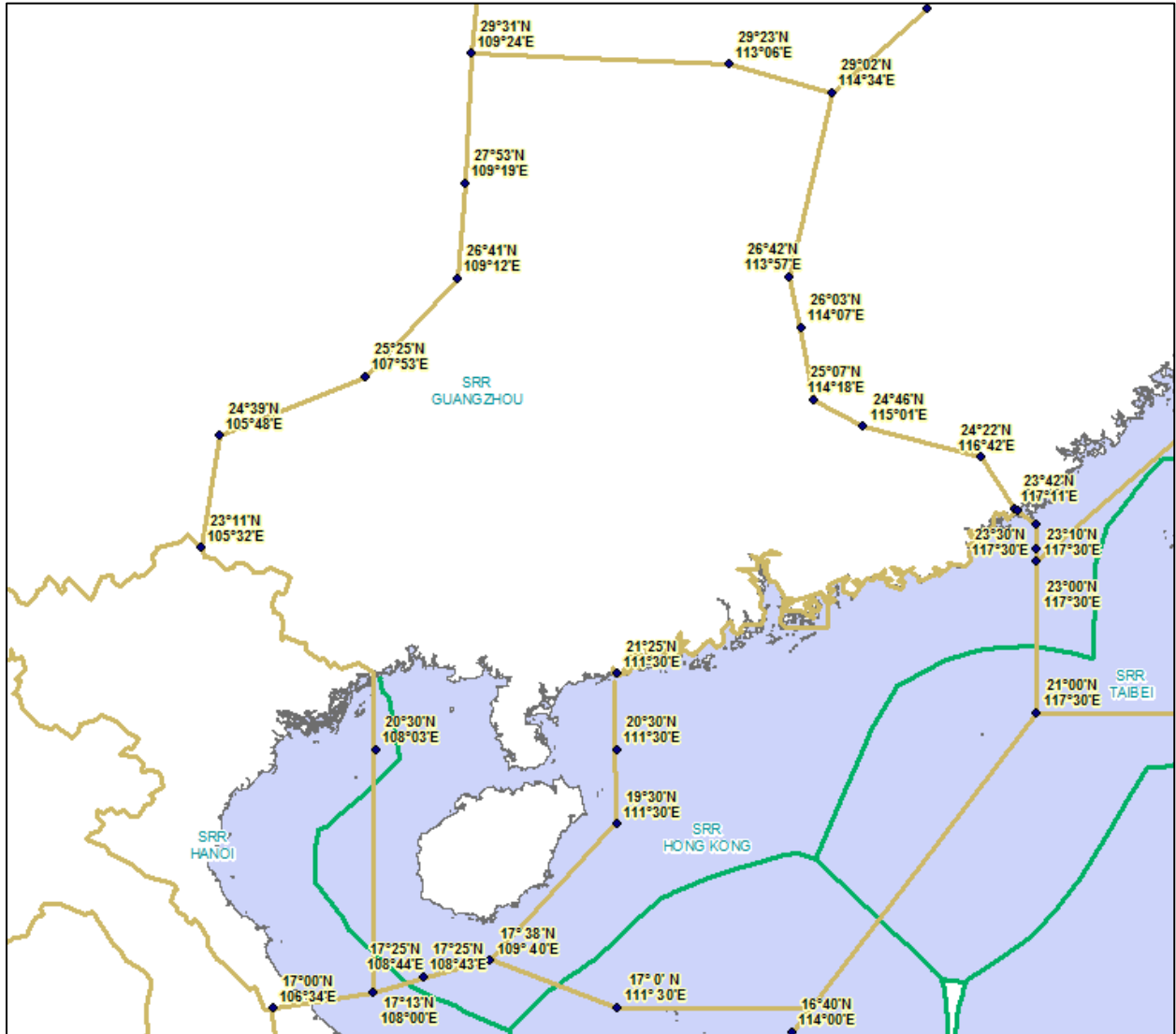
# Elmendorf SRR



Note:

- Elmendorf SRR is in Asia/Pac FASID page VII – SAR 1-6

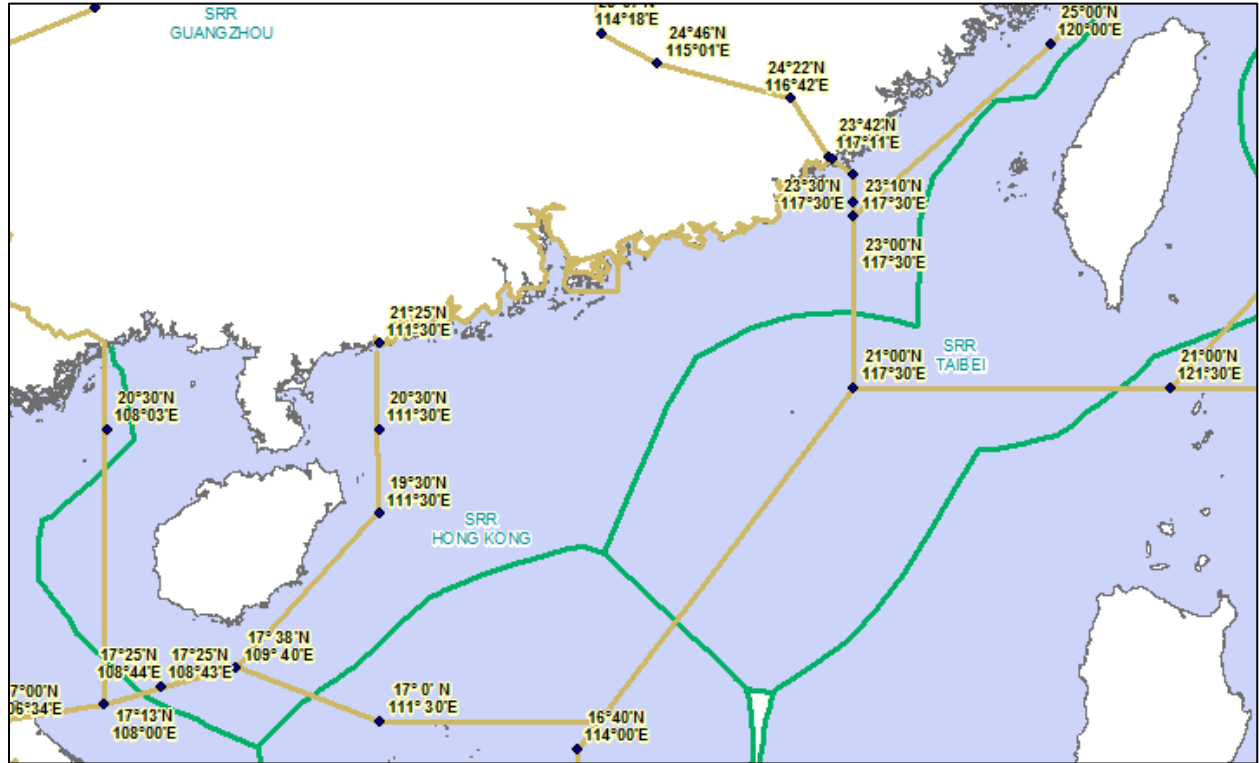
# Guangzhou SRR



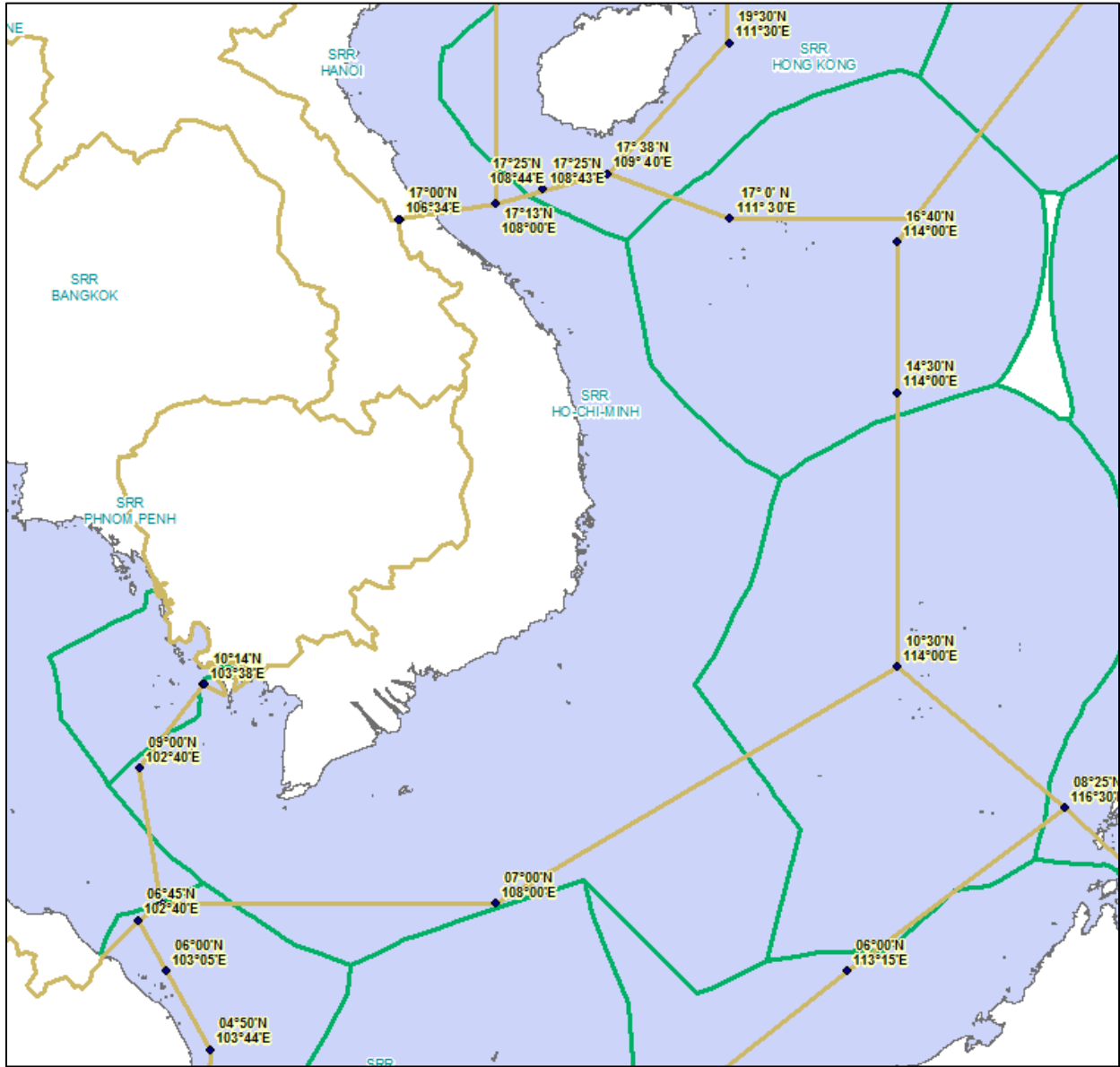
# Hanoi SRR



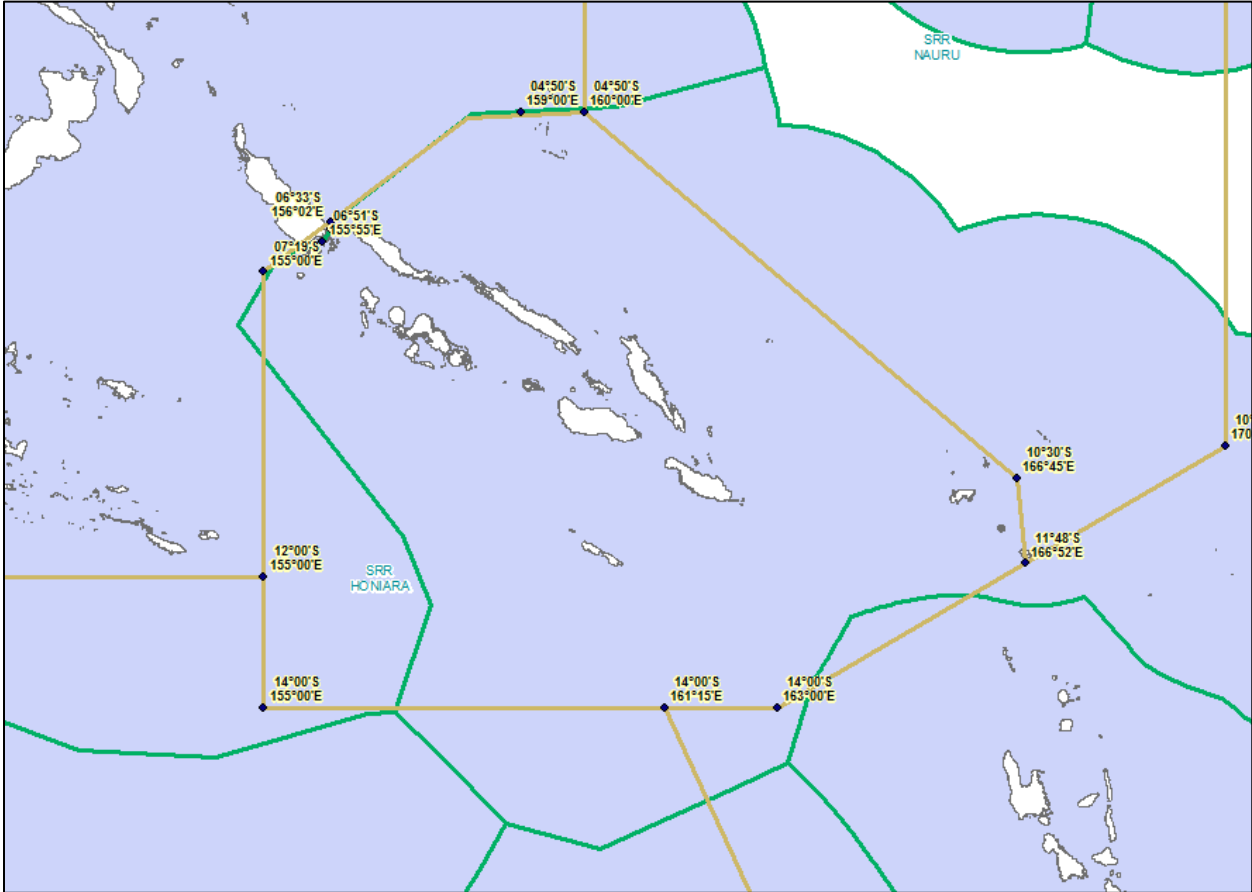
# Hong Kong SRR



# Ho-Chi-Minh SRR

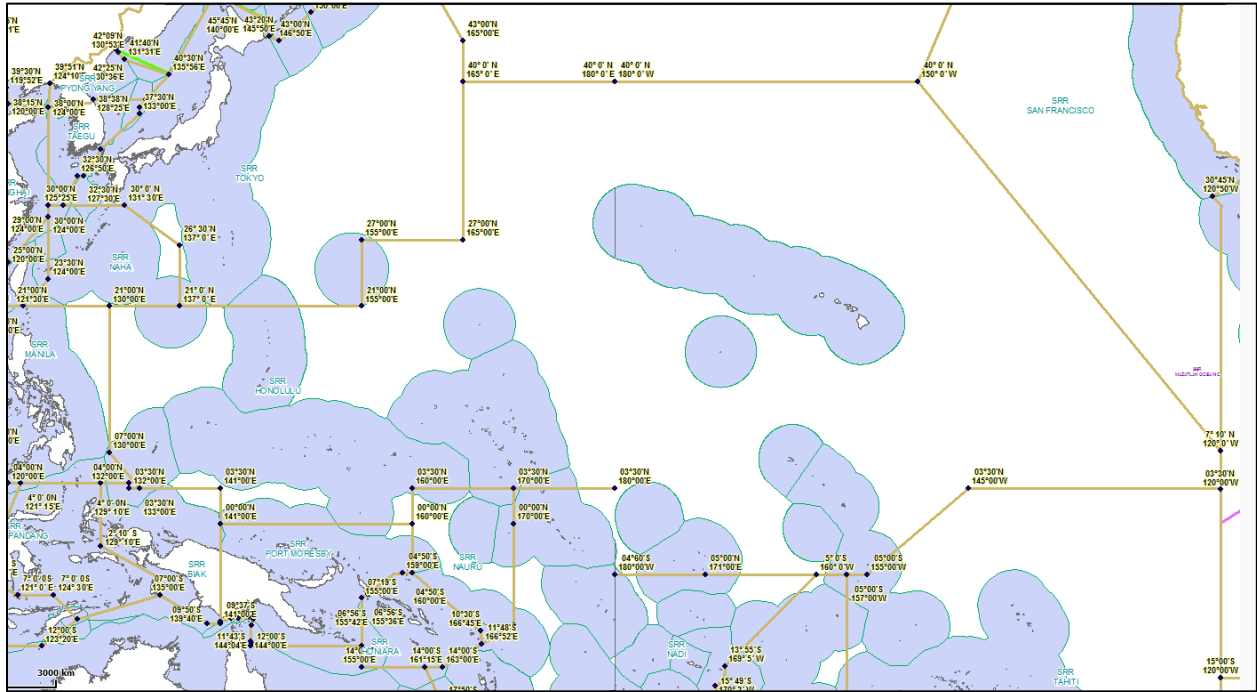


Honiara SRR





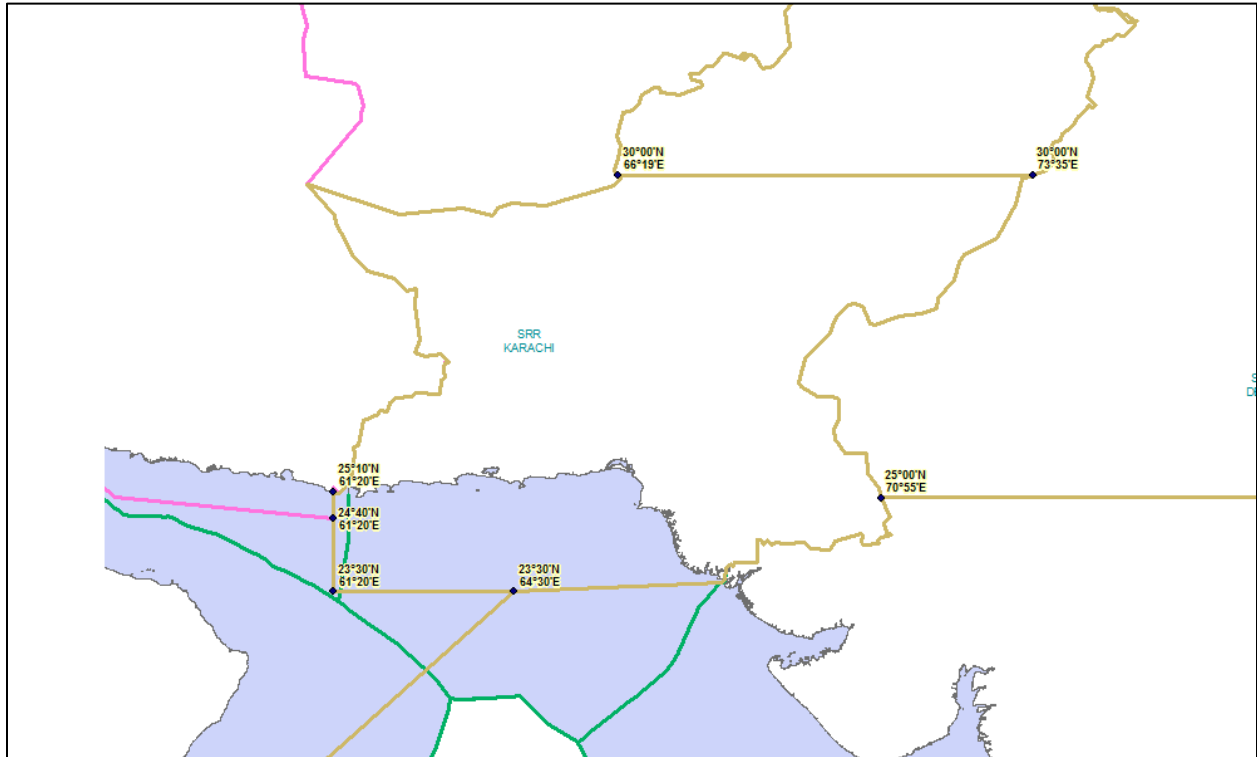
# Honolulu SRR



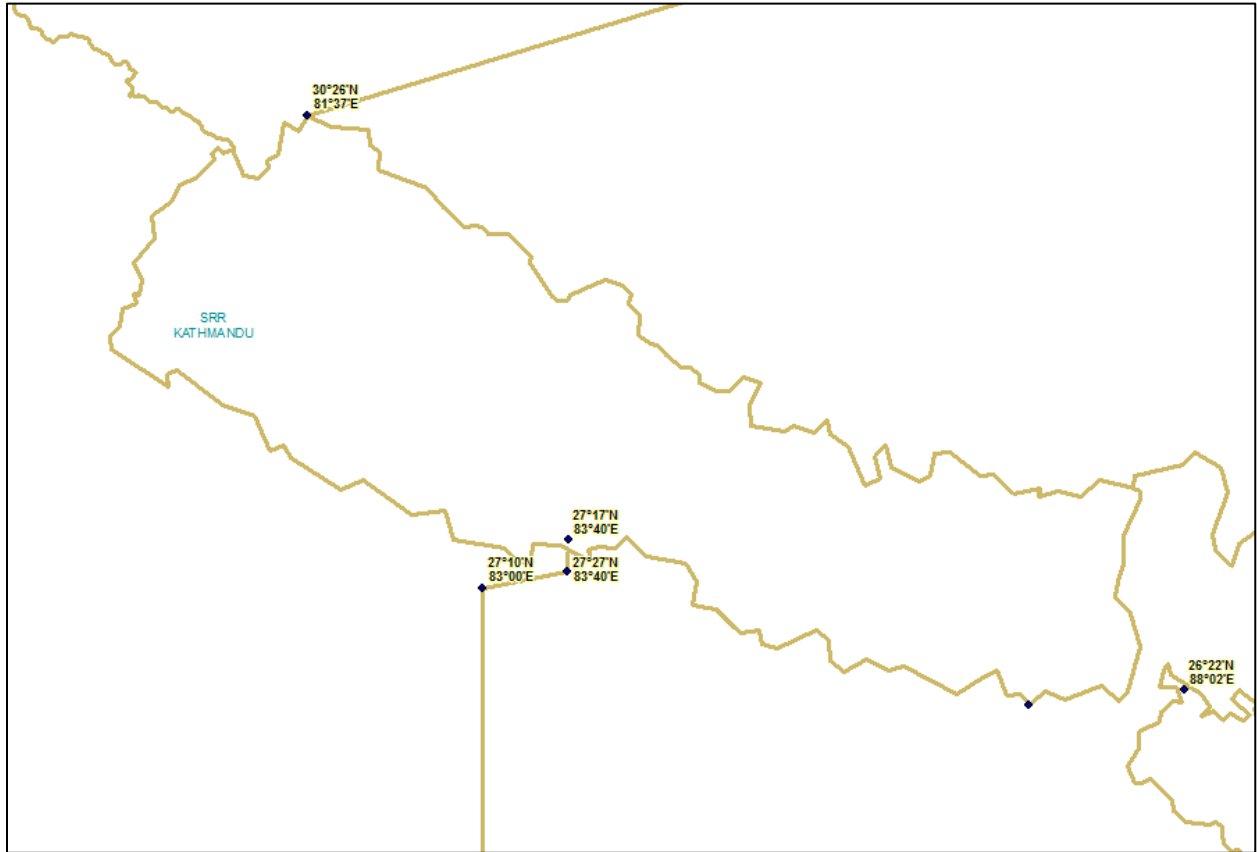
## Note

- Honolulu SRR is in Asia/Pac FASID page VII-SAR 1-6

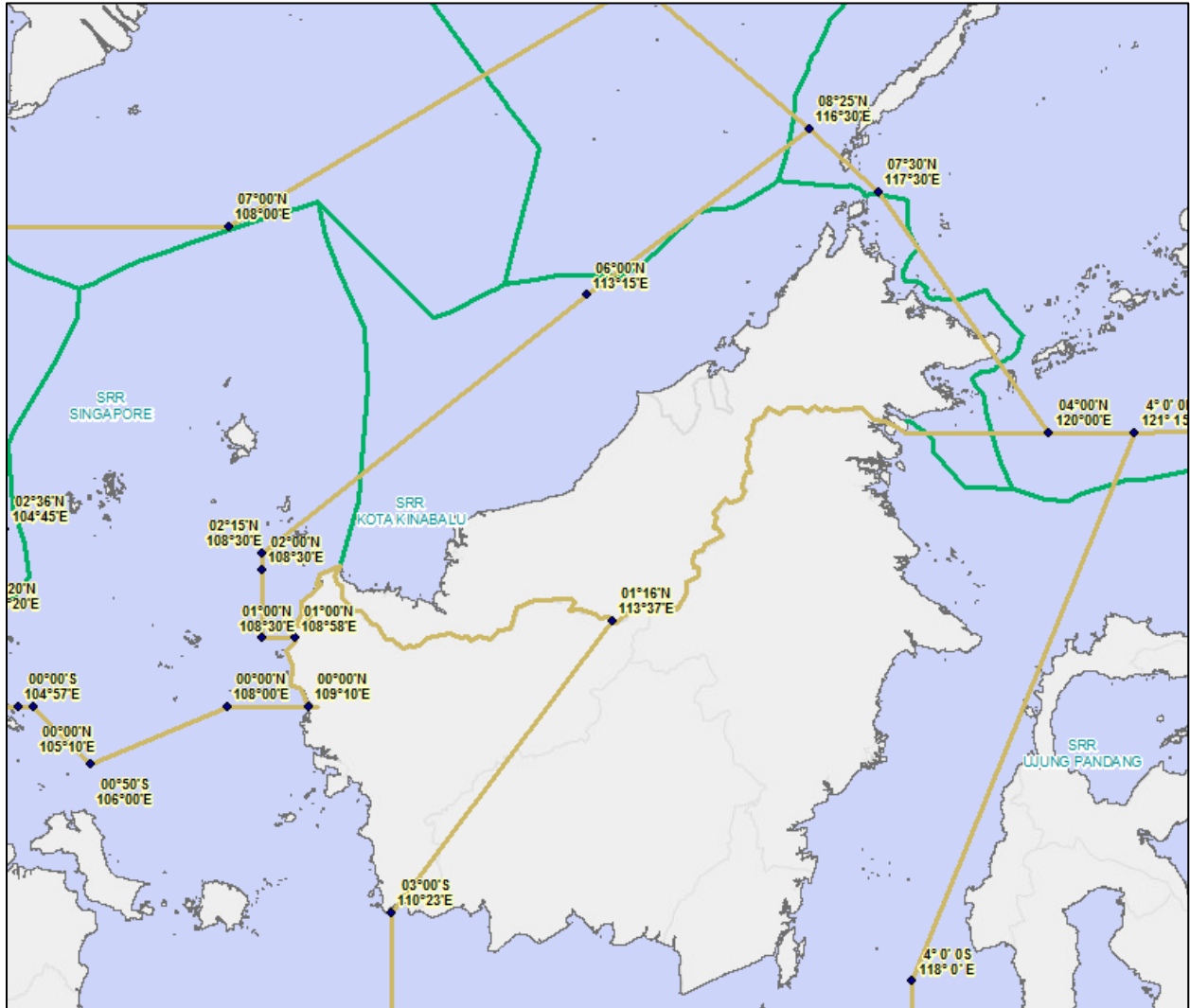
# Karachi SRR



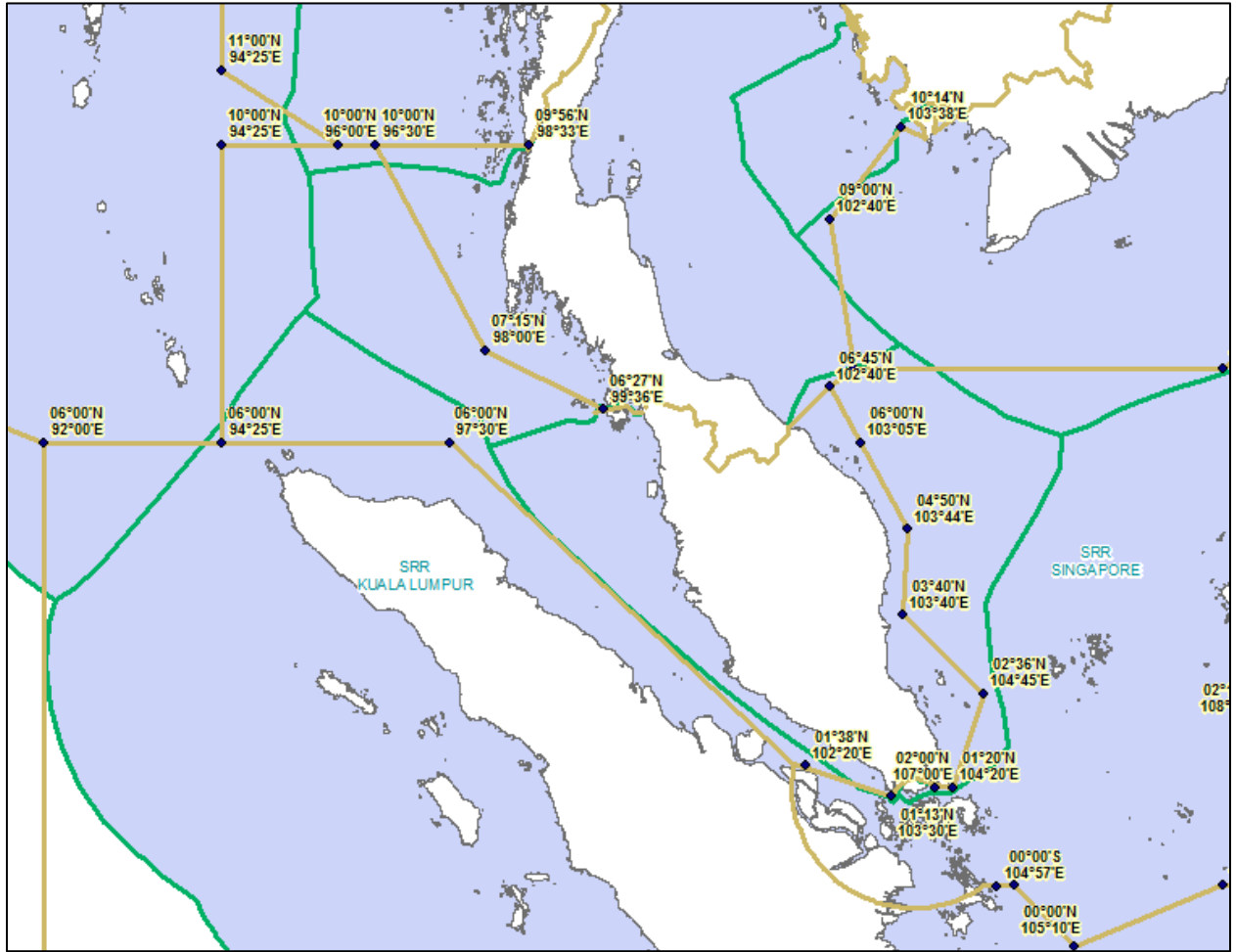
# Kathmandu SRR



# Kota Kinabalu SRR

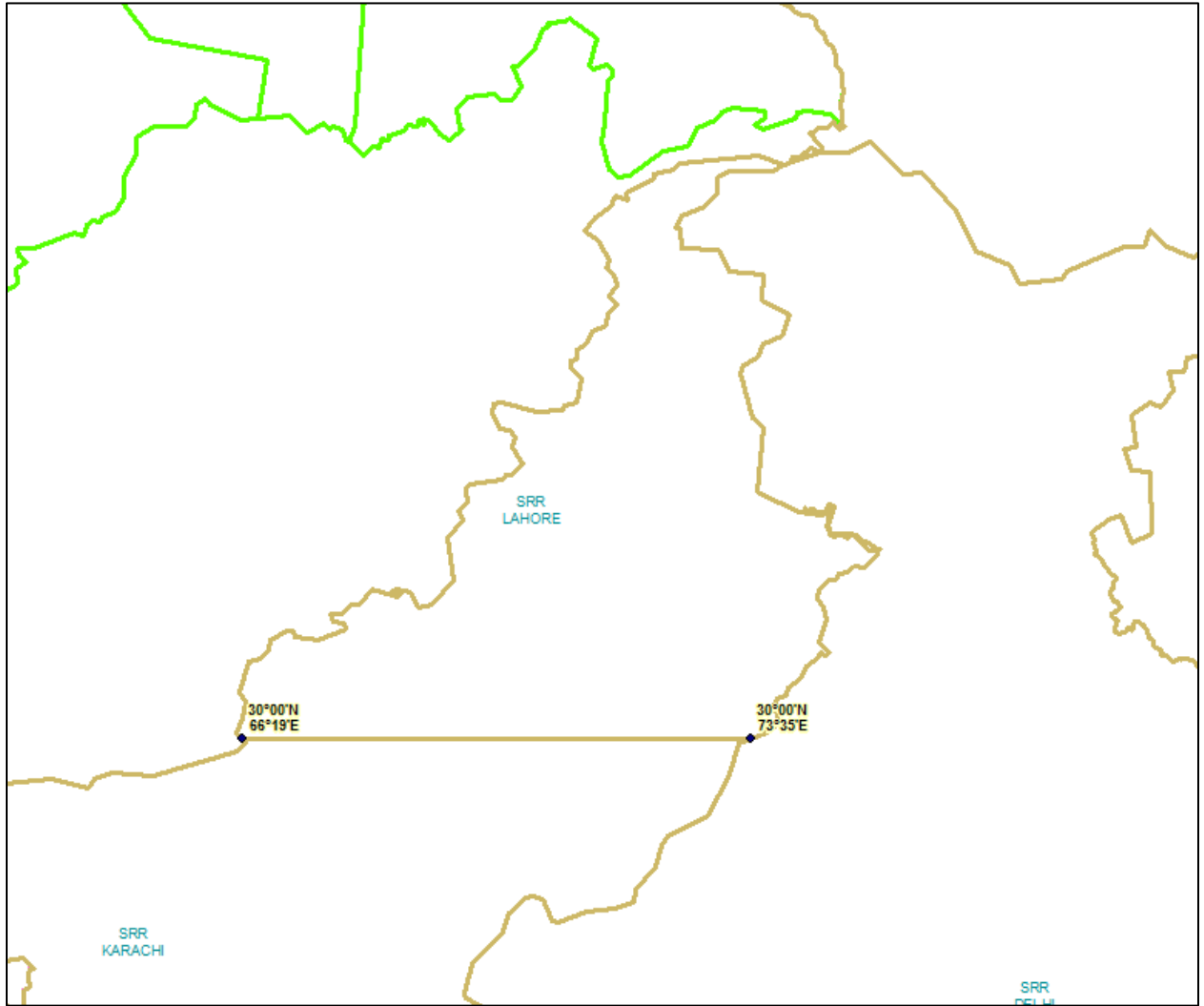


# Kuala Lumpur SRR

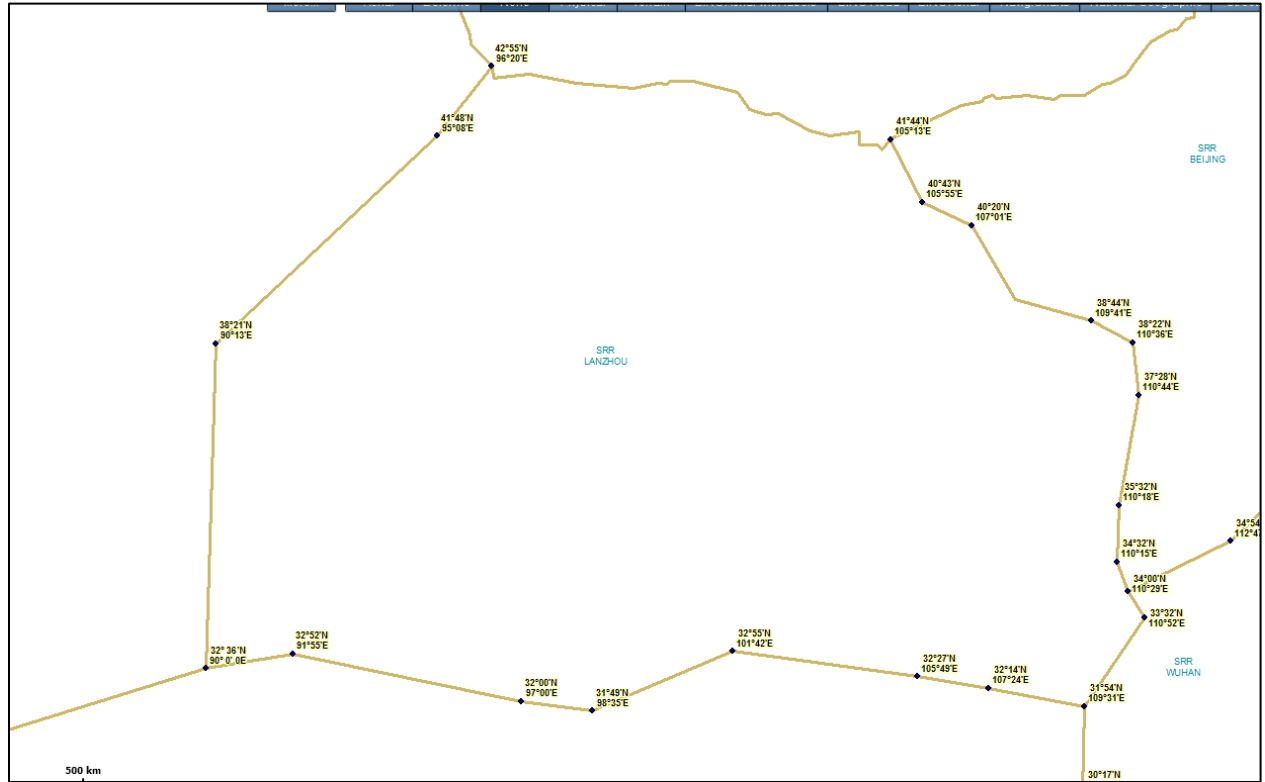




# Lahore SRR

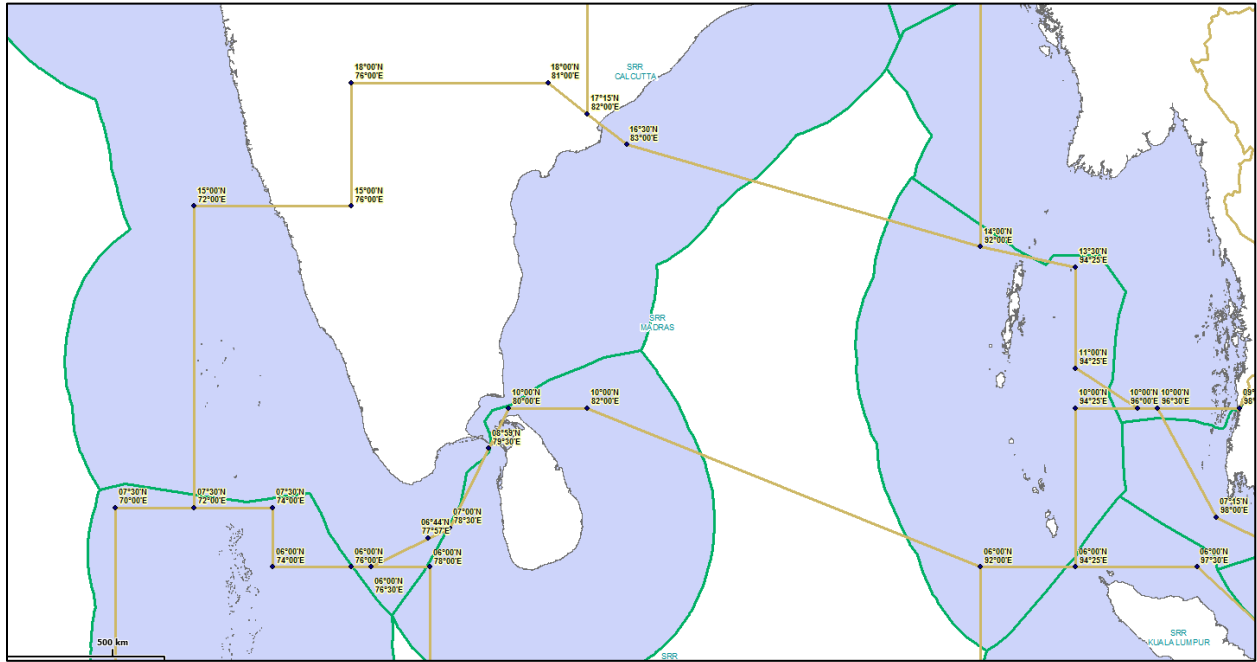


# Lanzhou SRR

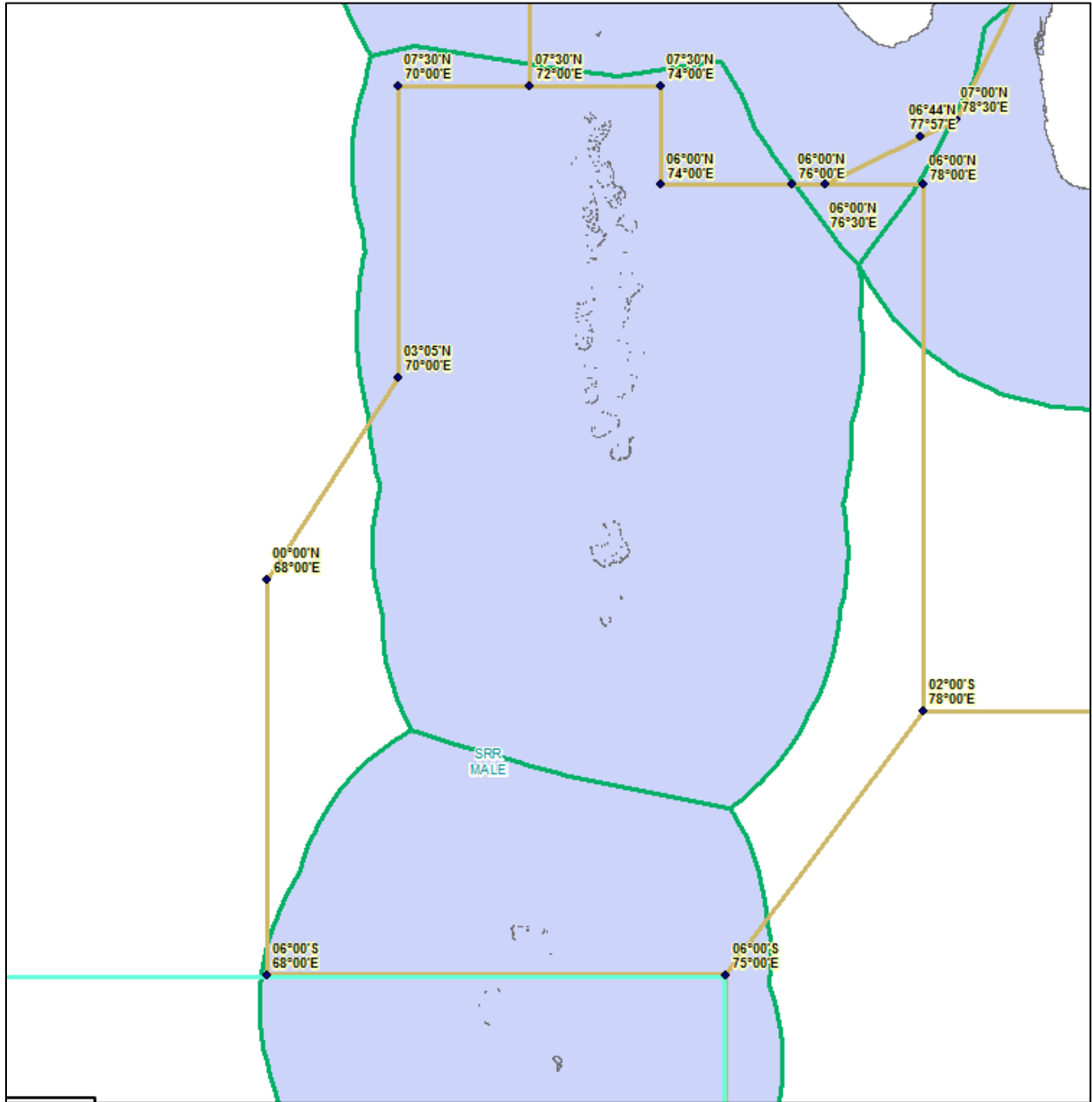




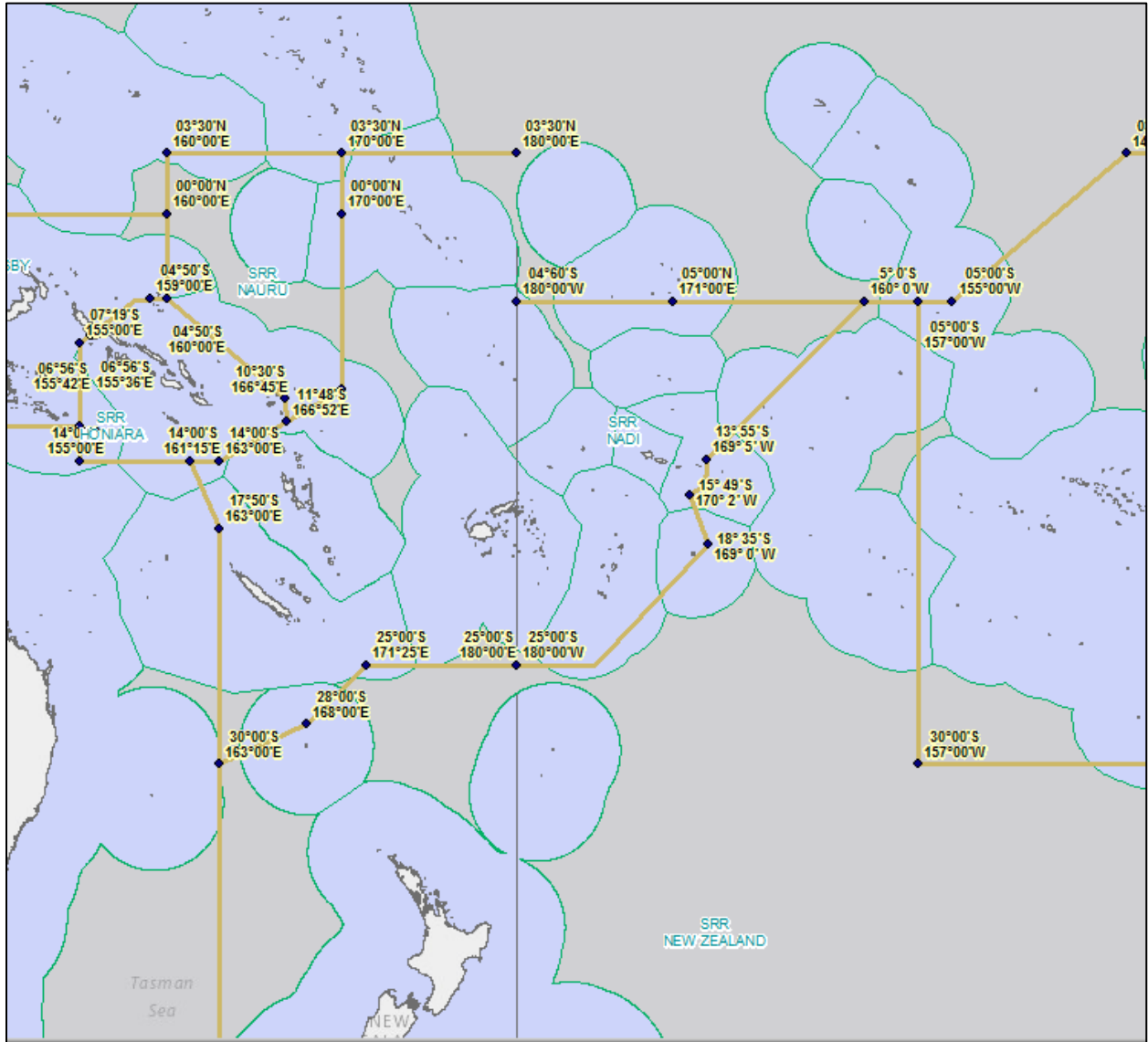
# Madras SRR



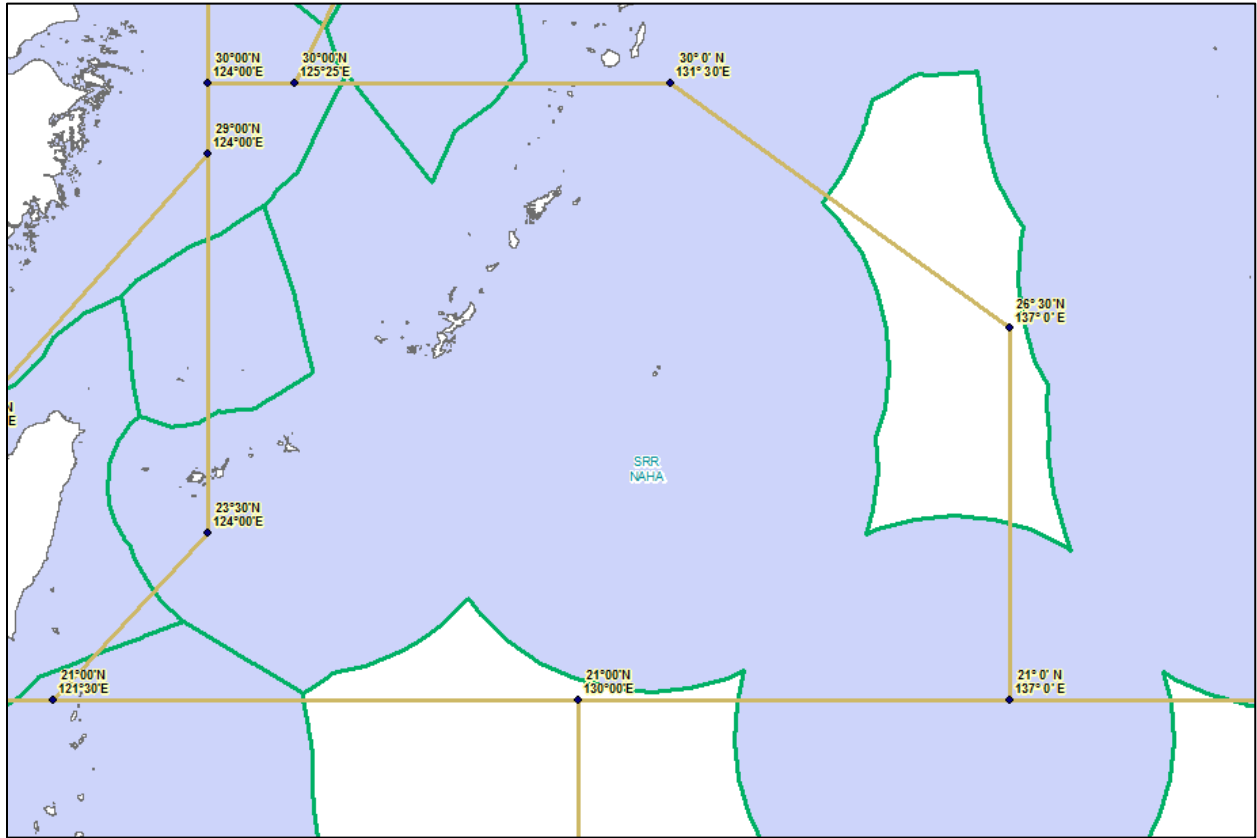
Male SRR



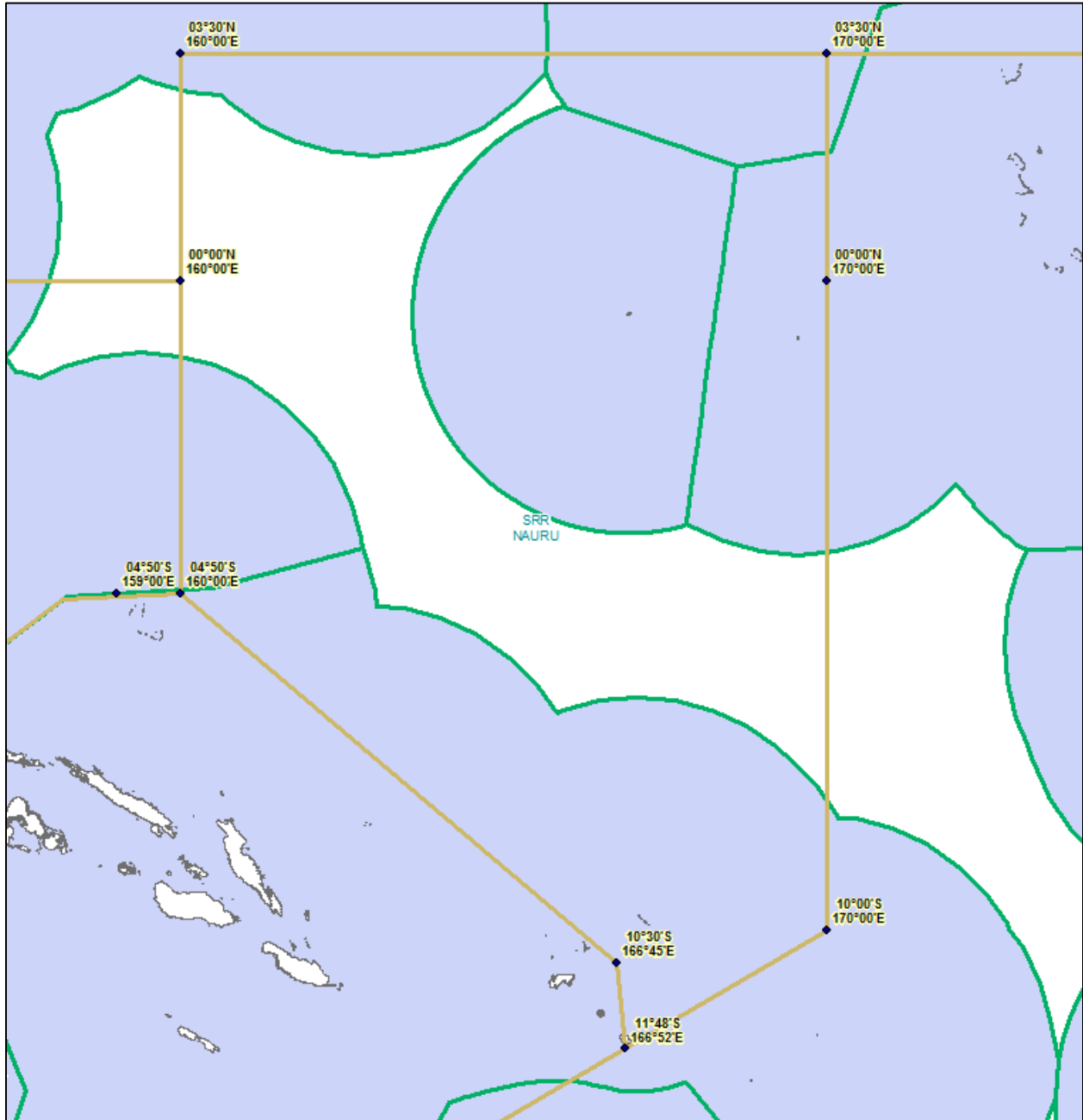
# Nadi SRR



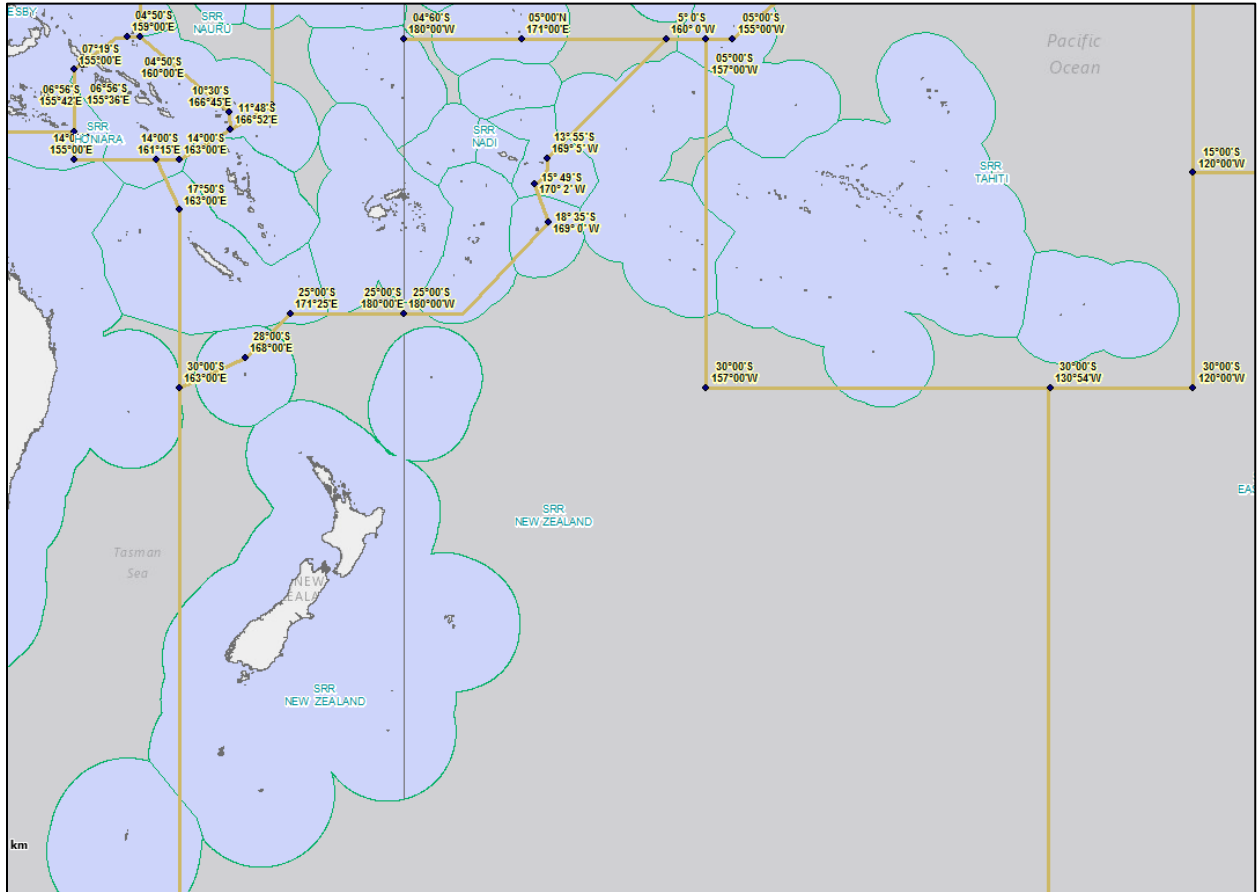
# Naha SRR



# Nauru SRR

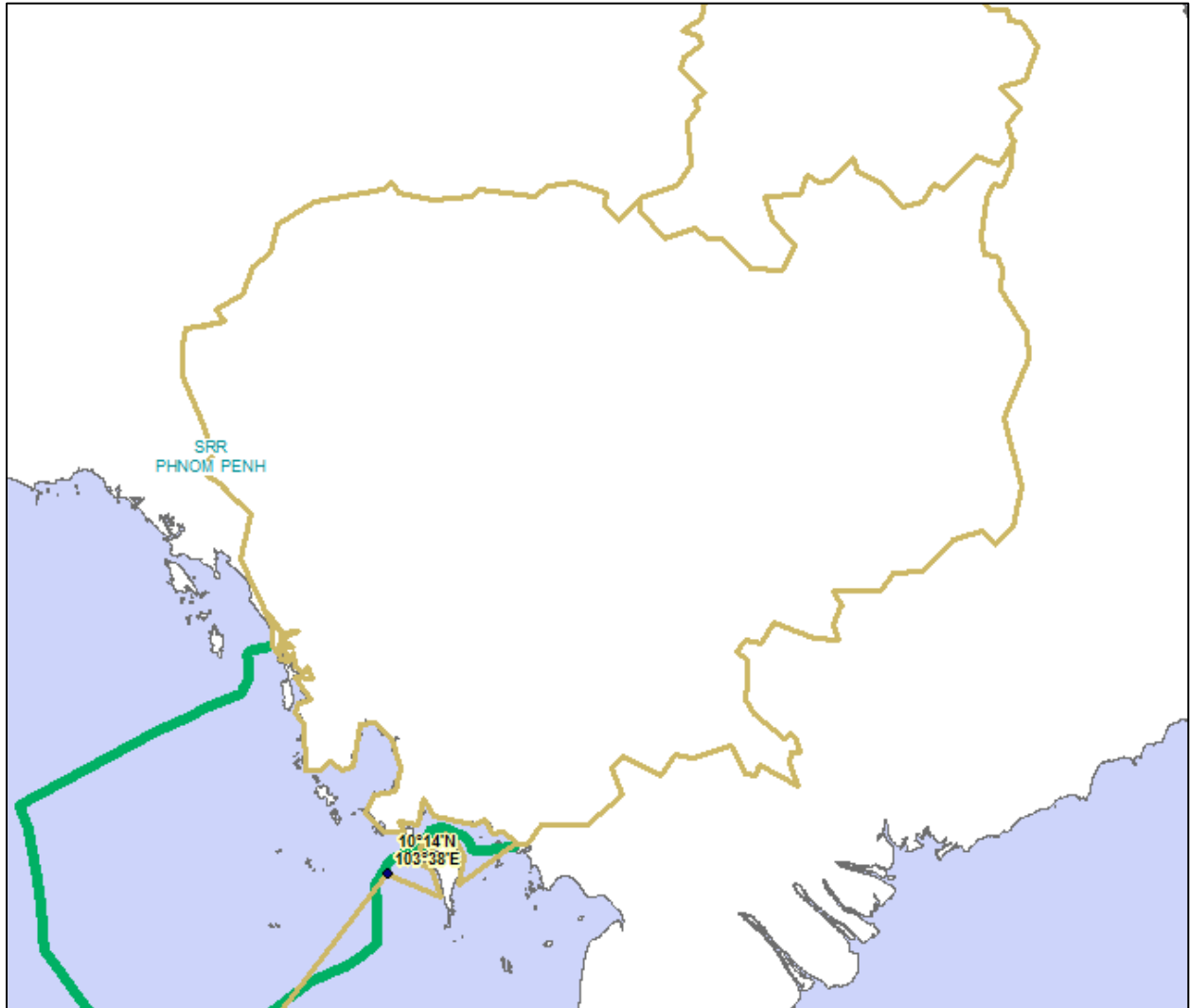


# New Zealand SRR

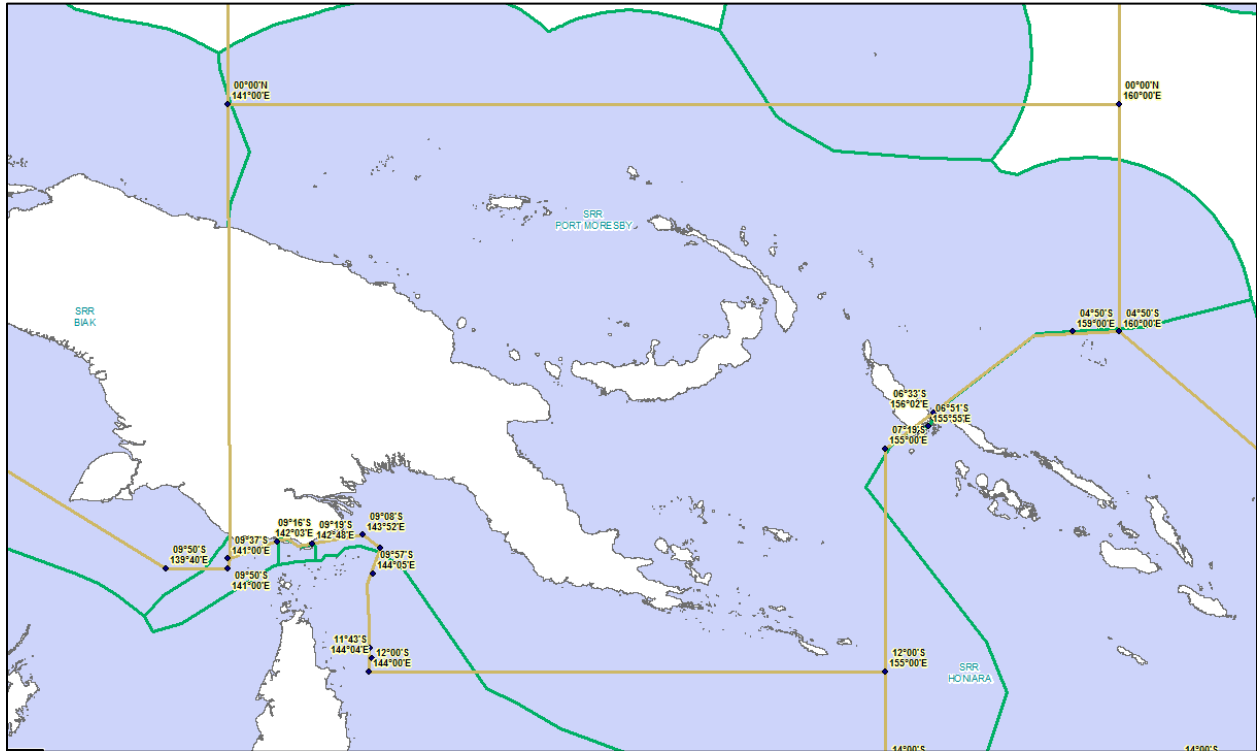


- Refer to Asia/Pac FASID, VII – SAR 1-5, the RCC name is Wellington RCC

Phnom Penh SRR

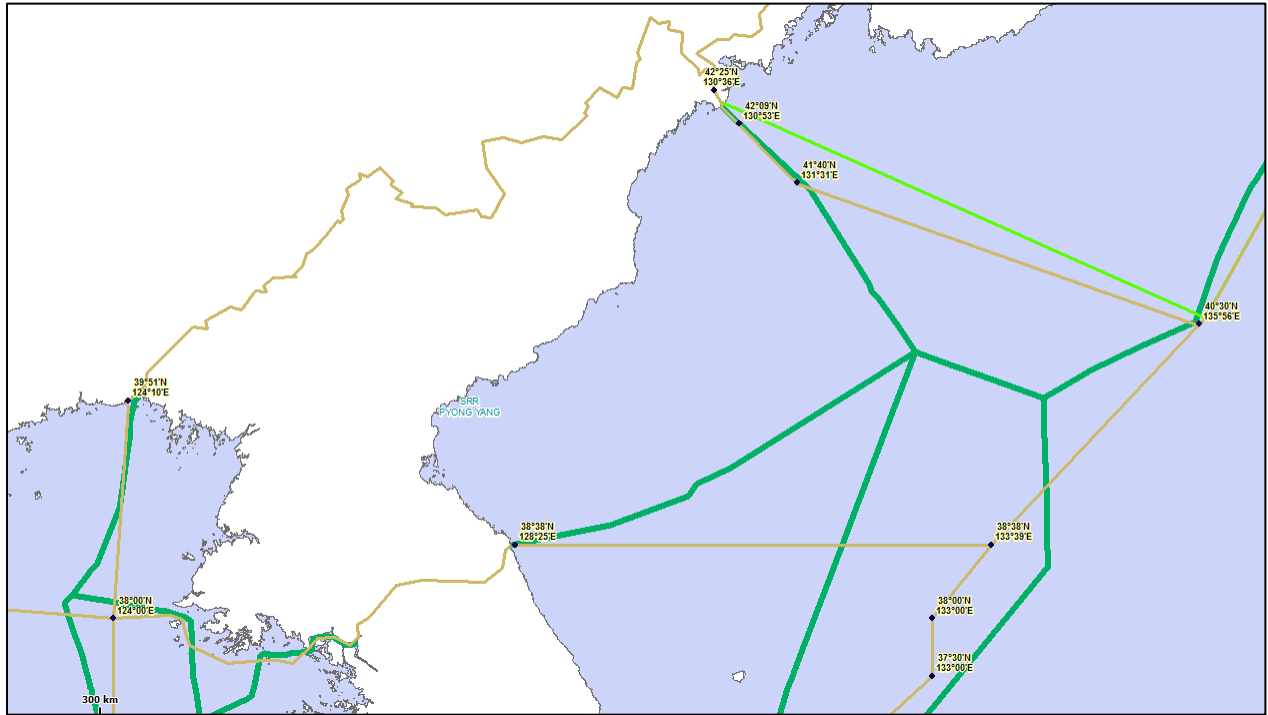


# Port Moresby SRR

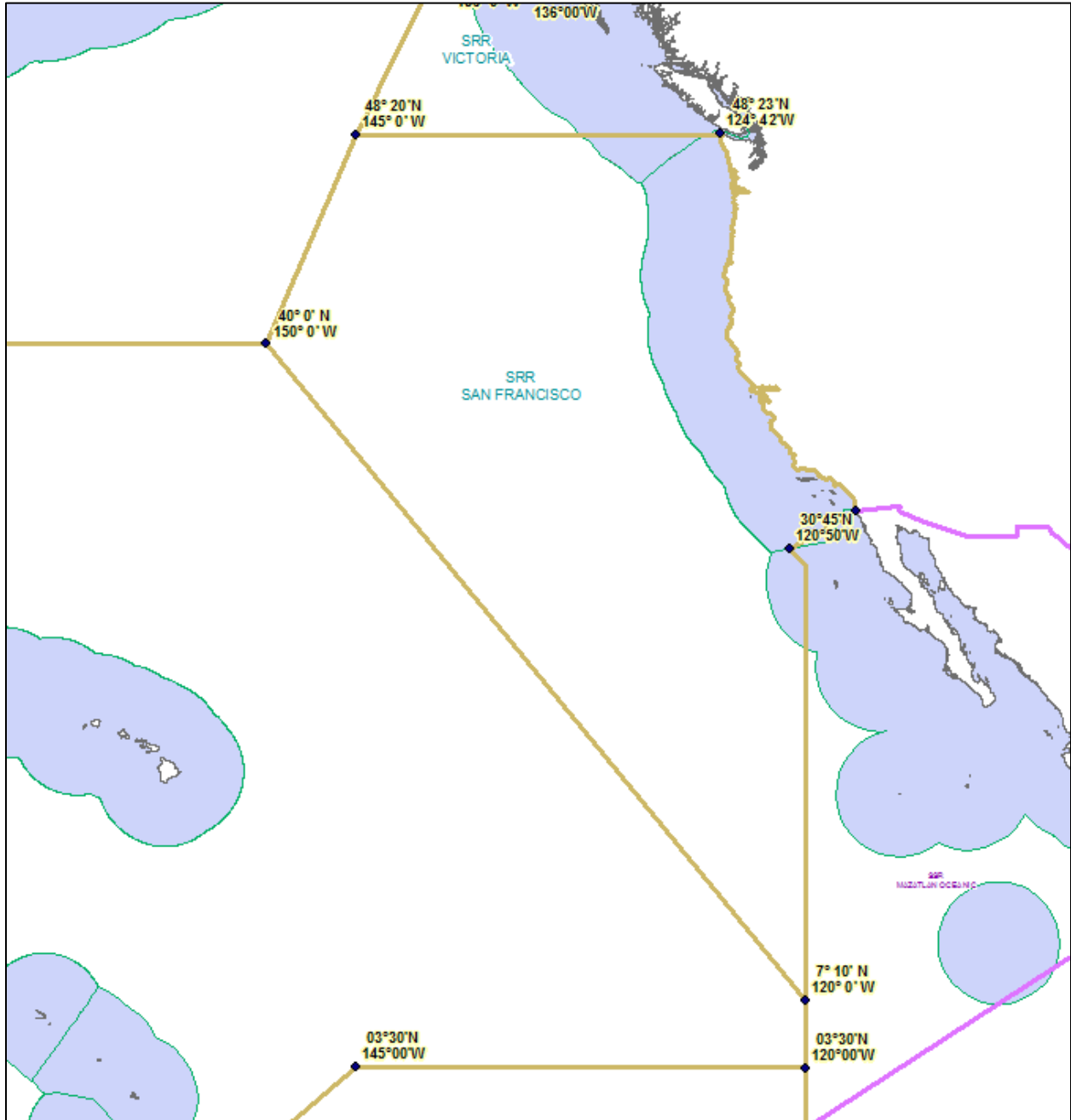




# Pyong Yang SRR



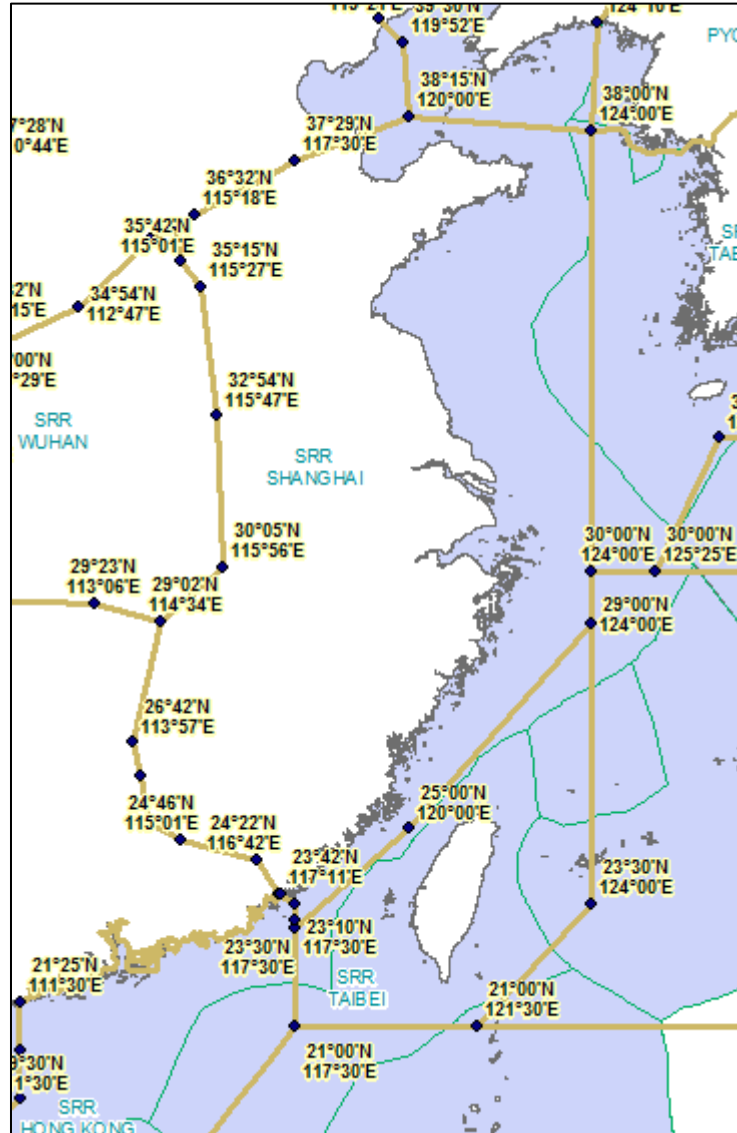
# San Francisco SRR



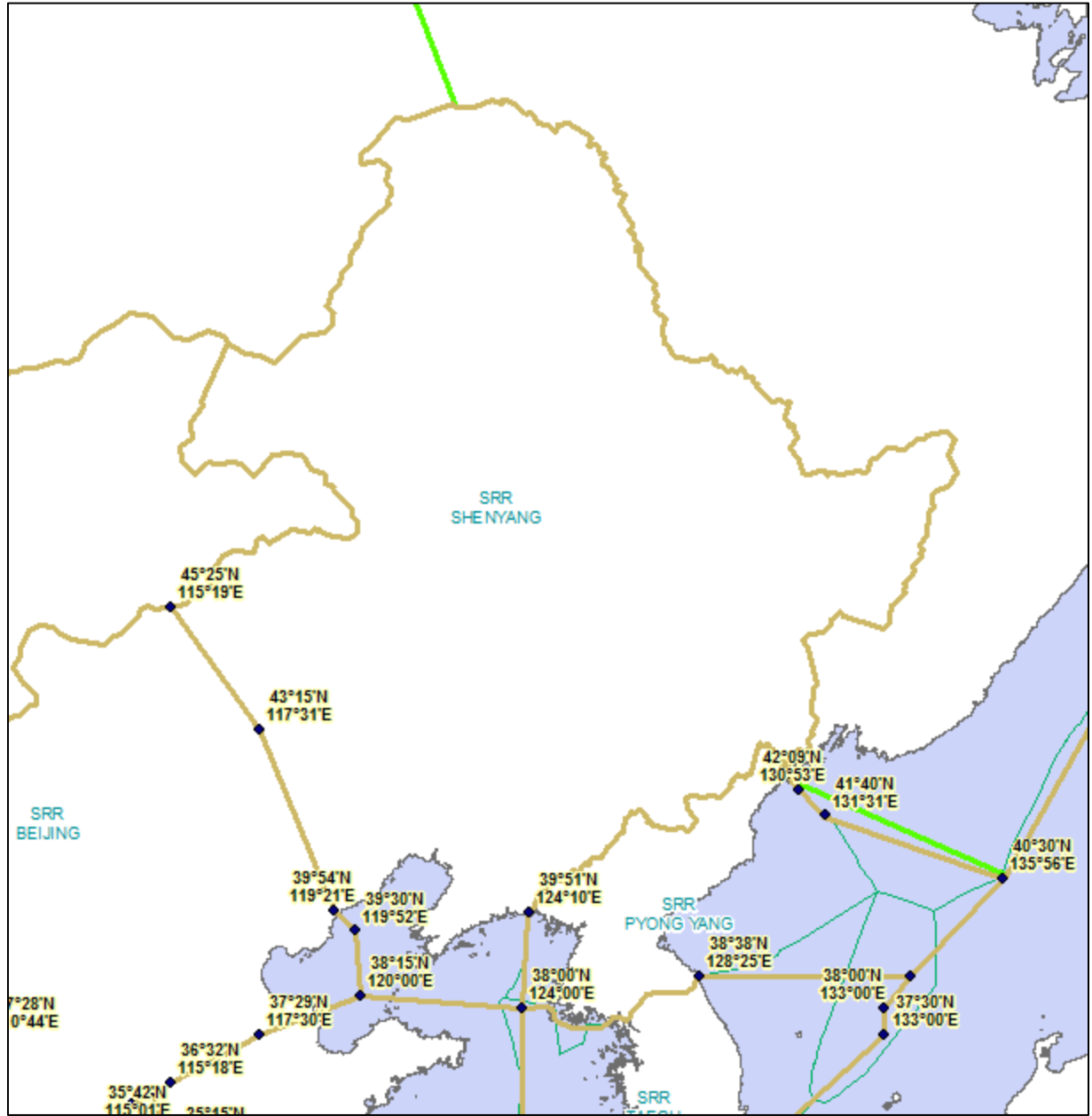
**Note:**

- San Francisco SRR is in Asia/Pac FASID page VII-SAR 1-6

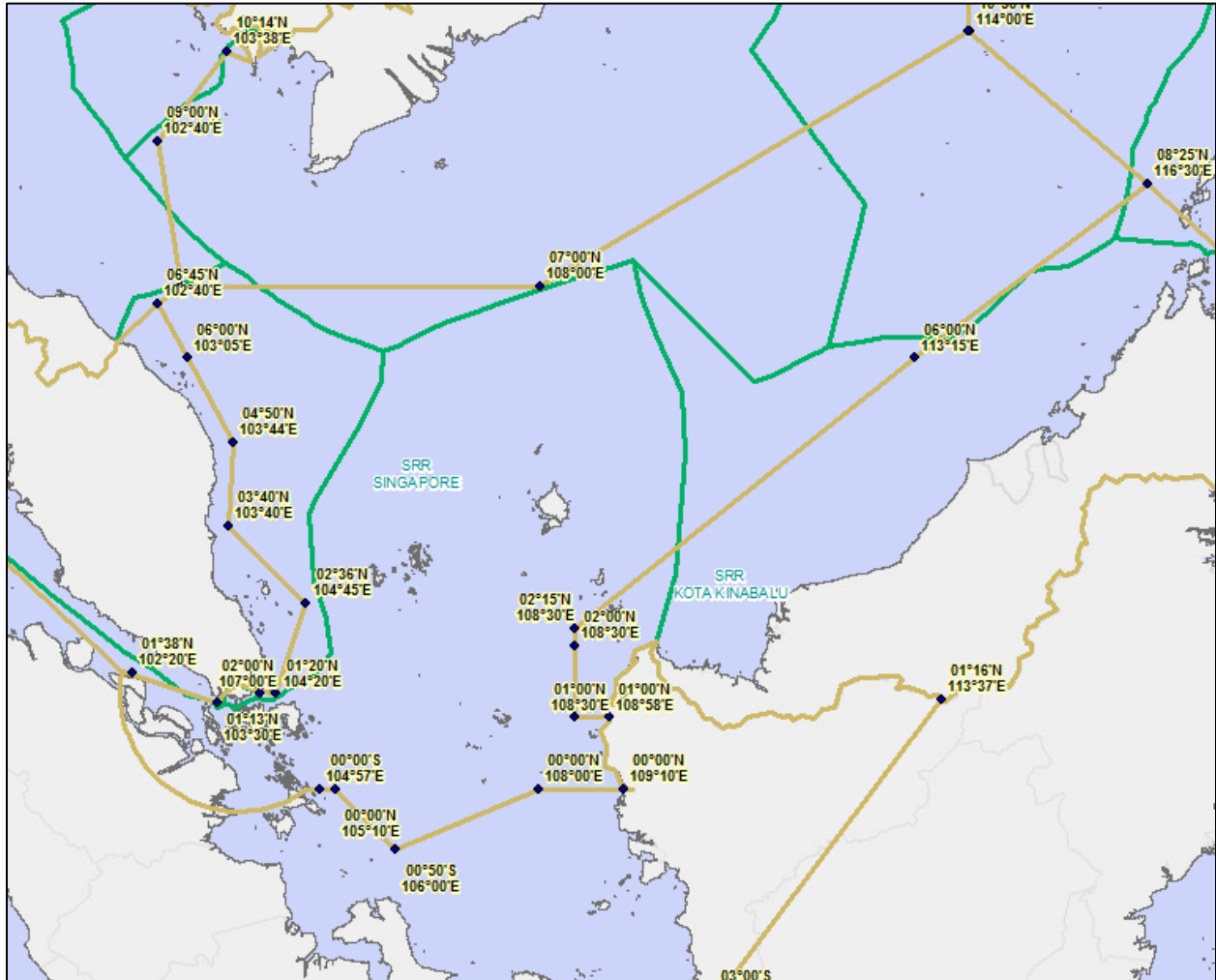
# Shanghai SRR



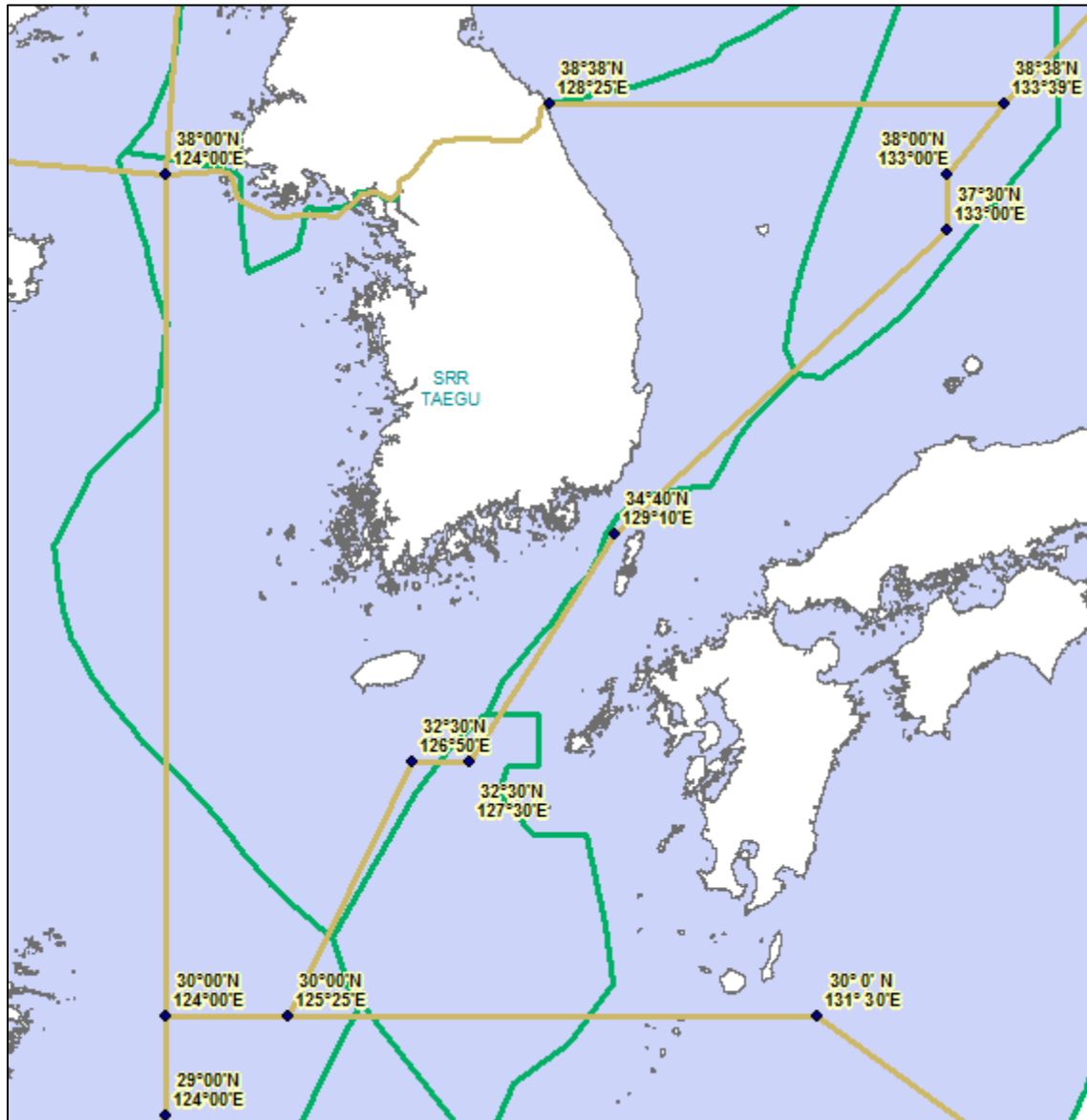
# Shenyang SRR



# Singapore SRR



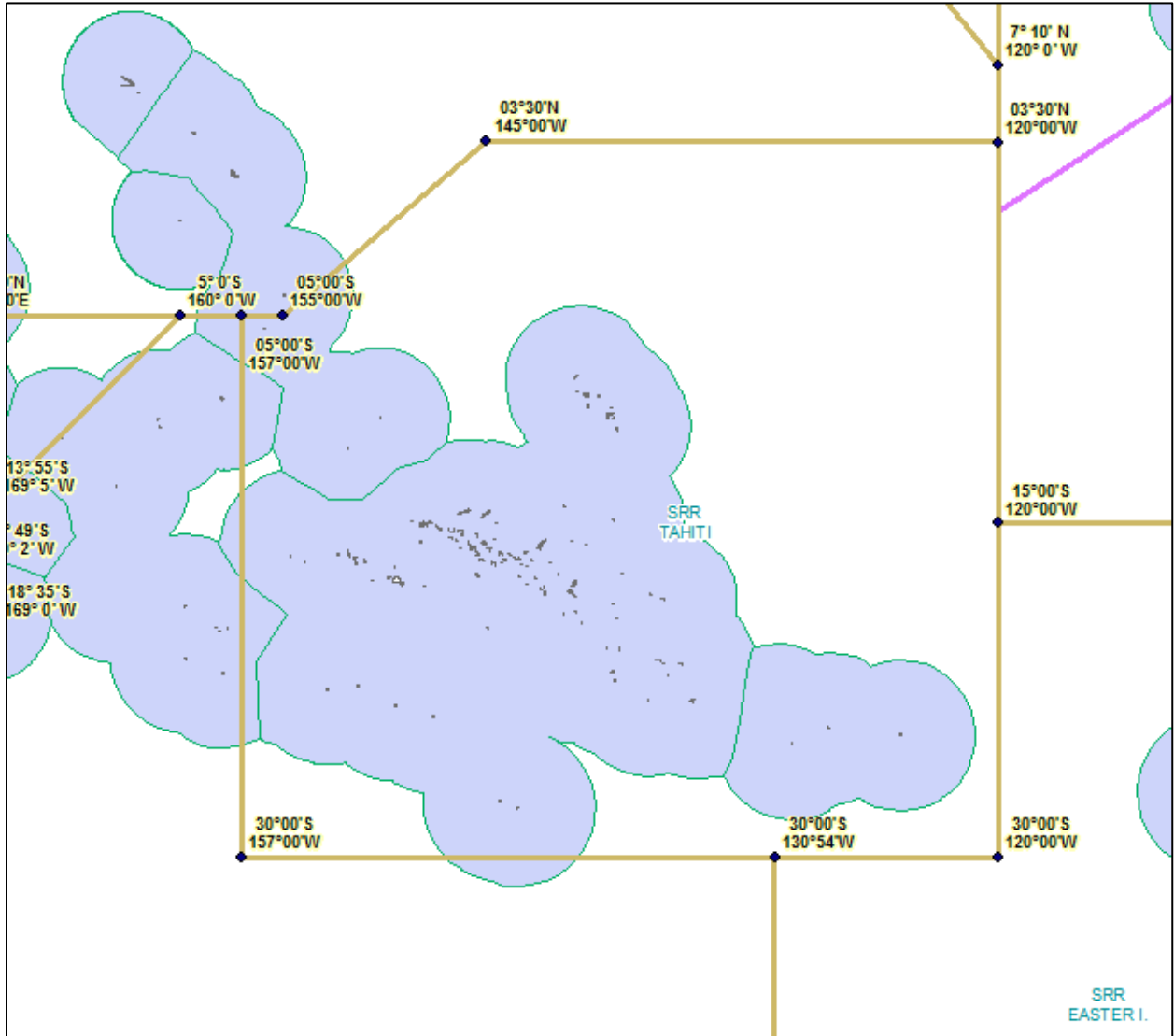
## Taegu SRR



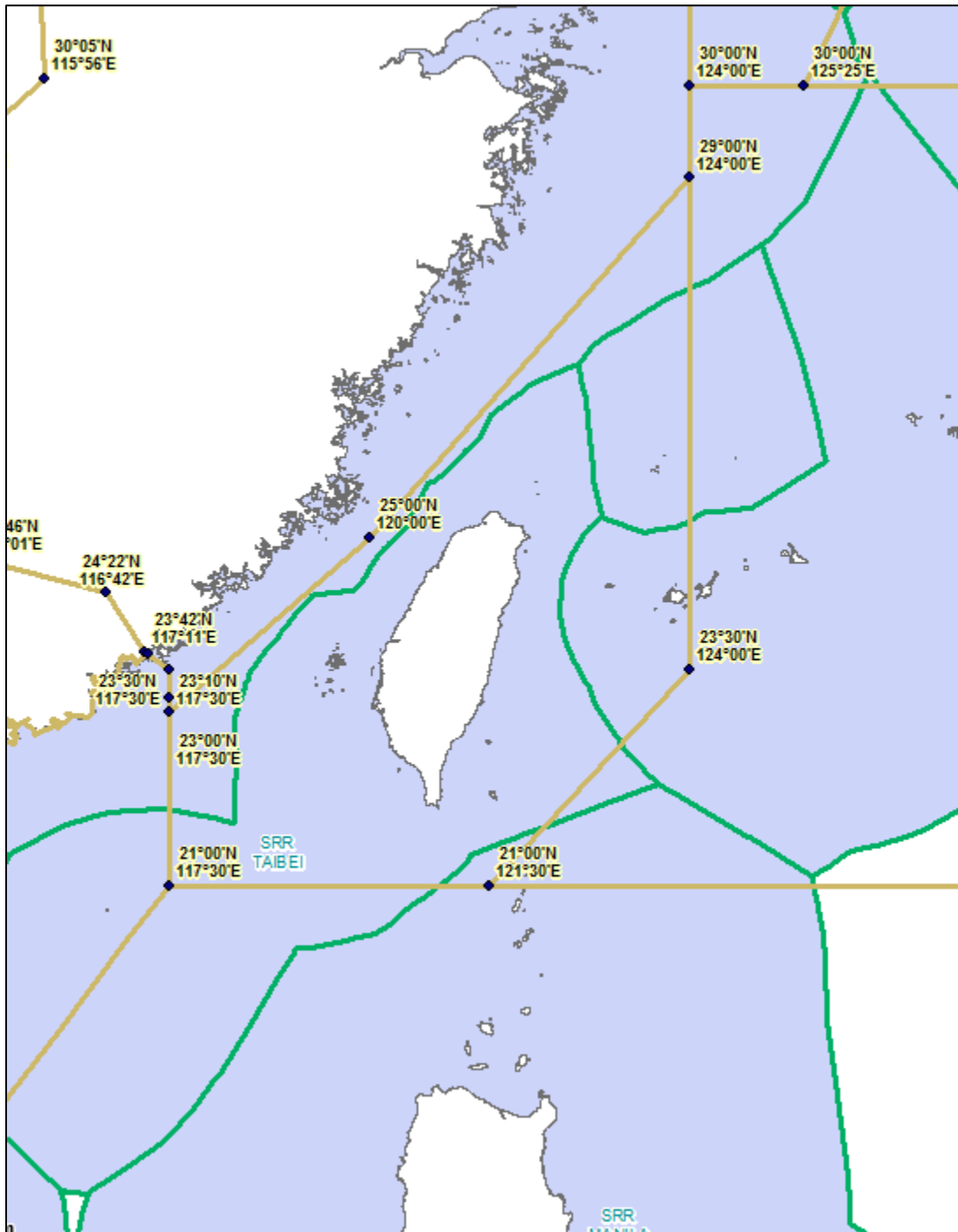
### Note:

- Refer to Asia/Pac FASID, VII – SAR 1-5, the RCC name is Incheon RCC instead of Taegu SRR

# Tahiti SRR



# Taipei SRR

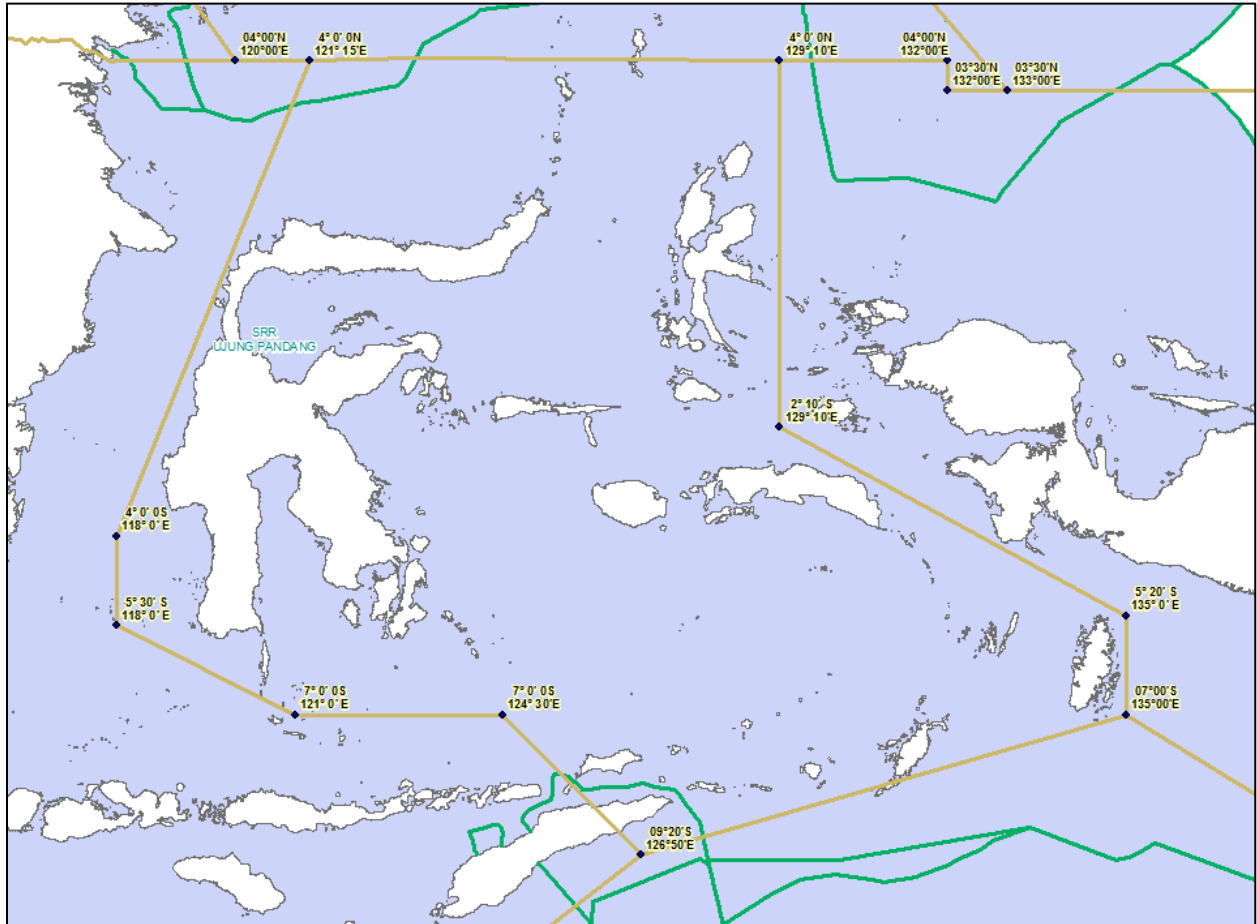




# Tokyo SRR



# Ujung Pandang SRR



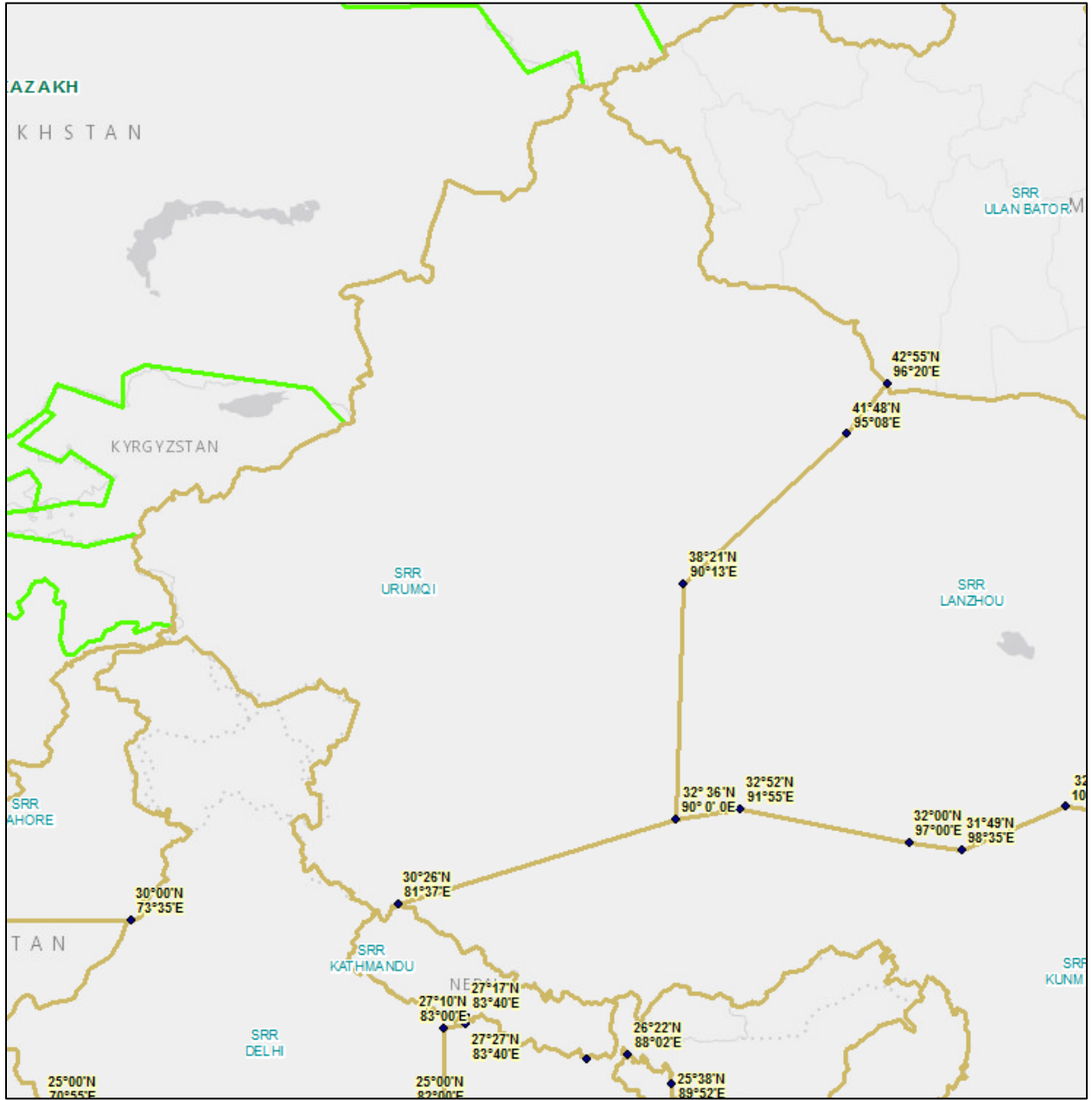
# Ulan Bator SRR



## Note:

- Refer to Asia/Pac FASID, VII – SAR 1-4, the SRR name is Ulaanbatar RCC

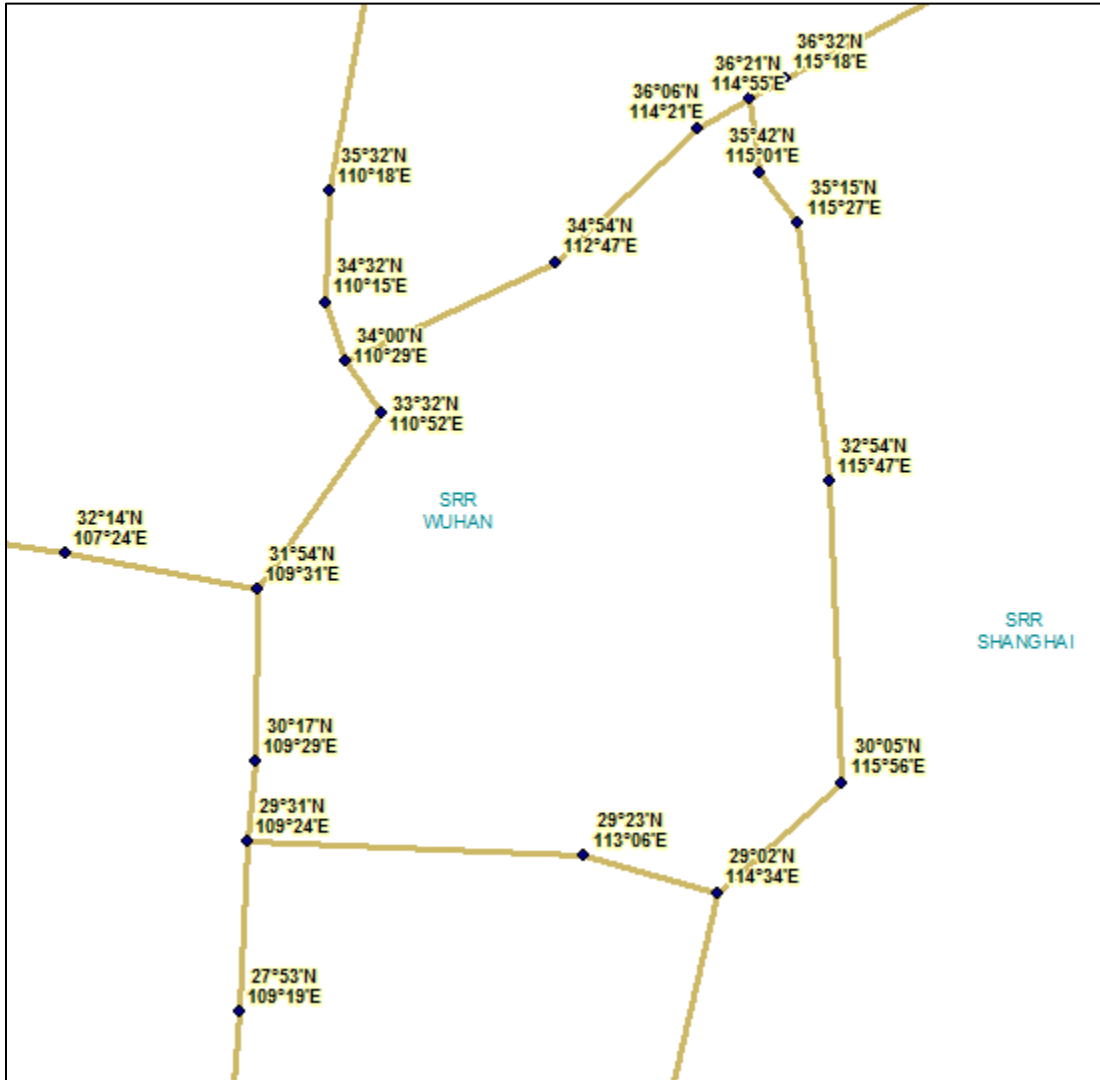
# Urumqi SRR



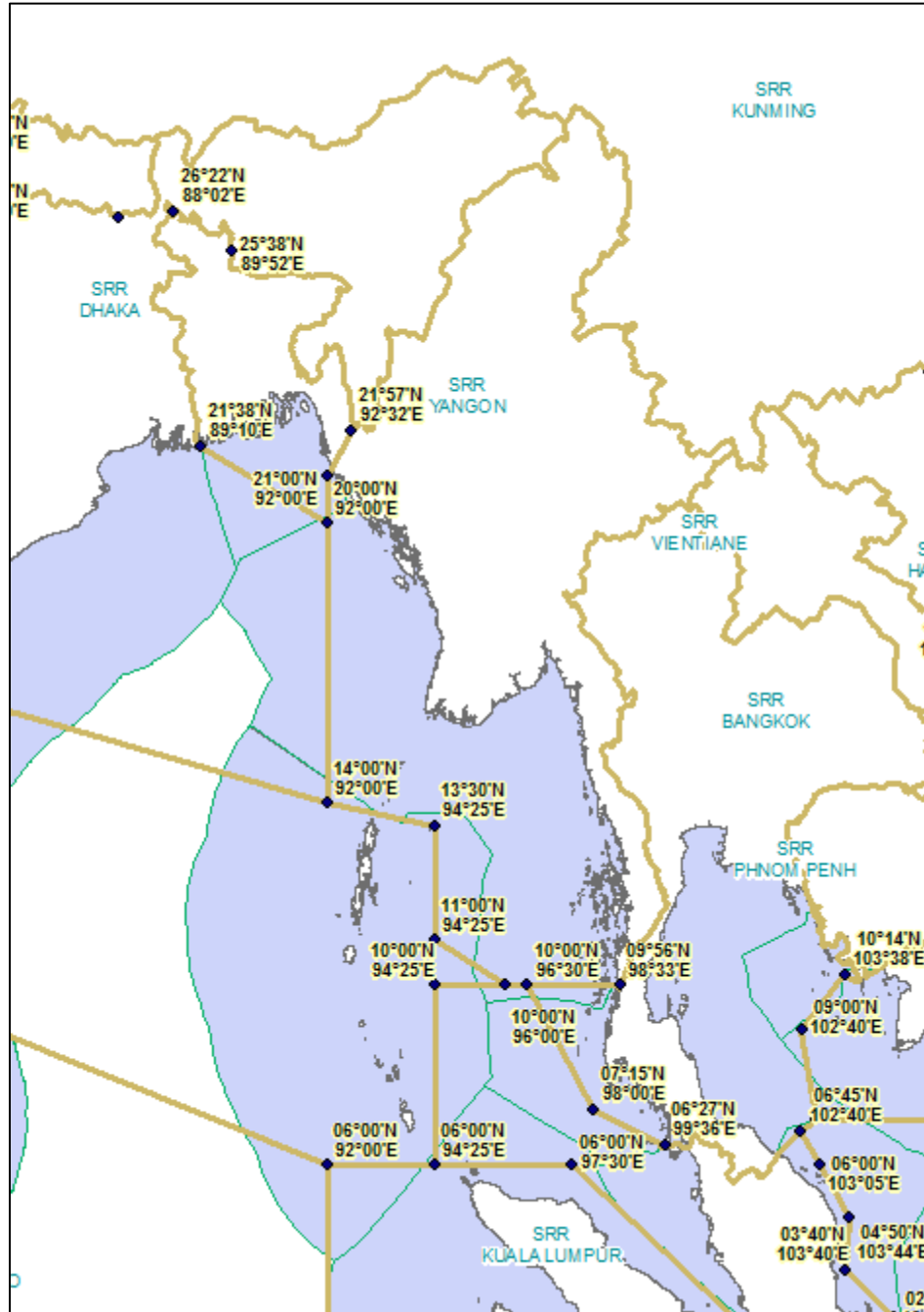
# Vientiane SRR



# Wuhan SRR



# Yangon SRR



## Part VII

# SEARCH AND RESCUE SERVICES (SAR) — FASID

### INTRODUCTION

1. The Standards, Recommended Practices and Procedures to be applied are as listed in paragraph 3, Part VII — SAR of the ASIA/PAC Basic ANP. The material in this part complements that contained in Part I — BORPC of the Basic ANP and should be taken into consideration in the overall planning processes for the ASIA/PAC regions.

2. This part contains the details of the facilities and/or services to be provided to fulfil the basic requirements of the plan and/or as agreed between the provider and user States concerned. Such agreement indicates a commitment on the part of the State(s) concerned to implement the requirement(s)

specified. This element of the FASID, in conjunction with the ASIA/PAC Basic ANP, is kept under constant review by the APANIRG in accordance with its schedule of management, in consultation with user and provider States and with the assistance of the ICAO Asia and Pacific Regional Office, Bangkok.

### SEARCH AND RESCUE FACILITIES (FASID Table SAR 1)

3. The list of search and rescue (SAR) facilities as contained in Table SAR 1 should constitute the plan for SAR facilities for the ASIA/PAC regions.

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## Table SAR 1

### SEARCH AND RESCUE FACILITIES

#### EXPLANATION OF THE TABLE

*Column*

- 1 Name of the rescue coordination centre (RCC) or rescue sub-centre (RSC) followed by the location of each rescue unit (RU).
- SPOC — SAR point of contact for the reception of alert messages detected by the COSPAS-SARSAT\* system.
- 2 Minimum requirements for land rescue units (LRU) including mountain rescue units (MRU) and desert rescue units (DRU), parachute rescue units (PRU) and the automated mutual-assistance vessel rescue (AMVER) system.
- Extra long-range (ELR)* — aircraft with a radius of action of 2 780 km (1 500 NM) or more, plus 2½ hours search remaining.
- Very long range (VLR)* — aircraft with a radius of action of more than 1 850 km (1 000 NM) plus 2½ hours search remaining.
- Long range (LRG)* — aircraft with a radius of action of 1 390 km (750 NM) plus 2½ hours search remaining.
- Medium range (MRG)* — aircraft with a radius of action of 740 km (400 NM) plus 2½ hours search remaining.
- Short range (SRG)* — aircraft with a radius of action of 280 km (150 NM) plus ½ hour search remaining.
- Helicopter (HEL-L)* — light helicopter with a radius of action for rescue purposes of up to 185 km (100 NM) and a capacity for evacuating 1 to 5 persons.
- Helicopter (HEL-M)* — medium helicopter with a radius of action for rescue purposes of 185 to 370 km (100 to 200 NM) and a capacity for evacuating 6 to 15 persons.
- Helicopter (HEL-H)* — heavy helicopter with a radius of action for rescue purposes of more than 370 km (200 NM) and a capacity for evacuating more than 15 persons.
- Rescue boat (RB)* — short-range coastal or river craft with an approximate speed of 14 knots or higher.
- Rescue vessel (RV)* — vessel possessing sea-going qualities, long range and reasonable speed. Patrol, customs, pilotage and other craft fulfil the purpose if assigned a high priority for search and rescue operations.
-

RCC and rescue units		Required rescue facilities		RCC and rescue units		Required rescue facilities	
1	2	1	2	1	2	1	2
<b>AUSTRALIA</b>				Shenyang RCC			
Australia RCC				Dalian			RV
Brisbane	ELR	HEL-H	RV	Qinhuangdao			RV
Darwin	ELR		RV	Taibei RCC			
Port Hedland	ELR	HEL-M	RV	Chiayi	LRG		
Townsville	ELR	HEL-H	RV		HEL-M		
				Chilung			RV
Adelaide	ELR		RV	Hsinghu	LRG		
Cocos I	ELR		RB		HEL-M		
Launceston			RV	Hualien			RV
Melbourne	ELR		RV	Urumqi RCC			
Perth	ELR		RV	Urumqi		SRG	
Sydney	ELR		RV	Wuhan RCC			
<b>BANGLADESH</b>				Wuhan		SRG	
Dhaka RCC				<b>DEMOCRATIC PEOPLE'S REPUBLIC OF KOREA</b>			
Dhaka	SRG		RV	Pyongyang RCC			
<b>CAMBODIA</b>				Pyongyang	MRG		RV
Phnom-Penh RCC					HEL-M		
Phnom-Penh	MRG		RV	<b>FIJI</b>			
<b>CHINA</b>				NADI RCC			
Beijing RCC				Nadi	SPOC		
Beijing	MRG		RV		ELR	RV	RB
	SRG				HEL-M		
Tianjin			RV	<b>FRENCH POLYNESIA (France)</b>			
<b>Guangzhou RCC</b>				TAHITI RCC			
Guangzhou	MRG		RV	Papeete	ELR	RV	
	SRG				HEL-M	RB	
Sanya			RV	<b>HONG KONG, China</b>			
Shantou			RV	Hong Kong RCC			
Zhanjiang			RV	Hong Kong	SPOC		
<b>Kunming RCC</b>					MRG	RV	MRU
Kunming	SRG		RV		HEL-M	RB	
<b>Lanzhou RCC</b>				<b>INDIA</b>			
Lanzhou	SRG		RV	Mumbai RCC			
<b>Shanghai RCC</b>				Mumbai	ELR	RV	LRU
Fuzhou			RV		HEL-M	RB	
Lianyungang			RV	Kolkata RCC			
Shanghai	MRG		RV	Kolkata	MRG		LRU
	SRG		RB		HEL-M		
Qingdao			RV	<b>Delhi RCC</b>			
Yantai			RV	Delhi	MRG		LRU
Wenzhou			RV		HEL-M		
Xiamen			RV				

RCC and rescue units RCP et équipes de sauvetage RCC y brigadas de salvamento	Required rescue facilities Moyens de sauvetage requis Medios exigidos para el salvamento		
	1	2	

Chennai RCC  
Chennai

LRG(1) RV LRU  
HEL-M RB

**INDONESIA**

## Biak RCC

Biak  
Jayapura

LRG RB/RV LRU  
SRG RB LRU

Merauke  
Sorong

HEL-M  
RB LRU  
SRG RB LRU  
HEL-L

## Jakarta RCC

Jakarta

LRG RB LRU  
HEL-M MRU

Medan RSC

LRG RB RU  
HEL-M RV

Padang RSC

SRG RB RU  
RV

Pekanbaru RSC

SRG RB LRU  
HEL-L

Pontianak RSC

SRG RB LRU  
HEL-M

Tanjung RSC  
Pinang RSC

SRG RB LRU

## Surabaya RCC

Surabaya

LRG RB LRU  
HEL-L RV MRU

## Balikpapan RSC

Banjarmasin RSC

Denpasar RSC

Kupang RSC

SRG RB LRU  
HEL-M RV  
SRG RB MRU  
LRG RB LRU  
RV  
SRG RB LRU  
HEL-M

## Ujung Pandang RCC

Ujung Pandang

LRG RB LRU  
HEL-L RV

Ambon RSC

SRG RB LRU  
RV

Manado RSC

SRG RB LRU  
HEL-L RV

**JAPAN**

## Tokyo RCC

Kushiro  
Hakodate  
Hachinohe  
Niigata

HEL-M RV  
HEL-M RV  
LRG RV  
HEL-M RV

RCC and rescue units RCP et équipes de sauvetage RCC y brigadas de salvamento	Required rescue facilities Moyens de sauvetage requis Medios exigidos para el salvamento	
	1	2

Tokyo

LRG RV  
HEL-M

Komatsu

LRG RV

Miho

HEL-M RV

Iwakuni

LRG

Fukuoka

MRG RV

HEL-M

Nagasaki

HEL-M

Kagoshima

HEL-M RV

Naha

LRG RV

Ishigaki

MRG  
HEL-M RV

**LAO PEOPLE'S  
DEMOCRATIC REPUBLIC**

## Vientiane RCC

Vientiane

MRG  
HEL-M

**MACAO, China**

## Macao RCC

RB  
RV

**MALAYSIA**

## Kuala Lumpur RCC

Alor Setar

Butterworth RSC

SRG RB  
ELR RB PRU

Kota Bharu

HEL-H RV  
ELR LRU

Kuantan RSC

HEL-H  
ELR RB PRU

Kluang

Kuala Lumpur

HEL-H LRU

ELR RV PRU  
HEL-H RB

## Kota Kinabalu RCC

Brunei

SRG RB  
HEL-M RV

Kota Kinabalu

MRG RV LRU  
HEL-H RB

Kuching RSC

MRG RV PRU  
HEL-H RB LRU

Labuan RSC

MRG RV LRU  
HEL-H

Miri

MRG RB LRU  
HEL-M LRU

Sandakan

MRG  
HEL-M

Sibu

MRG  
HEL-M

RCC and rescue units	Required rescue facilities		
1	2		

Tawau	MRG		
	HEL-H		
<b>MALDIVES</b>			
Male RCC	SRG	RB	SPOC
	HEL-M	RV	
<b>MONGOLIA</b>			
Ulaanbatar RCC			
Ulaanbatar			
<b>MYANMAR</b>			
Yangon RCC			
Yangon	MRG	RV	
	SRG	RB	
	HEL-M		
<b>NAURU</b>			
Nauru RCC			
Nauru	ELR		
	VLR	RV	
	SRG	RB	
<b>NEPAL</b>			
Kathmandu RCC	SPOC		
Kathmandu	MRG		
	HEL-M		
<b>NEW CALEDONIA (France)</b>			
New Caledonia RSC			
Noumea	MRG	RB	
	HEL-L	RV	
<b>NEW ZEALAND</b>			
Wellington RCC	SPOC		
Auckland	ELR	RB	
	HEL-M	RV	
Christchurch	MRG	RB	
	HEL-M		
Wellington		RB	
	HEL-M		
<b>PAKISTAN</b>			
Karachi RCC			
Karachi	MRG	RV	
Lahore RCC	SPOC		
Lahore	MRG		

RCC and rescue units	Required rescue facilities		
1	2		

<b>PAPUA NEW GUINEA</b>			
Port Moresby RCC			
Lae	MRG	RB	
Madang	SRG	RB	
Port Moresby	ELR	RV	
Rabaul	RB		
Wewak	SRG		
<b>PHILIPPINES</b>			
Manila RCC			
Manila	LRG	RB	MRU
	HEL-M		
Mactan	LRG	RV	
	HEL-L		
Zamboanga		RV	
<b>REPUBLIC OF KOREA</b>			
Incheon RCC			
Chuncheon	SRG		
Daegu	MRG		
	HEL-H		
Gangneung	SRG		
Gimhae	SRG	RV	
	HEL-M		
Gimpo	SRG		
	HEL-M		
Gunsan	HEL-M		
Gwangju	MRG		
	HEL-M		
Incheon	MRG	RV	
	HEL-M		
Jeju	SRG	RV	
	HEL-M		
Mokpo	HEL-M	RV	
Mukho		RV	
Osan	MRG		
	HEL-H		
Pohang	HEL-M	RV	
Yangyang	RSC	RB (Sokcho)	
<b>SINGAPORE</b>			
Singapore RCC	SPOC		
Singapore	LRG	RV	
		RB	
	HEL-H		
<b>SOLOMON IS.</b>			
Honiara RCC			
Honiara	ELR		
	VLR	RV	
	SRG	RB	

RCC and rescue units RCP et équipes de sauvetage RCC y brigadas de salvamento	Required rescue facilities Moyens de sauvetage requis Medios exigidos para el salvamento	
1	2	

RCC and rescue units RCP et équipes de sauvetage RCC y brigadas de salvamento	Required rescue facilities Moyens de sauvetage requis Medios exigidos para el salvamento		
1	2		

**SRI LANKA**

Colombo RCC Colombo/Ratmalana	LRG HEL-M	RV	
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**THAILAND**

Bangkok RCC Bangkok	MRG HEL-L		
Sattahip	MRG HEL-L	RB	
Songkhla	SRG HEL-L	RB	
Khok Kathiam	SRG HEL-L		
Prachuap Kiri-Khan	SRG		

**UNITED STATES**

Elmendorf RCC† Anchorage Fairbanks	ELR ELR	PRU	
Honolulu RCC† Guam I.	ELR HEL-M	RV RV	
Hilo Honolulu	VLR HEL-L	RV RB	AMVER
Juneau RCC† Adak	VLR		
Juneau Ketchikan		RV RV	AMVER
Kodiak	VLR	RV	HEL-M HEL-L
Sitka	HEL-M	RV	
Langley RCC*			
Long Beach RCC* Eureka	HEL-L	RV	
Long Beach		RV	
Los Angeles	HEL-L		
Sacramento	VLR		
San Diego	ELR HEL-L	RV SRG	
San Francisco	HEL-M	RV	AMVER

**Seattle RCC\***

Astoria	HEL-L	RV	SRG
Port Angeles	HEL-L	RV	

**VANUATU**

Port Vila RCC Port Vila	SRG	RB RV	
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**VIET NAM**

Ha Noi RCC Cat Bi	HEL-M	RV RB	MRU
Gia Lam	LRG SRG		
Hoa Lac	HEL-H HEL-M	LRU	
Noi Bai	LRG MRG	LRU	
Vinh	HEL-H MRG HEL-M	RV RB	MRU LRU

**Ho Chi Minh RCC**

Can Tho	SRG HEL-M	LRU	
Da Lat/Lien Khuong	SRG HEL-M	LRU	
Da Nang RSC	LRG MRG SRG	LRU MRU RV	
Nha Trang	HEL-H HEL-M	RB	
Phu Cat	MRG SRG	RV MRU	LRU MRU
Phu Quoc	SRG HEL-H HEL-M	RV RB	MRU
Tan Son Nhat	LRG SRG		
Vung Tau	HEL-H	RV	MRU

\*The Australian SAR point of contact (SPOC) is the mission control centre at the Maritime RCC, Canberra.

†The United States SPOC is the United States mission control centre for the space system for search of vessels in distress-search and rescue satellite-aided tracking (COSPAS-SARSAT).