International Civil Aviation Organization

The Twelfth Meeting of the South East Asia ATS Coordination Group (SEACG/12)

Bangkok, Thailand, 3 – 6 May 2005

Agenda Item 3: Review current operations across South-East Asia and identify problem areas

REVIEW OF THE SECOND MEETING OF THE REGIONAL AIRSPACE SAFETY MONITORING ADVISORY GROUP (RASMAG/2) AND SAFETY ASSESSMENT FOR RNP10 OPERATIONS IN THE SCS

(Presented by the Secretariat)

SUMMARY

This paper presents a summary of the Report of the Second Meeting of the Regional Airspace Safety Monitoring Advisory Group (RASAMG/2) in relation to matters of interest to SEACG and updates the situation in regard to the South China Sea route structure safety assessment.

The paper highlights that a current safety assessment for South China Sea RVSM operations has not yet been completed due a lack of suitable data from States and that a follow up safety assessment for the South China Sea RNP 10/60NM route structure also needs to be completed.

1. INTRODUCTION

1.1 The Second Meeting of the Regional Airspace Safety Monitoring Advisory Group (RASMAG/2) was held in Bangkok from 4 to 8 October 2004 at the Regional Office. The meeting was attended by 18 experts from Australia, Hong Kong China, India, Japan, New Zealand, Singapore, Thailand, United States, IATA and IFATCA.

2 DISCUSSION

Safety Seminar/Workshop

2.1 The meeting expressed disappointment that the safety workshop proposed by RASMAG/1 could not be accommodated as part of RASMAG/2. However, the meeting agreed that the need for such a workshop was still very pertinent specifically as both MAAR and PARMO had indicated in their reports that some States were still finding it difficult to provide the required data for safety monitoring purposes. The meeting again highlighted the need for RASMAG to provide some guidance and assistance to these States so that the safety assessment processes could be effectively completed. Additionally, the meeting regarded the provision of such assistance as being a major step in helping establish robust safety management systems throughout the region.

2.2 The meeting agreed that a safety workshop/seminar should be convened for 3 days coincident with the next planned RASMAG meeting during the second quarter of 2005. The aim of the seminar would be to provide information and guidance to States within the region in relation to safety management systems in general; the need for safety assessments and safety monitoring of various implementation activities; and information on organizations that could provide the expertise to assist States with implementing safety processes. Additionally, the workshop would provide guidance on State responsibilities to provide data to relevant monitoring agencies and how best to provide this data. The meeting agreed that the workshop should be open to all States within the Region and that States identified as most needing assistance should be encouraged by RASMAG member States to attend.

2.3 To progress the development of the workshop proposal, the meeting suggested a number of suitable topics that could be used as an agenda of presentations for the workshop as detailed in the table below.

Topic No.	***Topic***	***Presenting State***
1	The Need for and Fundamentals of Safety Management Systems	AUSTRALIA
2	The Need for Safety Assessments and Safety Monitoring in reduced vertical and horizontal separation implementations.	USA
3	Collision Risk Modeling, Technical Risk, Risk from Operational Errors, Target Level of Safety – An explanation in simple terms	USA
4	How Safety Assessments and Monitoring are Conducted – The Essential Elements. What States need to provide.	USA/MAAR
5	Hazard Identification Methodologies and Hazard Mitigation Strategies. Including State examples.	AUSTRALIA HONG KONG
6	Description of the Roles, Responsibilities and Functions of Airspace Safety organizations – RASMAG, RMAs, SMAs, CRAs, FITs etc	ICAO
7	MAARs Activities with regards to RVSM safety assessments, traffic sampling, State reporting formats, analyses and reporting.	MAAR
8	The Role of the airlines in risk assessment activities and their contribution to safety analyses undertaken by States.	IATA
9	Step by Step Description of Implementation of Regional or State activities such as RVSM, RNP, Data link using examples. What is required to be planned for and accomplished from a safety perspective prior to and post implementation.	JAPAN ISPACG
10	End to End monitoring of Data link – What is needed for implementation.	JAPAN
11	Implementation of ICAO Safety Management Requirements. State examples	HONG KONG

Establishment of a Safety Monitoring Agency (SMA)

2.4 The meeting recalled that at RASMAG/1, it was agreed that it was necessary to establish safety monitoring groups to undertake the safety management programmes for the application of required data link services and related horizontal separation minima.

2.5 The following areas were identified as requiring a safety monitoring group to be established for airspace safety monitoring services and safety assessments in the Asia Region:

a) South China Sea area, for the safety assessment of the RNP 10 route structure and reduced horizontal separation, and application of data link services;

b) RNP 10 routes across the Bay of Bengal area, for the safety assessment and monitoring of the routes, reduced horizontal separation, and application of data link services; and

c) RNP 10 routes from South-East Asia to the Middle East, for the safety assessment and monitoring of the routes, reduced horizontal separation, and application of data link services.

2.6 The meeting noted in regard to a) above, that the Civil Aviation Authority of Singapore was the designated Monitoring Authority (MA) for the collection and collation of the navigation performance data for the SCS routes. The States concerned have a Letter of Agreement in place requiring the reporting of gross errors of 15 NM and greater for the RNP 10 routes to the MA.

2.7 The meeting noted the recommendation under Decision 15/5 of APANPIRG/15 (August 2004) to adopt the term safety monitoring agency (SMA). RASMAG/2 recognized the need for a clear distinction between the monitoring or assessment of technical performance and the assessment of the safety of a particular implementation. The meeting noted that CRAs and FITs monitor technical performance but do not assess system safety. The latter task was the role of an SMA in the case of reduced horizontal separation. In order to remove any confusion regarding the role and function of an SMA the meeting agreed that a recommendation should be put to APANPIRG to amend Decision 15/5 to read as follows:

That, the term Safety Monitoring Agency (SMA) be used to describe an organization approved by regional agreement to provide airspace safety services for international airspace in the Asia/Pacific region for implementation and operation of reduced horizontal separation.

2.8 The meeting also discussed the need to develop some form of guidance material for SMAs and the meeting agreed to develop a guidance document for distribution to and consideration by RASMAG members before the next meeting. The document should include a guide to the safety assessment actions needed for the implementation of reduced horizontal separation, such as the assessment being undertaken by ISPACG for the implementation of 30NM lateral /30NM longitudinal separation minima utilizing ADS.

2.9 In considering what organizations could provide SMA services, it was noted that to date, monitoring for RVSM, reduced horizontal separation minima, data link services, and the performance of safety assessments had been carried out by a few specialized teams made up of technical experts and contractors supporting States within the region. The Secretariat drew attention to the requirement that States be responsible for the provision of safety services for their FIRs. The meeting agreed that commercial service providers could be employed by a State or group of States to provide needed regional airspace safety monitoring agency services.

2.10 The meeting considered that the *Guidance Material for End-to-End Safety and Performance Monitoring of Air Traffic Service (ATS) Data Link Systems in the Asia/Pacific Region* under development by RASMAG could serve as a means for a State or group of States to determine the capability of an organization to provide ATS data link performance monitoring services. It was anticipated that, after review by RASMAG/3 in June 2005, that the guidance material would be sufficiently mature to be submitted to APANPIRG for adoption as regional guidance material.

Australia as RMA/SMA

2.11 The meeting recalled that, in addition to the two established RVSM RMAs appointed by APANPIRG, i.e. MAAR for the specified FIRs in Asia Region and PARMO for the specified FIRs in the Pacific Region, the RASMAG/1 meeting had recognized that Airservices Australia was also responsible for RVSM operations and associated safety management services west of a line 12 NM east of the east coast of Australia (i.e. that international airspace for which PARMO was not the approved RMA). Also, it was noted that Airservices had provided the safety assessment services for the implementation of the South China Sea and Bay of Bengal route systems and associated reduced lateral separation. They were also providing similar and additional safety services for data link services in the international airspace of the Brisbane and Melbourne FIRs that included the airspace of the southern Indian Ocean.

2.12 In light of the above, APANPIRG/15 had agreed under Conclusion 15/6 that Airservices Australia be designated as an RMA and SMA for the airspace where it was undertaking this responsibility, as well as to provide safety services for the implementation of data link for the specified airspace.

Report of MAAR's RMA activities

2.13 MAAR provided an update with regard to conducting an airspace safety review of RVSM implementation in the WPAC/SCS area. In accordance with the requirement of the RVSM/TF, a safety review was necessary to support the proposed changes to the RVSM flight level origination scheme under consideration for the WPAC/SCS airspace. The traffic data for use in the analysis was for the period 1 to 31 July 2004 and States had been requested by the RVSM/TF to submit the data to MAAR. The meeting was informed by MAAR that of the 10 States responsible for 14 FIRs involved in the WPAC/SCS area, complete data had only been provided by 5 States covering 6 FIRs. In regard to LHD reports, 6 FIRs had no reports submitted. The meeting, in recognizing that this was a very poor response and that without the missing data the safety assessment could not be completed, stressed that follow-up action would be required to obtain the data.

2.14 The meeting recognized that this sort of problem should be made known to State safety authorities to reinforce the need for due diligence in their safety management programmes and to fully cooperate with the regional RVSM monitoring programme. The meeting agreed that those States who had not submitted the required data and information to MAAR as described above, be informed and requested to submit the data as a matter of priority. Accordingly, the meeting prepared a draft letter to be sent to States by the Regional Office.

2.15 The Secretariat informed the meeting that the 41st Conference of the Director Generals of Civil Aviation of the Asia and Pacific Region would be held in Hong Kong, China from 1-5 November 2004, and this would be an opportune time to bring these matters to their attention. The Secretariat agreed to submit an appropriate paper to the Conference.

Establishment of FANS Implementation Team South-East Asia (FIT-SEA)

2.16 RASMAG/2 recalled that at the APANPIRG/14 meeting (August 2004), it was noted that in recognition of the effectiveness of the FANS Interoperability Teams (FIT) operating in the Pacific Region under ISPACG and IPACG (PAC-FIT) and the FANS Implementation Team operating in the Bay of Bengal area (FIT-BOB), a similar mechanism should be established to progress FANS issues in the South-East Asia area.

2.17 Accordingly, at the SEACG/11 meeting in May 2004, FIT-SEA was constituted and conducted an initial meeting. The FIT-SEA/2 meeting was held in combination with an ADS/CPDLC seminar and FIT-BOB meeting during April 2005. Details of this meeting are reported in working paper 10 to this meeting.

Reporting requirements

2.18 RASMAG/2 meeting agreed that a reporting period of 6 months was appropriate for the medium term and that the reporting dates be adjusted in order to ensure that RASMAG was able to meet its requirement to provide an annual report to APANPIRG. In this regard, the meeting agreed that as the month of December routinely experienced high traffic levels, this should be adopted as the standard sample period for traffic sample data collection throughout the MAAR, PARMO and AsAR areas of responsibility, commencing from December 2005. Traffic sample data collected in December would be submitted to the RMAs by the end of January, allowing analysis and report preparation by the RMAs in order to update RASMAG in April/May and allow time for RASMAG to prepare an update for APANPIRG in August/September each year.

2.19 The meeting recognized that although there was currently no SMA in the Asia Region undertaking horizontal safety monitoring and assessment, this would occur in the foreseeable future. In order to minimize the impact on States of the need to collect traffic sample data, the meeting considered that efforts should be made to align the arrangements for the collection of horizontal traffic sample data information with the RVSM data collection, resulting in all required data being collected simultaneously during the December sampling. In addition, the meeting agreed that annual reporting of RNP safety performance would provide suitable safety monitoring.

RVSM Minimum Monitoring Requirements

2.20 The meeting was updated regarding the status of the RMA Handbook which has been completed by ICAO and agreed to by the approved global RMAs. It was expected to be published in the first quarter of 2005. The RVSM minimum monitoring requirements (MMRs) recommend by ICAO were contained in the Handbook. In this regard, the meeting agreed that RMAs of the Asia/Pacific Region should adopt these MMRs as amended from time to time.

Review of Proposed Changes to the WPAC/SCS RVSM FLOS

2.21 RASMAG/2 was informed of the outcome of the RVSM/TF/22 meeting (September 2004), which carried out a review of the different flight level orientation schemes (FLOS) operating in the Western Pacific and South China Sea (WPAC/SCS) areas, which used the modified single alternate FLOS and in adjacent airspaces where the single alternate FLOS was used.

2.22 The RVSM/TF had recognized that subsequent to the implementation of RVSM in the Bay of Bengal area on 27 November 2003, some States had expressed concerns over the number of transitions that had to be carried out between the two FLOS. Further, with the planned implementation of RVSM in the Naha, Tokyo and Incheon FIRs in the second half of 2005, the transition activities would increase for some States.

2.23 RVSM/TF/22 agreed to a proposed change to the FLOS with a reassigned flight level allocation scheme. It was recognized by RVSM/TF/22 that before any change was affected to the current flight level scheme, any replacement system would be required to demonstrate that it was equally safe and efficient. This would be subject to the full ICAO process of a safety analysis including calculations of the established TLS. The Task Force also agreed that sub-regional modeling and/or simulation exercises should be carried out to support any change to the WPAC/SCS FLOS.

2.24 RASMAG noted the issues being addressed by RVSM/TF to deal with the transition problems of operating the two different FLOS. In regard to the proposed changes to the FLOS, the meeting considered that this seemed to be a reasonable solution, however, the safety considerations would need to be adequately addressed.

2.25 Delays to the FLOS review process have occurred as a result of MAAR's inability to complete an appropriate safety assessment as a result of insufficient data being made available from States. These matters are reported in working paper 2 to this meeting.

Safety assessment for RNP10 Operations in the SCS

2.26 In order to implement RNP 10 operations in the South China Sea Route Structure, a suitable safety analysis was necessary in order to confirm that the navigation accuracy expected to be achieved would meet the agreed TLS of 5×10^{-9} fatal accidents per flight hour. As this task required mathematical expertise that was not generally available within the South China Sea ATS Route Structure Implementation Task Force, assistance from Australia was requested.

2.27 In October 2001, ICAO Regional Office was informed that safety assessment conducted by Airservices Australia concluded that the lateral collision risk would be less than the TLS of 5×10^{-9} fatal accidents per flight hour, provided agreed weather deviation procedures were followed. Accordingly, all the States concerned were notified of this result by ICAO letter AP-ATM0584 dated 26 October 2001.

2.28 The SCS/TF/7 meeting (January 2002) noted that the results of this safety assessment suggested that a new traffic movement sample should be collected to complete the safety assessment once the revised route structure had been implemented because the traffic data used for this preliminary assessment did not reflect the revised route structure. This was particularly important to enable a safety assessment for a 50NM lateral route spacing to be carried out which was under consideration. The meeting agreed that a further safety assessment for RNP 10 operations in the revised South China Sea ATS route structure based on the actual traffic movement should be conducted.

2.29 The SCS/TF/8 meeting of 2-3 December 2002 endorsed this position. Follow-up action on this matter was expected to be taken by the Eleventh Meeting of Southeast Asia ATS Coordination Group (SEACG/11). SEACG/11 (May 2004) considered the matter and added an action item to the SEACG Action Plan, noting that MAAR and Airservices Australia were in consultation about setting up an SMA capable of doing this work.

2.30 APANPIRG/15 (August 2004) noted that SEACG had agreed to update the safety assessment in relation to the implementation on 1 November 2001 of RNP 10 and 60 NM lateral separation on the South China Sea routes. APANPIRG/15 also noted that RASMAG/1 had identified a need for a safety monitoring group to be responsible for safety assessment activities, and there would be a need to designate such a safety organization for the SCS area.

2.31 The present situation is that no follow-up safety assessment has been conducted for the RNP 10 and 60NM route structure in the South China Sea since implementation in November 2001.

3 ACTION BY THE MEETING

3.1 The meeting is invited to:

a) note the summary of the report of RASMAG/2 in relation to matters concerning SEACG;

b) in recognizing State safety management responsibilities in accordance with Annex 11 provisions to provide data to MAAR, urge States to initiate appropriate oversight to ensure that the established safety monitoring requirements are met;

c) note that no follow up safety assessment has been completed in regard to the operation of the RNP 10 and 60NM route structure in the South China Sea since implementation in November 2001;

d) identify and initiate actions to ensure that a follow up safety assessment for the SCS route structure is conducted in time for consideration by RASMAG/3 in June and APANPIRG/16 in August 2005,and

e) consider the establishment of a regional safety monitoring agency to provide, among others, safety assessment and follow up safety services for the SCS routes.
