International Civil Aviation Organization

WORKING PAPER

TWENTIETH MEETING OF THE METEOROLOGY SUB-GROUP (MET SG/20) OF THE ASIA/PACIFIC AIR NAVIGATION PLANNING AND IMPLEMENTATION REGIONAL GROUP (APANPIRG)

Bangkok, Thailand, 6 – 9 June 2016

Agenda Item 7: Regional guidance material

REVIEW ROBEX HANDBOOK

(Presented by the Secretariat)

SUMMARY

The ROBEX Handbook supports the optimization of OPMET exchange under the ROBEX scheme. Ongoing development of the ROBEX Handbook comes under the terms of reference of the MET SG and MET/IE WG. Near term updates are proposed and additional amendments are drafted, which require further development before adoption by the MET SG. The meeting is invited to review and revise the work plan as necessary related to the development of ROBEX Handbook amendments.

1. INTRODUCTION

1.1 Improved availability and reliability of the required operational meteorological (OPMET) information is needed to support flight planning (efficiency) and in-flight re-planning (safety). In the Asia/Pacific Region, the Regional OPMET Bulletin Exchange (ROBEX) Handbook is provided as regional guidance material to support the optimization of OPMET exchange under the ROBEX scheme. As such, the ROBEX Handbook provides guidance to define the responsibilities and procedures for the ROBEX centres, including the content and format of the ROBEX bulletins.

1.2 The ROBEX Handbook is maintained by the ICAO Asia/Pacific Regional Office. Regular review and update of the ROBEX Handbook is an important function carried out under the terms of reference and work programme of the APANPIRG and the MET SG, and in particular with assistance provided by the MET/IE WG to ensure alignment of the ROBEX Handbook with the relevant OPMET-related ICAO SARPs, provisions and regional air navigation procedures.

1.3 This paper discusses recent activity by the MET/IE WG in the preparation of amendments to the ROBEX Handbook aimed at optimization of the ROBEX scheme.

2. DISCUSSION

2.1 The latest version of the ROBEX Handbook (Twelfth Edition, Amended – 03 December 2015) is available on the ICAO Asia and Pacific Office web site (www.icao.int/APAC) by following the link to eDocuments and scrolling down to MET.

2.2 A summary of the MET/IE WG/14 outcomes with respect to ROBEX Handbook updates is provided in WP/16. A number of actions were agreed by MET/IE WG/14 to either progress updates needed in the near term to realign the data in the ROBEX Handbook with current Regional requirements or to progress with the drafting of other improvements to the ROBEX Handbook which would address a range of issues raised by the group. These actions were detailed in the task list and the revised work programme of the MET/IE WG/14 in WP16.

2.3 A copy of the draft amendments to the ROBEX Handbook reviewed by the MET/IE WG/14 is provided at the **Attachment** to this paper. Further development of the material would be required to fully address the issues identified and for the draft amendments to be considered as mature for possible approval by the MET SG for onward distribution to and use by States.

3. CONCLUSION

3.1 The ROBEX Handbook provides regional guidance in support of OPMET exchange. The MET/IE WG supports the MET SG with the development of amendment proposals to ensure alignment of the ROBEX Handbook with the relevant OPMET-related ICAO SARPs, provisions and regional requirements.

3.2 Near term realignment of data in the ROBEX Handbook is included in the MET/IE work plan to reflect the current requirements for OPMET bulletins. Further development of draft amendments to the ROBEX Handbook is also in the MET/IE WG work plan to address a range of issues identified by the group.

4. ACTION BY THE MEETING

4.1 The meeting is invited to:

a. Note the information contained in this paper and discuss any relevant matters as appropriate;

b. Review and revise, as necessary, the proposals provided in this paper for amendment of the ROBEX Handbook; and

c. Review and revise as necessary the work programme of the MET SG and MET/IE WG, including target dates, with respect to the future development of the ROBEX WG.

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Draft amendments to the ROBEX Handbook
(Extracted from MET/IE WG/14, Attachment 4 to the Report)

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11. INTER-REGIONAL OPMET EXCHANGE

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11.4 In order to avoid duplication of the OPMET traffic and information, all inter-regional OPMET exchange should be directed through the IROGs. Inter-regional exchange via direct AFTN or AMHS addressing from the originator or ROBEX centre to recipients in the other ICAO Regions should be avoided, except when bilateral or other agreements require such direct exchanges.

11.5 In order to ensure the global availability of all ROBEX bulletins at the SADIS and WIFS gateways, the IROG Singapore should arrange for relaying of all Asia/Pacific bulletins to the SADIS gateway (London) and the IROG Tokyo should arrange for relaying of all Asia/Pacific bulletins to the WIFS gateway (Washington). Note: Revise this paragraph to better clarify the responsibility for addressing bulletins to SADIS and WIFS, i.e., is it the IROGs' responsibility or the RCCs'?

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12. MANAGEMENT OF OPMET EXCHANGE UNDER THE ROBEX SCHEME

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12.3.2.2 Monitoring of SIGMET, VAA and TCA should be performed during the scheduled regional SIGMET tests in accordance with the procedures published by the Regional Office, Bangkok.

12.3.2.x Additional monitoring of SIGMET issuance may be scheduled as necessary to monitor the issuance of SIGMET in specific FIRs over specific periods where such monitoring would be useful to support the rectification of deficiencies in the provision of SIGMET services.

12.3.2.3 The monitoring results shall be presented in bulletin-oriented format, one line per bulletin indicating the abbreviated header (TTAAii CCCC YGGgg), the FIR/UIR where applicable, receipt time and originator.

12.3.3 Reporting OPMET monitoring results

12.3.3.1 OPMET monitoring reports should provide data for all locations where OPMET is required (i.e., locations in Regional ANP Table MET II-1 and Table MET II-2) and additional locations where States have been consulted and agreed to provide this additional information (i.e., locations in SUG Annex 1). Note: To be confirmed

12.3.3.2 OPMET monitoring reports should provide sufficient data to help States identify problems in OPMET issuance, e.g., the actual number of messages received per day at locations where OPMET monitoring identifies that the number of messages received does not meet a given percentage of the total number of messages expected.

12.3.3.3 Reports of the results of OPMET monitoring conducted in accordance with the guidelines in this Handbook should be presented in a format that enables ease of comparison between the reports from the various designated OPMET monitoring entities (e.g., IATA and RODBs) and ease of interpretation of the data by States and users concerned.

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APPENDIX H

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2. OPMET Monitoring

2.1 Monitoring of Scheduled OPMET data

2.1.1 Performance Indicators (PIs). The indices to be used by the RODBs are based on those developed by the European BMG for monitoring the SADIS distribution (ref. SADISOPSG/8, IP/5 – *SADIS OPMET Performance Indices*).

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Example 1:

Bulletin SAIN33 includes 6 aerodromes: VECC, VEPT, VGHS, VGEG, VNKT and VQPR. For each aerodrome, the No. of reports required for a bulletin equals 2*24 = 48 reports, because the official observation time of the bulletins is at every hour and half-hour (i.e., HH+00 and HH+30) resulting in 2 reports for each of the 24 hours in each day. If only on the 2nd of March, RODB does not receive reports from one aerodrome. Calculate the compliance index for Bulleting SAIN33 in March.?

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APPENDIX I

ROBEX FOCAL POINTS

STATE/ ADMINISTRATION	NAME/DESIGNATION AND ADDRESS	TEL/FAX AND E-MAIL
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MALAYSIA	Dr.Wan Azli Wan Hassan Director National Meteorological Aviation Centre ~~Mr. Tan Huvi VEIN~~ ~~Director~~ ~~KLIA Meteorological Office~~ 1st Floor, Airport Administration Centre Kuala Lumpur International Airport 64000 Sepang, Selangor Darul Ehsan Malaysia	Tel: +60 (3) 8787239~~86~~ Fax: +60 (3) 87871019 e-mail: ~~thv@kjc.gov.my~~ wanazli@met.gov.my
	Mr. Lim Ze Hui Assistant Director Sabah Meteorological Sabah, Tingkat 7, Wisma Dang Bandang 88000 Kota Kinabalu, Sabah Malaysia	Tel: +60 (88) 256054 Fax: +60 (88) 211019 e-mail: zhlim@met.gov.my
	~~***Administration units OPMET/ROBEX***~~ ~~KLIA Meteorological Office~~ ~~Kuala Lumpur International Airport~~ ~~1st Floor, Airport Management~~ ~~64000 Sepang~~ ~~Selangor Darul Ehsan~~	

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STATE/ ADMINISTRATION	NAME/DESIGNATION AND ADDRESS	TEL/FAX AND E-MAIL
….		
REPUBLIC OF KOREA	~~Ms. Park Jieun~~ Ms, Lee Min Ja Senior Meteorologist ~~Korea Aviation Meteorological Agency (KAMA)~~ Aviation Meteorological Office (AMO) Korea Meteorological Administration Observation and Forecast Division 272 Gonghang-ro, Jung-gu Incheon, 400720 (P.O. Box 43)	Tel: +82 (32) 7402820 Fax: +82 (32) 7402807 e-mail: ~~jieuni@korea.kr~~ manja78@korea.kr
	Ms. Kim Youn-jeong Assistant Director ~~Korea Aviation Meteorological Agency (KAMA)~~Aviation Meteorological Office (AMO) Korea Meteorological Administration Information and Technology Division 272 Gonghang-ro, Jung-gu Incheon, 400720 (P.O. Box 43)	Tel: +82 (32) 740 2850 Fax: +82 (32) 740 2847 e-mail: bj414@korea.kr
	Administration units OPMET/ROBEX ~~Korea Aviation Meteorological Agency (KAMA)~~Aviation Meteorological Office (AMO) 272 Gonghang-ro, Jung-gu Incheon, 400720 (P.O. Box 43) (Location Indicator : RKSIYPYX)	
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PROPOSED RE-ALIGNMENT OF LOCATIONS WITHIN ROBEX BULLETINS

TABLE A		TABLE B	
SANG31		**FTNG31**	
AYPY	PORT MORESBY Intl	AYPY	PORT MORESBY Intl
AYWK	WEWAK	*AYWK*	*WEWAK*
AYVN	VANIMO	AYVN	VANIMO
AYNZ	NADZAB	*AYNZ*	*NADZAB*
AYMH	MOUNT HAGEN	*AYMH*	*MOUNT HAGEN*
AYGN	GURNEY	–	–
AYMO	MOMOTE	*AYMO*	*MOMOTE*
ANYN	NAURU I.	ANYN	NAURU I.
AGGH	HONIARA (HENDERSON)	AGGH	HONIARA (HENDERSON)
SASB31		**FTSB31**	
VCBI	BANDARANAIKE INTL AP COLOMBO	VCBI	BANDARANAIKE INTL AP COLOMBO
VCRI	MATTALA RAJAPAKSA INTERNATIONAL AIRPORT	VCRI	MATTALA RAJAPAKSA INTERNATIONAL AIRPORT

TABLE A		TABLE B	
VCCH	HINGURAKGODA/MINNERIYA	–	–
~~VRMM~~	~~MALE/Intl~~	–	–
SAMV31		**FTMV31**	
VRMG	GAN INTERNATIONAL AIRPORT	VRMG	GAN INTERNATIONAL AIRPORT
VRMH	HANIMAADHOO INTERNATIONAL AIRPORT	VRMH	HANIMAADHOO INTERNATIONAL AIRPORT
VRMM	MALE INTERNATIONAL AIRPORT	VRMM	MALE INTERNATIONAL AIRPORT
SAIN31		**FTIN31**	
VAAH	AHMEDABAD	VAAH	AHMEDABAD
VABB	MUMBAI/Chhatrapati Shivaji Intl.	VABB	MUMBAI/Chhatrapati Shivaji Intl.
VANP	NAGPUR	VANP	NAGPUR
VOBL	BANGALORE INTL APT	VOBL	BANGALORE INTL APT
VOCB	COIMBATORE	VOCB	COIMBATORE
VOCI	COCHIN INTERNATIONAL	VOCI	COCHIN INTERNATIONAL AIRPORT
VOCL	CALICUT	VOCL	CALICUT
VOHS	HYDERABAD	VOHS	HYDERABAD INTERNATIONAL AIRPORT
VOHY	*HYDERABAD*	*VOHY*	*HYDERABAD*
VOML	MANGALORE	VOML	MANGALORE
VOMM	CHENNAI	VOMM	CHENNAI
VOTR	TIRUCHCHIRAPPALLI	VOTR	TIRUCHCHIRAPPALLI
VOTV	TRIVANDRUM	VOTV	TRIVANDRUM
–	–	~~VEBN~~	~~VARANASI~~
–	–	~~VECC~~	~~NETAJI SUBHASH CHANDRA BOSE INTL AP, Kolkata~~
–	–	~~VEGT~~	~~Guwahati~~
–	–	~~VEGY~~	~~Gaya~~
–	–	~~VEPT~~	~~PATNA~~
–	–	~~VIAR~~	~~AMRITSAR~~
–	–	~~VIDP~~	~~DELHI/Indira Gandhi Intl~~
–	–	~~VIJP~~	~~JAIPUR~~
–	–	~~VILK~~	~~LUCKNOW~~
SAIN32		**FTIN32**	
VIDP	DELHI/Indira Gandhi Intl	VIDP	DELHI/Indira Gandhi Intl
VEBN	VARANASI	VEBN	VARANASI
VIAR	AMRITSAR	VIAR	AMRITSAR
VIJP	JAIPUR	VIJP	JAIPUR
VILK	LUCKNOW	VILK	LUCKNOW
–	–	~~VCBI~~	~~BANDARANAIKE INTL AP COLOMBO~~
–	–	~~VCRI~~	~~MATTALA RAJAPAKSA INTERNATIONAL AIRPORT~~
–	–	~~VNKT~~	~~KATHMANDU~~
–	–	~~VRMG~~	~~GAN INTERNATIONAL AIRPORT~~
–	–	~~VRMM~~	~~MALE INTERNATIONAL AIRPORT~~
–	–	~~VOBL~~	~~BANGALORE INTL APT~~
–	–	~~VOCB~~	~~COIMBATORE~~
–	–	~~VOCI~~	~~COCHIN INTERNATIONAL AIRPORT~~
–	–	~~VOCL~~	~~CALICUT~~
–	–	~~VOHS~~	~~HYDERABAD INTERNATIONAL AIRPORT~~
–	–	~~*VOHY*~~	~~*HYDERABAD*~~

TABLE A		TABLE B	
–	–	~~VOML~~	~~MANGALORE~~
–	–	~~VOMM~~	~~CHENNAI~~
–	–	~~VOTR~~	~~TIRUCHCHIRAPPALLI~~
–	–	~~VOTV~~	~~TRIVANDRUM~~
~~SAIN33~~		–	
~~VGHS~~	~~HAZRAT SHAHJALAL INTERNATIONAL AIRPORT~~	–	–
~~VNKT~~	~~KATHMANDU~~	–	–
~~VQPR~~	~~PARO/Intl.~~	–	–
~~VECC~~	~~NETAJI SUBHASH CHANDRA BOSE INTERNATIONAL AIRPORT, KOLKATA~~	–	–
~~VEGT~~	~~GUWAHATI~~	–	–
~~VEGY~~	~~GAYA~~	–	–
~~VEPT~~	~~PATNA~~	–	–
SABW31		**FTBW31**	
VGEG	M.A. HANNAN INTL. CHITTAGONG	VGEG	M.A. HANNAN INTL. CHITTAGONG
VGHS	HAZRAT SHAHJALAL INTERNATIONAL AIRPORT	VGHS	HAZRAT SHAHJALAL INTERNATIONAL AIRPORT
VGSY	*OSMANI INTERNATIONAL AIRPORT,SYLHET*	*VGSY*	*OSMANI INTERNATIONAL AIRPORT,SYLHET*
SAAS31		**FTAS31**	
VNKT	KATHMANDU	VNKT	KATHMANDU
VQPR	PARO/Intl.	–	–
SAPS31		**FTPS31**	
NCRG	RAROTONGA Intl.	NCRG	RAROTONGA Intl.
NFFN	NADI/Intl	NFFN	NADI/Intl
NFNA	*NAUSORI/Intl*	*NFNA*	*NAUSORI/Intl*
NFTF	FUA'AMOTU INTL.	NFTF	FUA'AMOTU INTL.
NFTV	VAVA'U	NFTV	VAVA'U
NGFU	FUNAFUTI/Intl	NGFU	FUNAFUTI/Intl
NGTA	TARAWA/Bonriki Intl	NGTA	TARAWA/Bonriki Intl
NIUE	NIUE Intl	NIUE	NIUE Intl
NLWW	WALLIS HIHIFO	NLWW	WALLIS HIHIFO
NSFA	FALEOLO/Intl	NSFA	FALEOLO/Intl
NSTU	PAGO PAGO Intl, Tutuila I.	NSTU	PAGO PAGO Intl, Tutuila I.
NTAA	TAHITI FAAA	NTAA	TAHITI FAAA
NVSS	SANTO/Pekoa	NVSS	SANTO/Pekoa
NVVV	PORT VILA/Bauerfield	NVVV	PORT VILA/Bauerfield
NWWW	NOUMEA LA TANTOUTA	NWWW	NOUMEA LA TANTOUTA
PLCH	CHRISTMAS ISLAND	PLCH	CHRISTMAS ISLAND
SAPS31		–	
~~NFTF~~	~~FUA'AMOTU Intl.~~	–	–
NFTL	*HA'APAI*	–	–
~~NFTV~~	~~VAVA'U~~	–	–
~~NLWW~~	~~WALLIS HIHIFO~~	–	–
~~NVSS~~	~~SANTO/Pekoa~~	–	–
~~NVVV~~	~~PORT VILA/Bauerfield~~	–	–
SAJP31		**FTJP31**	
RJAA	NARITA Intl	RJAA	NARITA Intl

TABLE A		TABLE B	
RJBB	KANSAI Intl	RJBB	KANSAI Intl
RJCH	HAKODATE	RJCH	HAKODATE
RJGG	CHUBU CENTRAIR Intl	RJGG	CHUBU CENTRAIR Intl
RJOO	OSAKA Intl	RJOO	OSAKA Intl
RJSS	SENDAI	RJSS	SENDAI
RJTT	TOKYO Intl	RJTT	TOKYO Intl
ROAH	NAHA	ROAH	NAHA
SAJP32		**FTJP32**	
RJCC	SAPPORO/New Chitose	RJCC	SAPPORO/New Chitose
~~RJCH~~	~~HAKODATE~~	–	–
RJFF	FUKUOKA	RJFF	FUKUOKA/Fukuoka
RJFK	KAGOSHIMA	RJFK	KAGOSHIMA
RJFO	OITA	RJFO	OITA
RJFT	KUMAMOTO	RJFT	KUMAMOTO
RJFU	NAGASAKI	RJFU	NAGASAKI
–	–	~~RJGG~~	~~CHUBU CENTRAIR INTL~~
RJNK	*KANAZAWA/Komatsu*	*RJNK*	*KANAZAWA/Komatsu*
RJNT	*TOYAMA*	*RJNT*	*TOYAMA*
RJOA	HIROSHIMA	RJOA	HIROSHIMA
RJOB	OKAYAMA	RJOB	OKAYAMA
RJOT	TAKAMATSU	RJOT	TAKAMATSU
RJSN	NIIGATA	RJSN	NIIGATA
~~RJSS~~	~~SENDAI~~	–	–
SAJP38		**FTJP38**	
RJAH	*HYAKURI*	*RJAH*	*HYAKURI*
RJCB	*OBIHIRO*	*RJCB*	*OBIHIRO*
RJCK	*KUSHIRO*	*RJCK*	*KUSHIRO*
RJCM	*MEMANBETSU*	*RJCM*	*MEMANBETSU*
RJEC	*ASAHIKAWA*	*RJEC*	*ASAHIKAWA (civil)*
RJFM	*MIYAZAKI*	*RJFM*	*MIYAZAKI*
RJFR	*NEW KITAKYUSHU*	*RJFR*	*NEW KITAKYUSHU*
RJFS	*SAGA*	*RJFS*	*SAGA*
~~*RJNK*~~	~~*KANAZAWA/Komatsu*~~	–	–
RJNS	*SHIZUOKA*	*RJNS*	*SHIZUOKA*
~~*RJNT*~~	~~*TOYAMA*~~	–	–
RJOC	*IZUMO*	*RJOC*	*IZUMO*
RJOH	*MIHO*	*RJOH*	*MIHO*
RJOK	*KOCHI*	*RJOK*	*KOCHI*
RJOM	*MATSUYAMA*	*RJOM*	*MATSUYAMA*
RJSA	*AOMORI*	*RJSA*	*AOMORI*
RJSF	*FUKUSHIMA*	*RJSF*	*FUKUSHIMA*
RJSK	*AKITA*	*RJSK*	*AKITA*
ROIG	*ISHIGAKI JIMA*	*ROIG*	*ISHIGAKI JIMA*