International Civil Aviation Organization

The Nineteenth Meeting of the Regional Airspace Safety Monitoring Advisory Group (RASMAG/19)

Pattaya, Thailand, 27-30 May 2014

Agenda Item 5: Airspace Safety Monitoring Activities/Requirements in the Asia/Pacific Region

PROGRESS ON MAAR'S AHMS

(Presented by Monitoring Agency for Asia Region)

SUMMARY

This paper presents MAAR's progress on the ADS-B Based Height Monitoring System (AHMS). MAAR's AHMS currently processes ADS-B data received from Aeronautical Radio of Thailand (AEROTHAI) and Air Navigation and Weather Services (ANWS), a subordinate agency of CAA of Taiwan, on a monthly basis. As of March 2014, the system observes 4,875 airframes with 85.76% identified height reference.

This paper relates to –
Strategic Objectives:
*A: **Safety** – Enhance global civil aviation safety*

Global Plan Initiatives:
GPI-2 Reduced vertical separation minima

1. INTRODUCTION

1.1 With the assistance from the FAA Technical Center and the Australian Airspace Monitoring Agency (AAMA), MAAR started providing ADS-B Height Monitoring Service in October 2012.

1.2 The ADS-B data is processed monthly and the monitoring results are shared with other RMAs via the Knowledge Sharing Network (KSN). The last successful monitoring dates are published along with the approval records on MAAR's website (http://www.aerothai.co.th/maar/approvals.php).

2. DISCUSSION

ADS-B Data Sources

2.1 For height monitoring purposes, MAAR processes ADS-B data from Aeronautical Radio of Thailand (AEROTHAI) and Air Navigation and Weather Services (ANWS), a subordinate agency of CAA of Taiwan. MAAR has incorporated the data from Taipei FIR since August 2013.

2.2 MAAR also received a fixed period of ADS-B data from Civil Aviation Authority of Singapore (CAAS), which allowed MAAR to identify the correct height assumptions more effectively. CAAS is currently coordinating with MAAR to set up a mechanism to collect and share ADS-B data on a monthly basis.

2.3 **Figure 1** illustrates ADS-B tracks of an airframe which appeared in the data obtained from AEROTHAI, ANWS, and CAAS.

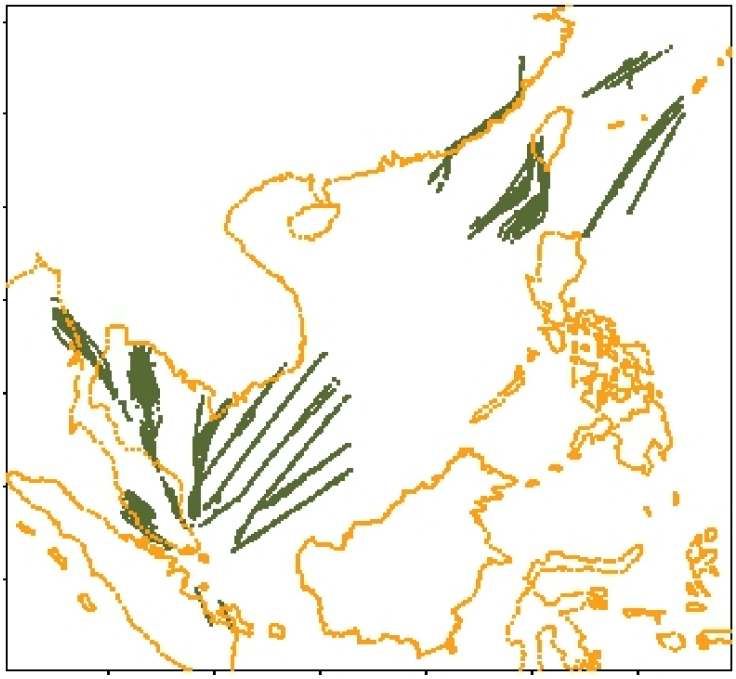

Figure 1: ADS-B tracks of an airframe which appeared in the data obtained from AEROTHAI, ANWS, and CAAS

2.4 Non-routine AHMS data sharing with AAMA, China RMA has also proven a very effective means to help further identify aircraft's height references.

2.5 **Figure 2** illustrates the ADS-B tracks of an airframe which appeared in the data obtained from AAMA, China RMA, and MAAR. Such a wide range of geoid difference, as demonstrated in Figure 2, allowed MAAR to identify the correct height assumption more effectively.

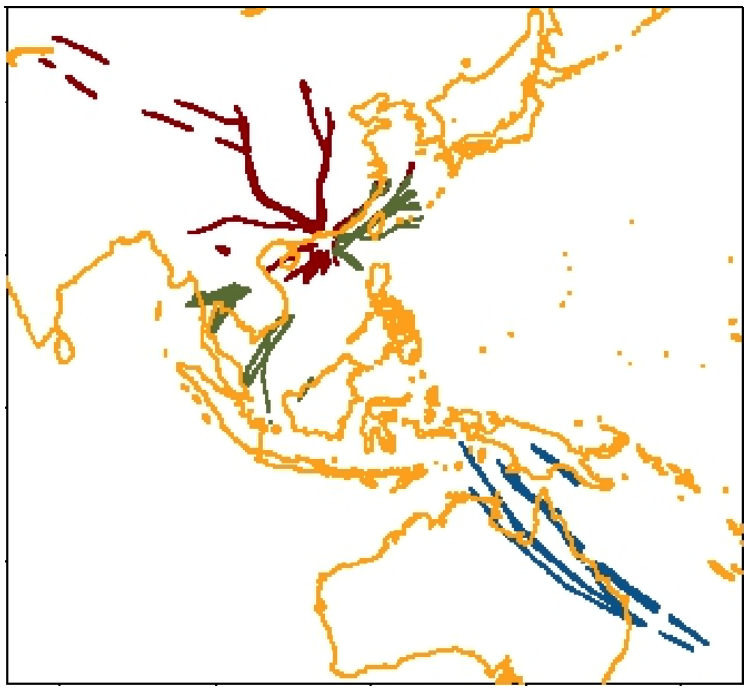

Figure 2: ADS-B tracks of an airframe which appeared in the data obtained from AAMA (blue), China RMA (red), and MAAR (green)

The number of airframes

2.6 **Table 1** summarizes the number of airframes observed by MAAR's AHMS in March 2014 (reported to RASMAG/19), in comparison with that of February 2013 (reported to RASMAG/18).

Airframes' Geoids	**February 2013** (reported to RASMAG/18)		**March 2014** (reported to RASMAG/19)	
	Number of Airframes	**Percentage**	**Number of Airframes**	**Percentage**
Known Geoids	1,226	53.91%	4,181	85.76%
Unknown Geoids	1,048	46.09%	694	14.24%
Total	2,274	100.00%	4,875	100.00%

Table 1: The number of airframes observed by MAAR's AHMS

2.7 MAAR will continue to encourage States to share their ADS-B data for height monitoring purposes. Despite the increase in the size of data, MAAR finds it more effective to identify the correct height reference for each airframe with data from different regions.

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

a) note the information contained in this paper; and

b) discuss any relevant matters as appropriate.

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