International Civil Aviation Organization

The Fourth Meeting of the Bay of Bengal Reduced Horizontal Separation Implementation Task Force (BOB-RHS/TF/4)

Bangkok, Thailand, 18 to 22 October 2010

Agenda Item 3: Operational Issues

COMBINED REGIONAL SSR RADAR AND VHF COMMUNICATIONS COVERAGE

(Presented by Thailand)

SUMMARY

This paper presents combined regional SSR radar and VHF coverage based on information provided by States as well as State Aeronautical Information Publication (AIP) available through public Internet.

1. INTRODUCTION

1.1 The meeting would recall discussions at the BOB-RHS/TF/3 meeting held in Singapore in May 2010 where the meeting was requested to provide SSR radar and VHF communications coverage charts to assist in planning future initiatives in relation to reduction of longitudinal separation in the areas concerned by the work of the task force.

1.2 The meeting is invited note Thailand advised the BOB-RHS/TF/3 meeting that they would be prepared to investigate the possibility of combining all these charts showing both radar and VHF coverage over the entire area of the Bay of Bengal and Arabian Sea at FL290, which could prove useful for regional planning in the introduction of new ATM initiatives throughout this part of the region.

1.3 In addition, discussions took place at the ATM/AIS/SAR/SG/20 meeting on this matter.

2. DISCUSSION

2.1 The meeting is advised that SSR radar coordinates and theoretical coverage diagram are currently available through States' Aeronautical Information Publication (AIP), namely in section ENR1.6 Radar Services and Procedures.

2.2 Therefore, Thailand have collated SSR location and theoretical coverage from State AIP publicly available on the Internet as well as information provided by States, into a combined Google Earth chart in Attachment 1. In addition, it is also possible to be electronically presented as a table containing SSR site, coordinate and theoretical coverage in the current Google Earth chart as shown in Attachment 2.

2.3 Furthermore, a similar combined Google Earth chart showing VHF communications coverage in the Bay of Bengal sub-region based on information provided by States is shown in Attachment 3, with a table containing VHF communications site in Attachment 4.

2.4 It should also be noted that there are several on-going ADS-B implementations in the region. Once planning stages of these implementations are completed, it would also be beneficial that combined coverage diagram of these ADS-B facilities be put together in a fashion similar to SSR radar and VHF communications coverage.

2.5 The meeting should note that information presented in this WP is intended exclusively for regional ATM planning under auspices of ICAO.

3. ACTIONS BY THE MEETING

3.1 The meeting are invited to:

a) note information presented in this WP;

b) encourage States to confirm coordinate and theoretical coverage at FL290 of SSR radar and VHF communications facilities in Attachment 2 and Attachment 4;

c) encourage States to provide coordinate and theoretical coverage at FL290 of SSR radar and VHF communications facilities as information becomes available;

d) discuss potential use of the combined SSR radar and VHF communications coverage Google Earth diagram for the work of the BOB-RHS/TF;

e) discuss potential use of combined ADS-B coverage Google Earth coverage diagram for the work of the BOB-RHS/TF; and,

f) encourage States to provide necessary information for the generation of the combined Google Earth chart.

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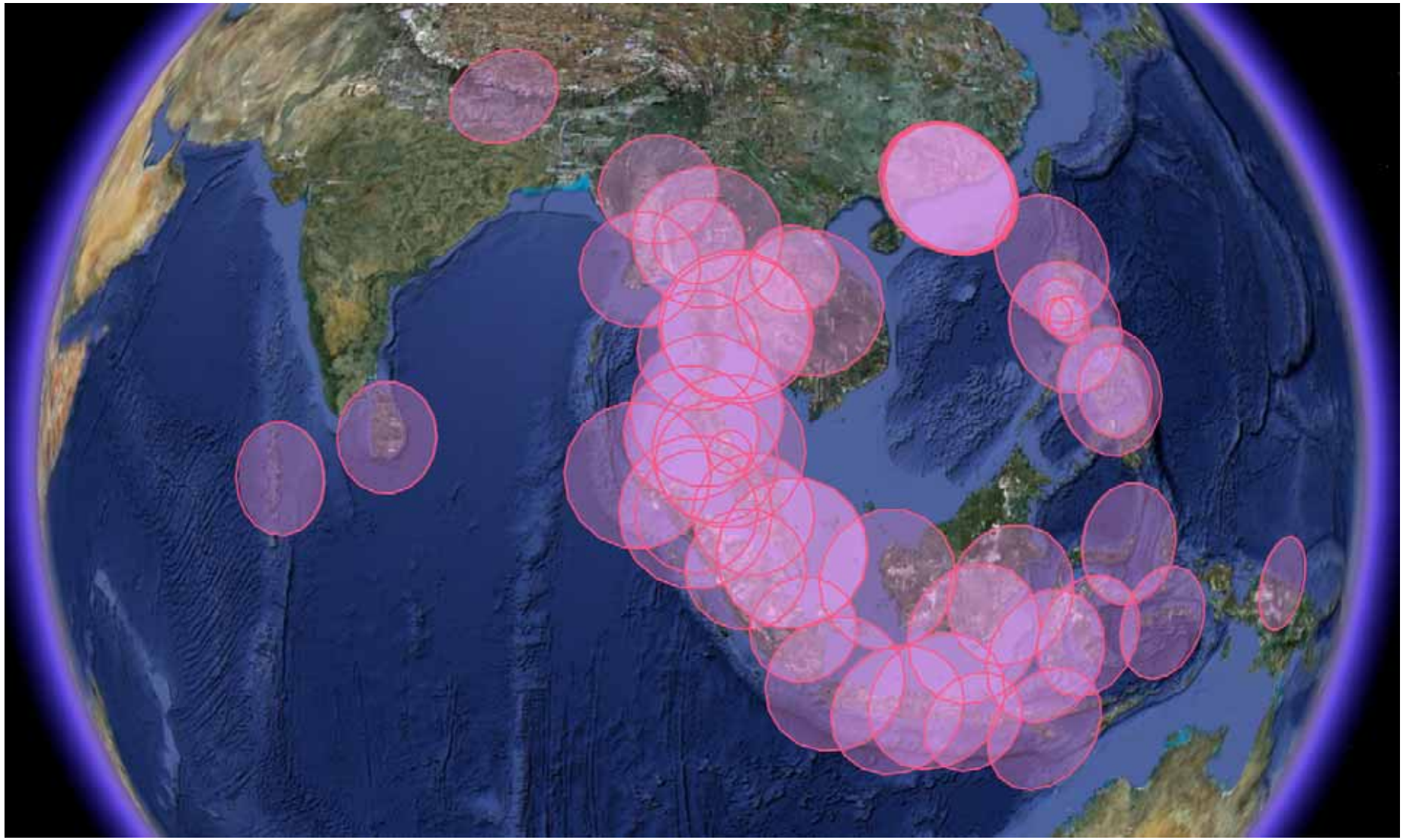
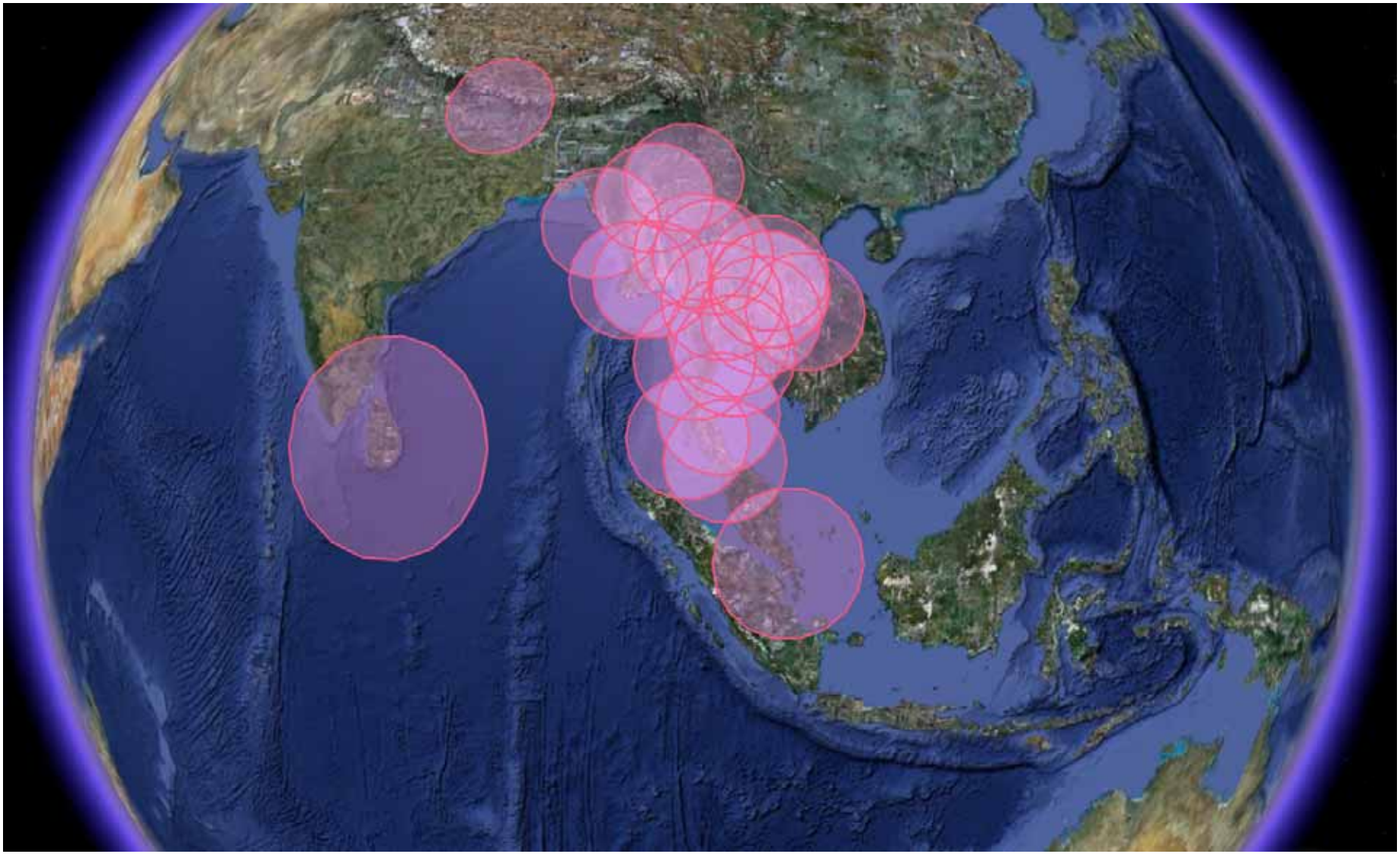


Attachment 1: *Combined Google Earth SSR Radar Coverage Chart at FL290 (Theoretical Coverage)*

Attachment 2: Summary of SSR Radar Coordinate and Coverage included in Google Earth Diagram

State	SSR Site Name	Type	Latitude	Longitude	Theoretical Coverage	Reference / Remark
Indonesia	Jakarta	MSSR	06 07 00.000 S	106 40 05.000 E	240 NM	Information on 26 Aug 2010
Indonesia	Palembang	SSR	02 53 45.890 S	104 42 23.580 E	180 NM	Information on 26 Aug 2010
Indonesia	Pontianak	SSR	00 08 28.906 S	109 24 00.575 E	240 NM	Information on 26 Aug 2010
Indonesia	Semarang	SSR	07 01 16.960 S	110 25 45.080 E	200 NM	Information on 26 Aug 2010
Indonesia	Medan	SSR	03 33 54.692 N	098 40 26.015 E	200 NM	Information on 26 Aug 2010
Indonesia	Medan	MSSR	03 32 11.90 N	098 38 33.50 E	250 NM	Information on 26 Aug 2010
Indonesia	Pekan Baru	SSR	00 27 48.210 N	101 26 48.380 E	200 NM	Information on 26 Aug 2010
Indonesia	Banda Aceh	SSR	05 31 01.370 N	095 25 12.930 E	240 NM	Information on 26 Aug 2010
Indonesia	Yogyakarta	MSSR	07 47 06.960 S	110 26 32.996 E	240 NM	Information on 26 Aug 2010
Indonesia	Surabaya	MSSR	07 23 01.290 S	112 46 48.120 E	256 NM	Information on 26 Aug 2010
Indonesia	Denpasar	MSSR	08 44 38.110 S	115 10 05.340 E	192 NM	Information on 26 Aug 2010
Indonesia	Waingapu	SSR	09 40 06.100 S	120 10 36.430 E	250 NM	Information on 26 Aug 2010
Indonesia	Makassar	MSSR	05 03 38.960 S	119 32 55.940 E	256 NM	Information on 26 Aug 2010
Indonesia	Banjarmasin	MSSR	03 26 29.776 S	114 44 45.918 E	256 NM	Information on 26 Aug 2010
Indonesia	Balik Papan	MSSR	01 15 57.990 S	116 53 20.550 E	256 NM	Information on 26 Aug 2010
Indonesia	Manado	SSR	01 19 19.930 N	124 57 22.620 E	240 NM	Information on 26 Aug 2010
Indonesia	Kendari	SSR	04 02 44.240 S	122 24 50.750 E	240 NM	Information on 26 Aug 2010
Indonesia	Ambon	SSR	03 43 46.200 S	128 09 47.420 E	240 NM	Information on 26 Aug 2010
Indonesia	Jayapura	MSSR	02 35 55.08 S	140 31 39.96 E	250 NM	Information on 26 Aug 2010
Malaysia	Genting	SSR	03 28 28 N	101 47 00 E	200 NM	Information on 12 Oct 2010
Malaysia	Langkawi	MSSR	06 20 30 N	99 44 03 E	200 NM	Information on 12 Oct 2010
Maldives	Male'		041125.7N	733152.0E	220 NM	Information from BOB-RHS/TF/3
Myanmar	Yangon		165452.8N	950809.9E	200 NM	AIP Myanmar - 1 July 2010
Myanmar	Mandalay		214151.6N	955849.9E	200 NM	AIP Myanmar - 1 July 2010
Myanmar	Myeik		122637.6N	983709.1	200 NM	AIP Myanmar - 1 July 2010
Nepal			274224.0N	852202.0E	200 NM	Information from BOB-RHS/TF/3
Singapore	ASR I		012159.87N	1035849.89E	250 NM	AIP Singapore – 29 July 2010
Singapore	ASR II		012156.28N	1035844.86E	250 NM	AIP Singapore – 29 July 2010
Sri Lanka	P3		070003.0N	804618.0E	200 NM	Information from BOB-RHS/TF/3
Thailand	Don Mueang		135518N	1003633E	250 NM	AIP Thailand – 29 July 2010
Thailand	Suvarnabhumi		134149.60N	1004615.20E	250 NM	AIP Thailand – 29 July 2010
Thailand	Chiang Mai		185433N	985808E	250 NM	AIP Thailand – 29 July 2010
Thailand	Surat Thani		090751N	990839E	200 NM	AIP Thailand – 29 July 2010
Thailand	Ubon		151420N	1045202E	250 NM	AIP Thailand – 29 July 2010
Thailand	Phu Keaw		170808.0N	1035937.5E	150 NM	AIP Thailand – 29 July 2010 (WGS84)
Thailand	Doi Intanon		183521.2N	982921.0E	150 NM	AIP Thailand – 29 July 2010 (WGS84)
Thailand	Song Khla		065031.5N	1002524.0E	157.5° – 225.0°: 70 NM 225.5° – 157.0°: 200 NM	AIP Thailand – 29 July 2010 (WGS84) (To be replaced by Hat Yai site by December 2010)
Thailand	Phuket		075244.7N	0981909.3E	220 NM	AIP Thailand – 29 July 2010 (WGS84)
Thailand	Hat Yai		065610N	1002340E	250 NM	AEROTHAI (Operational by October 2010)

Note: Information available exclusively for regional ATM planning under auspices of ICAO



Attachment 3: *Combined Google Earth VHF Communications Coverage Chart at FL290 (Theoretical Coverage)*

Attachment 4: Summary of VHF Communications Facility Coordinate and Coverage included in Google Earth Diagram

State	VHF Site Name	Type	Latitude	Longitude	Theoretical Coverage	Reference / Remark
Myanmar	Yangon	128.75 MHz/126.75 MHz (Main)	165420.74N	0960816.34E	200 NM	Information on 12 Oct 2010
Myanmar	Pathien	128.75 MHz (remote)	164849.6N	0944638.0E	200 NM	Information on 12 Oct 2010
Myanmar	Myeik	128.75 MHz (remote)	122656.9N	0983719.7E	200 NM	Information on 12 Oct 2010
Myanmar	Mandalay	126.75 MHz (remote)	214206.4N	0955825.1E	200 NM	Information on 12 Oct 2010
Myanmar	Sittwe	126.75 MHz (remote)	200758.6N	0925233.6E	200 NM	Information on 12 Oct 2010
Myanmar	Lashio	126.75 MHz (remote)	225854.2N	0974513.3E	200 NM	Information on 12 Oct 2010
Nepal			273416N	852424E	200 NM	Email on 30 May 2010
Singapore			012159.87N	1035849.89E	250 NM	AIP Singapore – 29 July 2010
Sri Lanka	P3		070003.0N	804618.0E	400 NM	Information from BOB-RHS/TF/3
Thailand	Mahamek		134257N	1003242E	200 NM	AEROTHAI
Thailand	Khao Mon		124100N	1005000E	200 NM	AEROTHAI
Thailand	Korat		145652N	1021858E	200 NM	AEROTHAI
Thailand	Ubon		151400N	1045200E	200 NM	AEROTHAI
Thailand	Khon Kaen TOT		162530N	1025003E	200 NM	AEROTHAI
Thailand	Khon Kaen TWR		162755N	1024708E	200 NM	AEROTHAI
Thailand	Udon		172310N	1024638E	200 NM	AEROTHAI
Thailand	Samui		092955N	1000000E	200 NM	AEROTHAI
Thailand	Doi Intanont		183524N	982913E	200 NM	AEROTHAI
Thailand	Lampang		181436N	993346E	200 NM	AEROTHAI
Thailand	Nakhon Sawan		154300N	1000600E	200 NM	AEROTHAI
Thailand	Hat Yai		065546N	1002355E	200 NM	AEROTHAI
Thailand	Phuket		080754N	981957E	200 NM	AEROTHAI

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