



International Civil Aviation Organization

**NINTH MEETING OF THE  
COMMUNICATIONS/NAVIGATION/SURVEILLANCE AND  
METEOROLOGY SUB-GROUP OF APANPIRG  
(CNS/MET SG/9)**

Bangkok, Thailand, 11–15 July 2005

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**Agenda Item 9: Exchange of OPMET Information**

**ASIA/PAC AIREP SURVEY**

(Presented by Rapporteur of OPMET M/TF)

**SUMMARY**

This paper reviews the results accomplished by the OPMET Management Task Force AIREP Team, presented to the OPMET/M TF/3 meeting held in Bangkok, Thailand, 2 - 4 March 2005.

**1. INTRODUCTION**

1.1 The Second Meeting of ASIA/PAC OPMET Management Task (OPMET/M TF/2) reviewed the ROBEX Handbook a new version (12<sup>th</sup> Edition) has since been created. The meeting noted that due to the lack of up-to-date information regarding the AIREP exchange, Chapter 9 of the handbook had not been updated. The meeting decided that a survey on AIREP exchange with the ASIA/PAC and MID Region States would be necessary to collect information on the availability of the AIREP bulletins, and to verify the adequacy of ROBEX procedures on the AIREP exchange.

1.2 The exchange of air-reports is a complex matter, therefore the OPMET/M TF/2 meeting agreed that a small sub-group, named AIREP Team, should study the subject in detail and carry out a survey on the current status of AIREP exchange in the ASIA/PAC and MID regions. The Team prepared survey documents and conducted the survey in coordination with the ICAO Regional Office in November 2004.

1.3 The results were reported at OPMET/M TF/3 meeting in March 2005 and the main findings and recommendations are presented below.

**2. DISCUSSION**

2.1 The term AIREP is used to cover the routine and special air-reports described in Annex 3, Chapter 5: *Aircraft Observations and Reports*. In addition to Annex 3 provisions, regional procedures related to AIREP exchange for ASIA/PAC and MID regions are included in the ROBEX Handbook.

2.2 It should be understood that AIREP reports encompass the message received by the ACCs by means of voice communication. The automatic data reports via ADS are not part of the exchange between ROBEX centres. There is a general trend that the ADS MET reports would replace the voice reports in the future. However, at present the ADS MET reporting is used mainly in the oceanic FIRs, while the rest of the region is still using and will continue to use for some time the air reports transmitted by aircraft using voice communication. Moreover, the requirement for special air reports by voice is still valid even if the routine air reports are done automatically via ADS.

2.3 The AIREP Team developed a survey questionnaire, which was circulated to all ROBEX centres involved in the collection and dissemination of AIREP messages/bulletins. The survey was conducted over a 10-day sampling period (1<sup>st</sup> to 10<sup>th</sup> November 2004). During this period all ROBEX centres recorded the AIREP bulletins received/transmitted by their centre and forwarded this information to the AIREP Team.

2.4 The core group of the AIREP team, comprising experts from RODB Brisbane and Singapore, prepared the final report of the survey, which contained a comprehensive analysis of the survey responses by 15 ROBEX centres. The full report is found on the ICAO web site at: [www.icao.int/cgi/go\\_to\\_apac.pl?/apac/meetings.htm](http://www.icao.int/cgi/go_to_apac.pl?/apac/meetings.htm) (the report is contained in WP/8 for OPMET/M TF/3 meeting). Summary of the results is presented in Attachment A.

2.5 15 ROBEX centres took part in the survey and send the collected UA bulletins to Singapore and Brisbane. This participation is considered very good and ROBEX centres should be commended. Following the survey period, ROBEX centres were advised to review and check survey information to:

- confirm accuracy of reported data;
- determine if the distribution of their AIREP bulletins is adequate;
- determine if they require copies of other AIREP bulletins and advise generating centres to include in their distribution.

2.6 The main findings and recommendations by the AIREP team are as follows:

2.6.1 Between 30 and 40% of the replies indicated different non-compliances with Annex 3 provisions related to air reporting, such as:

- MWOs do not collect air reports;
- No procedure in place for relaying air reports received by ATS units to MWOs;
- No adequate coding procedures;
- No procedures for issuance of SIGMET based on special air reports;
- No procedures for exchange of AIREP with ROBEX centres.

2.6.2 The OPMET/M TF/3 meeting addressed in particular the following issues related to the ROBEX exchange:

- *The lack of special AIREP.* Only less than ten special AIREP message were identified for the whole region during the 10-day trial period. Knowing the importance of special AIREP for the issuance of SIGMET, the OPMET/M TF expressed concern at the extremely low availability of these reports. It was felt that an additional investigation should be carried out to find out the reasons. In this regard, the OPMET/M TF requested IATA to look at this issue and consult with airlines.

- *Use of GTS instead of AFTN.* The OPMET/M TF considered it necessary to advise the centres that the dissemination of the UA bulletins in ROBEX scheme and to the WAFCs should be via AFTN. It was recalled that once the bulletins reach WAFCs, their further dissemination should be via the WMO GTS, since after that point the air reports are considered “basic” data.
- *Irregularities in the AIREP exchange.* A lot of irregularities have been observed, such as, non-issuance, repetitions, retransmissions of bulletins, etc. In general, most of the centres did not follow the distribution lists provided in the ROBEX Handbook
- *Formatting errors.* A number of formatting errors in the AIREP messages have been found, the most common being: reporting of the position of aircraft by reporting points instead of latitude/longitude values; reporting wind direction in values not rounded to the nearest 10 degrees; inconsistencies in the WMO abbreviated headings of some bulletins.

2.6.3 The OPMET/M TF felt that additional guidance should be provided to the ROBEX centres in order to improve the AIREP exchange. On the other hand, the need for exchanging AIREP through the ROBEX scheme, which is in addition to the AIREP exchange between the ACC and MWOs, and the WAFCs, as specified in the Annex 3, was discussed. In order to decide on the future requirements for the AIREP exchange, it was agreed that States should be consulted on the need for exchanging UA bulletins through the ROBEX scheme.

2.7 The meeting agreed that the Secretariat, assisted by the AIREP Team should make available the results of the survey to all centres concerned and should consult them on the usability of the ROBEX AIREP exchange.

2.8 The AIREP Team is to be congratulated for conducting an excellent survey that revealed a number of issues related to the AIREP exchange.

### **3. ACTION BY THE MEETING**

3.1 The meeting is expected to:

- a) review the results of the ASAI/PAC AIREP Survey provided in the Attachment; and
- b) discuss the identified issues and advise the Task Force on any future work necessary.

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## Summary of the results of the AIREP Survey

**1** held from 1 to 10 November 2004 by the AIREP Team of OPMET/M TF

### 1. List of Participating Centres

The following centres responded to the AIREP survey

Centre	Location	Type of Response
BANGKOK	VTBB	<a href="#">Appendix B</a> - Completed Tables
BEIJING	ZBAA	Letter Faxed to ICAO
BRISBANE	YBBN	<a href="#">Appendix B</a> - Completed Tables + Survey Data
HONG KONG	VHHH	<a href="#">Appendix B</a> - Spreadsheets
INCHEON	RKSI	<a href="#">Appendix B</a> - Faxed to ICAO
JAKARTA	WIII	<a href="#">Appendix B</a> - Completed Tables
KARACHI	OPKR	<a href="#">Appendix B</a> - Completed Tables
NADI	NFFN	<a href="#">Appendix B</a> - Completed Tables
SINGAPORE	WSSS	<a href="#">Appendix B</a> - Completed Tables + Graphs
TOKYO	RJAA	<a href="#">Appendix B</a> - Faxed to ICAO
WELLINGTON	NZWN	Data files
MALAYSIA	WMKK	<a href="#">Appendix B</a> - Faxed to ICAO
MANILA	RPLL	<a href="#">Appendix B</a> - Completed Tables
MALE	VRMM	Appendix A - Faxed to ICAO
PORT VILA	NVTV	Appendix A - Faxed to ICAO

### 2 Survey Questionnaire

An AIREP questionnaire was included as part of the AIREP survey.

Fifteen responses to the questionnaire were received.

A summary of the responses includes:

<a href="#">AIREP Questionnaire - Summary</a>
<p><b>Question 2:</b> <i>Is/are the Meteorological Watch Office/s (MWO) in your State tasked to collect air-reports received by voice communication as per Annex3, Chapter5</i></p>
<p>No.of feedback received = 15</p> <p>5 MWOs (33%) do not collect ARP as per Annex 3, Chapter 5 9 MWOs (60%) collect ARP as per Aneex 3, Chapter 5 Beijing ZBAA MWO - receives ARP via ACARS data link</p>
<p><b>Question 3:</b> <i>Describe in brief the procedures in place for relaying air-reports by the ATS unit(s) to the associated MWO(s):</i></p>
<p>No of feedback received = 15</p> <p>5 MWOs (33%): no procedure in place</p> <p>10 MWOs (67%): have procedures in place for relaying ARP</p> <p>Via AFTN - 3 MWOs (YBBN/WSSS/NZWN) Via AFTN/Telephone - 2 MWOs (VHHH/NVTV)</p>

<u>AIREP Questionnaire - Summary</u>	
Via Fax	- 3 MWOs (RKSI/VRMM/RPLL)
Via GTS	- 1 MWO (NFFN)
Via internal telecommunication system - 1 MWO (RJAA)	
<b>Question 4:</b> <i>Describe in brief the procedures used by MWO(s) for handling air-reports, in particular:</i>	
<i>A)-Coding Procedures</i>	
<i>B)-ARP Bulletin Presentation</i>	
<i>C)-Transmission of ARP to WAFc's</i>	
<i>D)-Transmission of bulletin to responsible ROBEX centre</i>	
<i>E)-Procedures for handling ARS</i>	
<p><b>A) Coding Procedures</b> 6 MWOs (40%) - filed NIL for coding procedures 8 MWOs (53%) - comply to Annex 3 coding procedures 1 MWOs - NIL reply</p> <p><b>B) ARP Bulletin Presentation</b> 6 MWOs (40%) - filed NIL 8 MWOs (53%) - compile and disseminate hourly AIREP bulletins 1 MWOs - NIL reply</p> <p><b>C) Transmission of ARP to WAFc's</b> 4 MWOs transmit ARP to WAFc's via AFTN (VHHH/RKSI/RPLL/WSSS) 2 MWOs transmit ARP to WAFc's via GTS (YBBN/NFFN) 2 MWO transmits ARP to WAFc's via AFTN/GTS (RJAA/NZWN) 6 MWOs filed NIL 1 MWO - NIL reply</p> <p><b>D) Transmission of bulletin to responsible ROBEX centre</b> Only 8 MWOs (53%) transmit AIREP bulletins to their responsible ROBEX centre via AFTN (except one via GTS).</p> <p><b>E) Procedures for handling ARS</b> 9 MWOs (60%) have procedures in place to handle ARS 6 MWOs filed NIL</p>	
<b>Question 5:</b> <i>Are AIREP bulletins received on a regular basis by the responsible ROBEX centre by any other source</i>	
9 MWOs (60%) receive AIREP bulletins regularly from their responsible ROBEX Centres 6 MWOs - filed NO/NIL	
<b>Question 6:</b> <i>Are there procedures in place for the issuance of SIGMET by the MWOs on the basis of the received special air-reports?</i> <i>Is there a procedure for dissemination of special air-reports in the same way as SIGMET messages in case the SIGMET is not issued</i>	
6 MWOs (40%) do not issue SIGMET upon receiving special air-reports. 6 MWOs (33%) do issue SIGMET if ARS are received. 3 MWOs filed NIL	
Manila, Hong Kong and Singapore do have procedures in place to disseminate special air-reports in the same way as SIGMET messages.	
<b>Question 7:</b> <i>Comments and/or requirements on future development of the regional procedures for AIREP exchange</i>	
<b>Brisbane YBBN</b>	Currently we do not generate our UAAU31 bulletin in accordance with ICAO Annex 3. Brisbane uses waypoint names in our reports. These names should be substituted with a Latitude and Longitude. This will be rectified in 2005.

**AIREP Questionnaire - Summary**

We regularly received ARP messages from adjacent FIR (AYPM, AGGH, and NFFF).  
Should these reports be included in our UAAU31 ROBEX bulletins also?

All ATS units should be encouraged to send ARP messages to the nearest collection centre even if their FIR or region does not compile bulletins. This type of information should be exchanged if it is available.

AMDAR ARP bulletins are sent from adjoining areas using area codes in the bulletin to define the location of the bulletin.

**Hong Kong VHHH** Would appreciate more guidance on the definition of 'en-route' phase. SIGMETs are for warning of en-route weather. If an aircraft encounter the specified weather phenomenon, say severe turbulence, during climb-out phase, it is not clear whether SIGMET should be issued and disseminated even though the phenomenon is expected to persist. If not, considering that these events occurred at low level, the current requirement in Annex 3 (para.3.1.4 of Appendix 4) to disseminate such ARS in the same way as SIGMET appears to be superfluous.

**Karachi OPKR** AIREP Exchange should be frequent & on regular basis

**Malaysia WMKK** In some cases the Air Traffic Control and Navigation Centre (ATCN) is rather far from the WMO and is not easy to relay the reports by voice communication. The air-report may best be communicated in proper format and via automatic means such as AMDAR or ADS.

**Male VRMM** Cost effective and convenient procedures to be developed

**Manila RPLL** In consideration of Section 5.10.2, Chapter 5, Annex 3 (14th edition), completed AIREP taken less than an hour and not transmitted to concerned ATS units should be provided in addition to the completed report of volcanic activity

**Singapore WSSS** As proposed by the OPMET/M TF/2, ARS shall be exchanged using different data type designators (T<sub>1</sub>T<sub>2</sub>) in the WMO abbreviated headers

AIREP bulletins shall be exchanged in the standardized code forms, such as convert aircraft position to latitude/longitude (not using ATS reporting points) use F to indicate Flight Level, e.g. F350 (some centres use FL)  
Wind direction – the direction in degrees round off to the nearest 5 or 10 degrees,  
e,g 123/10KT ---> 125/10KT ; 158/20KT ----> 160/20KT

The AIREP bulletins are exchanged in accordance with the ROBEX Scheme, in addition to the exchange over the GTS (The NMC transmits aircraft reports to

<u>AIREP Questionnaire - Summary</u>	
	<p>the appropriate regional collection centre RTH on a regular basis). The content of these messages are similar and the WMO abbreviated headers are different for example, UAAU31 YBBN for ROBEX exchange and UAAU01 AMMC for GTS exchange. Can we review these procedures together with WMO?</p> <p>In order to have an efficient scheme to exchange AIREP received from air-ground data link (ADS or CPDLC), it will be beneficial to develop specific procedures (with regards to message format, code form and quality checks etc) for such AIREP exchange in the region.</p>
<b>Bangkok VTBB</b>	NIL
<b>Beijing ZBAA</b>	NIL
<b>Incheon RKSI</b>	NIL
<b>Jakarta WIII</b>	NIL
<b>Nadi NFFN</b>	NIL
<b>Port Vila NNVV</b>	NIL
<b>Tokyo RJAA</b>	NIL
<b>Wellington NZWN</b>	NIL

### 3 Survey Information

The total number of products exchanged (generated and received) by the different centres during the sample period were:

Date	Bulletins	ARP
1/11	650	3641
2/11	665	4562
3/11	585	4252
4/11	546	3990
5/11	799	5058
6/11	550	4034
7/11	636	4535
8/11	494	3052
9/11	590	3566
10/11	1147	6562
<b>Total</b>	<b>6,662</b>	<b>43,252</b>

### 4 Bulletin Headers

The following bulletins were used in the survey

Bulletin Header	Bulletin Header
1 UAAA01 NZCM (GTS)	2.UAAE01 WSSS (GTS)
3.UAAS11 RJTD (GTS)	4.UAAU31 YBBN
5.UAFE31 RJTD	6.UAFE32 RJTD
7.UAFE41 RJTD	8.UAFJ01 NFFN (GTS)
9.UAHK31 VHHH	10.UAIN31 VABB
11.UAIN32 VABB	12.UAPF01 NTAA (GTS)
13.UAPS01 NZKL (GTS)	14.UASB31 VCCC
15. UAXE01 VHHH (GTS)	16.UAAU01 AMMC (GTS)

## 5 ARS Information contained in bulletins

The following centres reported ARS information in bulletins:

<b>Tokyo</b>	
<i>Bulletin</i>	<i>ARS Information</i>
UAFE32 RJTD	MOD TURB (2) and/or SMOOTH TURB

<b>Singapore</b>	
<i>Bulletin</i>	<i>ARS Information</i>
UANT90 EGRR	MOD to SEV TURB (2)
UADL31 EDZO	MOD to SEV TURB (2)
UADL31 EDZO	SEV ICE (3)

## 6 Incorrect bulletin format

ROBEX bulletins should be formatted in accordance with ICAO Annex 3 and ROBEX Handbook. The following centres reported incorrectly formatted bulletins and/or associated errors:

<b>Bangkok</b>	
<i>Bulletin</i>	<i>Reported Error</i>
UAIN31 VABB UAIN32 VABB UAAE01 WSSS UAAU01 AMMC <i>Received from VABBYMYX</i>	Bulletin too long
UAPS01 NZKL	Error reported - No other remarks provided

<b>Tokyo</b>	
<i>Bulletin</i>	<i>Reported Error</i>
UAAU01 AMMC UAAE01 WSSSS <i>Received from VABBYMYX</i>	Bulletin switched by VABBYMYX
UAIN31 VABB	Bulletin included UAAU01AMMC
UAIN32 VABB	Bulletin included UAAE01WSSS

<b>Brisbane</b>	
<i>Bulletin</i>	<i>Reported Error</i>
UAAU31YBBN generated by YBBBZEZX	Aircraft position – coded in ATS reporting points should be Latitude/Longitude.

<b>Singapore</b>	
<i>Bulletin</i>	<i>Reported Error</i>
UAAU31YBBN	Aircraft position – coded in ATS reporting points
UAAE01 WSSS UAAS11 RJTD UAAU01 AMMC UAPS01 NZKL	Incorrect WMO abbreviated headers and relaying other centres' AIREP bulletins via AFTN



UASB31 VCCC UAXE01 VHHH Received from VABBYMYX	
UAAU01 AMMC UAAS11 RJTD UAAU31 VABB UAIN32 VABB UAIN31 VIDP UAAE01 WSSS UAAU01 AMMC  <b>Doubled Bulletin Headers:</b> UAIN31 VABB and UAPS01 NZKL UAIN31 VABB and UAAE01 WSSS UAIN31 VABB and UAAU01 AMMC UAIN31 VABB and UAAS11 RJTD UAIN31 VABB and UASB31 VCCC UAIN31 VIDP and UAAE01 WSSS UAIN32 VABB and UAAS11 RJTD UAIN32 VABB and UAPS01 NZKL UAIN32 VABB and UAAS11 RJTD Received from VABBYMYX	1) Incorrect WMO abbreviated header  2) Relaying other centres' AIREP bulletins via AFTN using more than one bulletin headers  3) Some of the ARPs compiled in the UAIN31 and UAIN32 VABB were not originated from VABB

## 7 Results and Observations

The response to the survey from participating centres was excellent. Responses were received on time and no follow up action was required.

### 7.1 Data Deficiencies

The data provided by some centres was deficient.

An example of this was:

Number of AIREP messages in bulletins was reported as 3-19 (between 3 and 19 AIREP messages), 1-45 (between 1 and 45 AIREP messages).

An average number was used from the figures provided, which distorted the overall figures.

### 7.2 Data Discrepancies

There were some discrepancies in the data received from some participating centres.

An example of this:

Tokyo generated 22 "UAFE41" bulletins during the sample period.

Some centres reported bulletin figures less than those generated by Tokyo.

UAFE41 RJTD			
Centre	Bulletin	AIREP	
Incheon		22	91
Tokyo		22	91
Bangkok		21	42
Hong Kong		18	73
Brisbane		10	10
Indonesia		9	45

There are some possible reasons for this:

- Non-receipt of data on specific days due to problems with AFTN
- Non-receipt of data on specific days due to RODB system problems
- Data not stored by RODB system due to formatting errors
- Incorrect data reported by centres in the survey.

### 7.3 Recommendations

The following actions are recommended:

1. Centres should be commended for their participation.
2. Centres should review and check survey information to confirm accuracy of reported data.
3. Centres should review survey information to determine if the distribution of their AIREP bulletins is adequate.
4. Centres should review the survey information to determine if they require copies of other AIREP bulletins and advise generating centres to include in their distribution.
5. Centres generating UA bulletins and not distributing via AFTN should be advised to do so.
6. VABB Mumbai should be advised to check current ROBEX procedures and requested not to re-distribute or re-generate "UA" bulletins received from other centres.
7. Exchange procedures should be reviewed. Survey results show a fairly large number of AIREP bulletins exchanged over the GTS (WMO system). ARP generated by YBBN, RJTD and VHHH are exchanged regularly in the region over the AFTN. This shows some deficiencies in the current system.
8. One of the goals was to assess the availability of special air-reports. During the sample period less than ten (<10) ARS were exchanged. Existing ARS procedures should be assessed for adequacy.
9. A copy of all data compiled during the AIREP sample period to be made available to requesting centres.
10. A compact disk containing all survey information will be provided to attendees at the OPMET/M TF3 meeting to be held in Bangkok from 2<sup>nd</sup> to 4<sup>th</sup> March 2005.