



*International Civil Aviation Organization*

**EIGHTEENTH MEETING OF THE METEOROLOGY  
SUB-GROUP (MET SG/18) OF APANPIRG**

ICAO Regional Sub-Office, Beijing, China  
18 – 21 August 2014

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**Agenda Item 4:           Review outcomes from ICAO APAC groups**

**FOLLOW-UP FROM MET SG/17 AND APANPIRG/24**

(Presented by the Secretariat)

**SUMMARY**

This paper presents a summary of follow-up from the Seventeenth Meeting of the Meteorology Sub-Group, held in Bangkok, Thailand, from 13 to 16 May 2013, and the Twenty Fourth Meeting of the Asia/Pacific Air Navigation Planning and Implementation Regional Group, held in Bangkok, Thailand, from 24 to 26 June 2013.

**1.       Introduction**

1.1           The Seventeenth Meeting of the Meteorology Sub-Group (MET SG/17) was held in Bangkok, Thailand, from 13 to 16 May 2013. The Twenty Fourth Meeting of the Asia/Pacific Air Navigation Planning and Implementation Regional Group (APANPIRG/24) was held in Bangkok, Thailand, from 24 to 26 June 2013.

1.2           The group is reminded that MET SG/17 adopted two (2) decisions requiring follow-up action by ICAO and a further two (2) draft decisions and four (4) draft conclusions for subsequent consideration at APANPIRG/24.

1.3           All available documentation pertaining to MET SG/17 is at the following website: <http://www.icao.int/APAC/Meetings/Pages/2013-MET-SG-17.aspx>. The group is reminded that access to APANPIRG meeting documentation is via the following website: <http://www.icao.int/APAC/Pages/apanpirg.aspx>.

**2.       Discussion**

2.1           The two decisions adopted by MET SG/17 are as follows:

**Decision 17/1 – Follow-up on outstanding APANPIRG Conclusions 21/46 and 22/42**

*That, the secretary coordinate a working paper with assistance from the WAFS TF for submission to WAFSOPSG/8 detailing the relevant background information required to facilitate outstanding follow-up action on the APANPIRG Conclusions 21/46 and 22/42.*

**Decision 17/4 – Contact information for approving officials in WIFS user States**

*That, the secretary be invited to take custodianship and future upkeep and reporting of a list of the approving officials, or designees, to approve requests within respective States for new WIFS accounts, or changes to existing accounts.*

2.2 With respect to Decision 17/1, the group will recall that Hong Kong – China assisted the secretariat by preparing IP/7 – *WAFS administrative messages and verification of SIGWX charts* for WAFSOPSG/8 providing background information on APANPIRG Conclusions 21/46 and 22/42 (copy provided in **the Attachment 1** to this paper).

2.3 With respect to APANPIRG Conclusion 21/46, the group is reminded that WAFSOPSG/8 formulated the following conclusion:

**Conclusion 8/9 – Updates to the Guidance for Handling WAFS SIGWX Correction Messages**

*That, the secretary, in coordination with the WAFS Provider States, update the Guidance for Handling WAFS SIGWX Correction Messages currently available on the WAFSOPSG website in accordance with the text shown in Appendix G\*.*

*\*Note: a copy of Appendix G to the WAFSOPSG/8 Report is provided in **the Attachment 2** to this paper).*

2.4 With respect to APANPIRG Conclusion 22/42, the group is reminded that WAFSOPSG/8 reported that SIGWX chart verification results are currently not available, mainly due to the limited availability of observational data required to perform adequate verification and unresolved challenges in the comparison of the simplified ‘object’ representations of the phenomena on SIGWX charts with the more complex nature of actual SIGWX phenomena.

2.5 With respect to Decision 17/4, the group is reminded that State letter Ref.: T 4/9.5:AP124/13 (MET), issued on 21 August 2013, invited States to update contact details on the list of approving officials for WIFS accounts (copy provided in **the Attachment 3** to this paper). *Note: the latest version of the aforementioned list of contact details is also presented in working paper WP/24 for MET SG/18.*

2.6 Details of the additional two (2) decisions and four (4) conclusions drafted by MET SG/17 and adopted by APANPIRG/24 (Conclusions 24/48, 24/49, 24/50, 24/51 and Decisions 24/52, 24/53) are included in the copy of the APANPIRG/24 action plan provided in **the Attachment 4** to this paper.

2.7 With respect to APANPIRG Conclusion 24/48, the group is reminded that State letter Ref: T 4/8.1:AP118/13 (MET), issued on 6 August 2013, invited States to urgently migrate to the use of WMO GRIB Edition 2 code form, if not already done so, and, if required, urgently contact their workstation/software providers or another State for assistance in migrating to GRIB2 (copy provided in **the Attachment 5** to this paper).

2.8 With respect to APANPIRG Conclusion 24/49, the group is reminded that State letter Ref: T 4/7.5:AP120/13 (MET), issued on 9 August 2013, urged States to improve upon the compliance and availability of SIGMET information and ensure SIGMET data is forwarded to the SADIS and WIFS Providers (copy provided in **the Attachment 6** to this paper).

2.9 With respect to APANPIRG Conclusion 24/50, the group is reminded that State letter Ref: T 4/9.1.1:AP126113 (MET), issued on 20 August 2013, invited States with volcano observatories to consider implementation of the VONA format to report volcanic activities (copy provided in **the Attachment 7** to this paper).

2.10 With respect to APANPIRG Conclusion 24/51, concerning the investigation and assessment of the feasibility of bilateral agreements for the provision of SIGMET services as a corrective action towards resolution of air navigation deficiencies listed in the MET field, there was no progress to report.

2.11 With respect to APANPIRG Decision 24/52, concerning a survey on the level of implementation of competency assessment, qualifications and training for meteorological personnel, there was no progress to report.

2.12 With respect to APANPIRG Decision 24/53, the group is reminded that State letter Ref: T 4/7.1.2:AP039/14 (MET), issued on 11 March 2014, invited States to utilize the available guidance information regarding implementation of quality management systems, competencies for meteorological personnel and cost recovery for meteorological service for international air navigation (copy provided in **the Attachment 8** to this paper).

2.13 In view of the discussions above, the following decision is presented for the group's consideration:

**Decision 18/x – Follow-up to MET SG/17 and APANPIRG/24 decisions and conclusions**

*That, except for APANPIRG Conclusion 24/51 and Decision 24/52, the follow-up action on the MET SG/17 and APANPIRG/24 decisions and conclusions be considered completed.*

**3. Action by the Meeting**

3.1 The meeting is invited to:

- a) note the information contained in this paper;
- b) discuss any issues as necessary; and
- c) adopt the decision in paragraph 2.13.

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**WORKING PAPER**

**WORLD AREA FORECAST SYSTEM OPERATIONS GROUP (WAFSOPSG)**

**EIGHTH MEETING**

**Bangkok, 2 to 5 September 2013**

**Agenda Item 5: Operation of the WAFS**

**5.2: Other issues related to the operation and implementation of the WAFS**

**WAFS ADMINISTRATIVE MESSAGES AND VERIFICATION OF SIGWX CHARTS**

(Presented by the Secretary)

**SUMMARY**

This paper presents the background information on i) APANPIRG Conclusion 21/46 part b) related to further guidance for users regarding WAFS administrative messages issued in events of errors identified in WAFS SIGWX forecast (in BUFR code and/or PNG chart form); and ii) APANPIRG Conclusion 22/42 related to verification of WAFS SIGWX charts. The information is provided to facilitate discussion at WAFSOPSG/8 on follow-up actions regarding the two APANPIRG conclusions.

**1. INTRODUCTION**

1.1 The 24th Meeting of the ASIA/PAC Air Navigation Planning and Implementation Regional Group (APANPIRG/24) (June 2013) reviewed the status of past outstanding conclusions. APANPIRG considered that two of the outstanding conclusions, namely, Conclusion 21/46 part b) and Conclusion 22/42 should be brought to eighth meeting of the World Area Forecast System Operations Group (WAFSOPSG) for follow-up. This paper provides the background information on these two outstanding conclusions to facilitate discussion at WAFSOPSG/8.

**2. DISCUSSION**

**2.1 APANPIRG Conclusion 21/46 part b) - further guidance related to WAFS administrative messages**

2.2 The issue on world area forecast system (WAFS) administrative messages arose from WAFSOPSG Decision 4/5, in which the world area forecast centre (WAFS) Provider States are not required to correct and re-issue the original significant weather (SIGWX) binary universal form for the representation of meteorological data (BUFR) bulletin and/or portable network graphic (PNG) charts that

contained an error. Yet, to comply with the quality management system (QMS) principles, the WAFC Provider States have implemented a mechanism whereby a plain-text administrative message is issued to draw users' attention to an error identified in the most recently issued WAFS SIGWX forecast. In response to APANPIRG Conclusion 19/44, WAFSOPSG/5 requested the WAFSOPSG Secretary to finalize guidance for WAFS users on the use of the above administrative message, for inclusion on the WAFSOPSG website (WAFSOPSG Conclusion 5/4 refers).

2.3 In accordance with WAFSOPSG Conclusion 5/4, "Guidance for Users Regarding WAFC Administrative Messages Issued in Events of Errors Identified in WAFS SIGWX forecast (in BUFR Code and/or PNG Chart Form)" was provided on WAFSOPSG website. This Guidance stipulates that "*The content of such administrative messages shall be brought to the attention of users of the WAFS SIGWX forecast at the pre-flight planning stage. Where relevant to a particular flight, such correction information may be forwarded to aircraft in flight, but is not mandatory*".

2.4 Based on the above guidance, the content of administrative message shall be brought to the attention of users at the pre-flight planning stage. However, the WAFS SIGWX forecasts are not just used for pre-flight planning. Besides, it would be difficult for the MET service providers to identify which WAFS users are in the pre-flight planning stage and which are not, and to notify them accordingly. In addition, it is unclear what the end users of WAFS are supposed to do on receipt of the administrative message, e.g. not to use the incorrect SIGWX forecast, or to use another chart instead (e.g. PNG instead of BUFR), or in the event that no corrected chart is available, whether the part that is subject to error should be ignored or corrected manually? As such, APANPIRG Conclusion 21/46 called for further guidance (part b) refers):

#### **Conclusion 21/46 — Improvements to WAFS Implementation**

That, the WAFSOPSG is invited to discuss and consider the following improvement measures in WAFS implementation:

- a) the WAFC Provider States inform users in advance about forthcoming changes to the contents of the WAFS forecasts; and
- b) further guidance be provided regarding the specific actions to be taken by the MET service providers and all relevant end users of WAFS upon receiving the administrative message.

*Note. — Guidance should also include any requirement for a user State to generate its own administrative message for a product affected by a received administrative message.*

2.5 While WAFSOPSG/6 (March 2011) discussed Conclusion 21/46 part a) regarding notification of changes to WAFS services and updates to WAFS documentation, no conclusion on the specific follow-up on Conclusion 21/46 part b) was made. Although WAFSOPSG/7 (September 2102) considered that follow-up from APANPIRG Conclusion 21/46 was covered and completed by WAFSOPSG Conclusion 6/8 (when guidance was included on the WAFSOPSG web site in April 2012), MET SG/17 (May 2013) considered that WAFSOPSG should be further engaged on the matter to ensure that the guidance provided fully addresses the concerns raised by APANPIRG/21.

## 2.6 **APANPIRG Conclusion 22/42 - Verification of SIGWX charts**

2.7 The issue of verification of SIGWX charts arose from a reported case received from local airlines in Hong Kong, China and reported at CNS/MET SG/15 (July 2011). This case was related to the inaccurate forecast location of significant weather over India and Bangladesh at 00 UTC on 19 May 2011 issued by WAFC London (Figure 1, see attachment). Air crew advised that they experienced massive thunderstorms in the areas marked in red ellipses over India and Bangladesh, which were not depicted in the respective SIGWX chart. The corresponding satellite images showed an intense cloud convection covering the northern part of Bay of Bengal, eastern part of India and Bangladesh (Figure 2). Thunderstorms were reported in Calcutta (VECC) and Dhaka (VGHS). WAFC Washington valid 20110519 00UTC depicted an area of "ISOL EMBD CB 520/xxx" over the eastern part of India and Bangladesh but yet not quite over Bay of Bengal (Figure 3).

2.8 APANPIRG./22 agreed that the WAFSOPSG should be invited to request WAFCs to provide SIGWX verification results to ensure accuracy of SIGWX charts. It was also noted that SIGWX charts were designed for flight planning and that in-flight tactical decision making should be derived from SIGMET as SIGWX charts created 17 hours in advance of validity time. The International Air Transport Association (IATA) noted that SIGWX charts were provided for pre-flight planning, but were also used in the cockpit due to the user-friendly graphic summary of significant weather. In view of the above, APANPIRG/22 adopted the following conclusion:

### **Conclusion 22/42 — Improvement of WAFC SIGWX charts (Sep 2011)**

That, the WAFSOPSG be invited to request the WAFC Provider States to provide SIGWX chart verification results, if any, to illustrate the degree of accuracy of their SIGWX charts.

2.9 On the discussion on APANPIRG/22 Conclusion 22/42, WAFSOPSG/7 (September 2012) considered that further background information was needed and agreed to defer consideration of these issues until WAFSOPSG/8 where further information was expected to be provided. The information provided in the foregoing paragraphs aims to provide the necessary background information to facilitate discussion and follow-up at WAFSOPSG/8.

## 3. **ACTION BY THE WAFSOPSG**

3.1 The WAFSOPSG is invited to note the information contained in this paper.

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APPENDIX

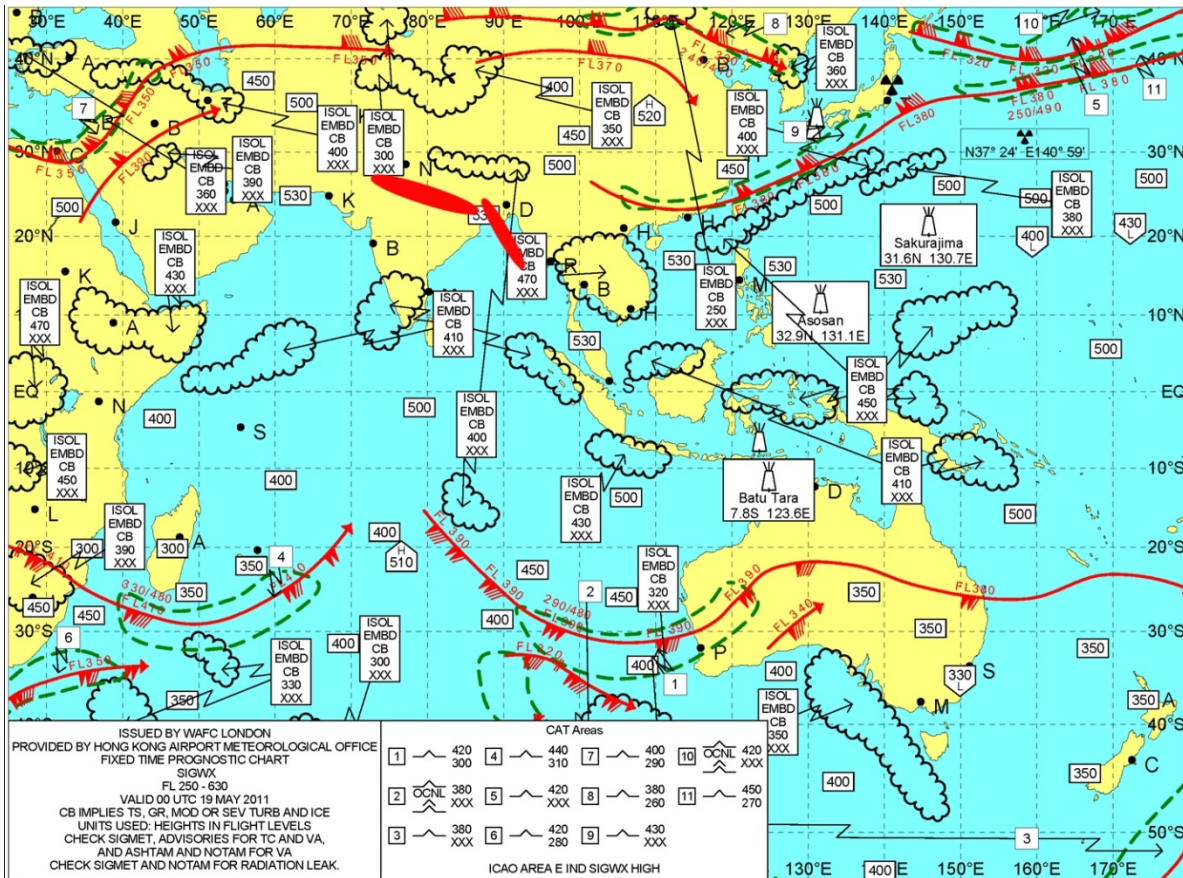


Figure 1: SIGWX FL250-630 issued by WAFC London valid for 00UTC 19 May 2011. Air crew experienced massive thunderstorms in the areas denoted in red ellipses over India and Bangladesh.

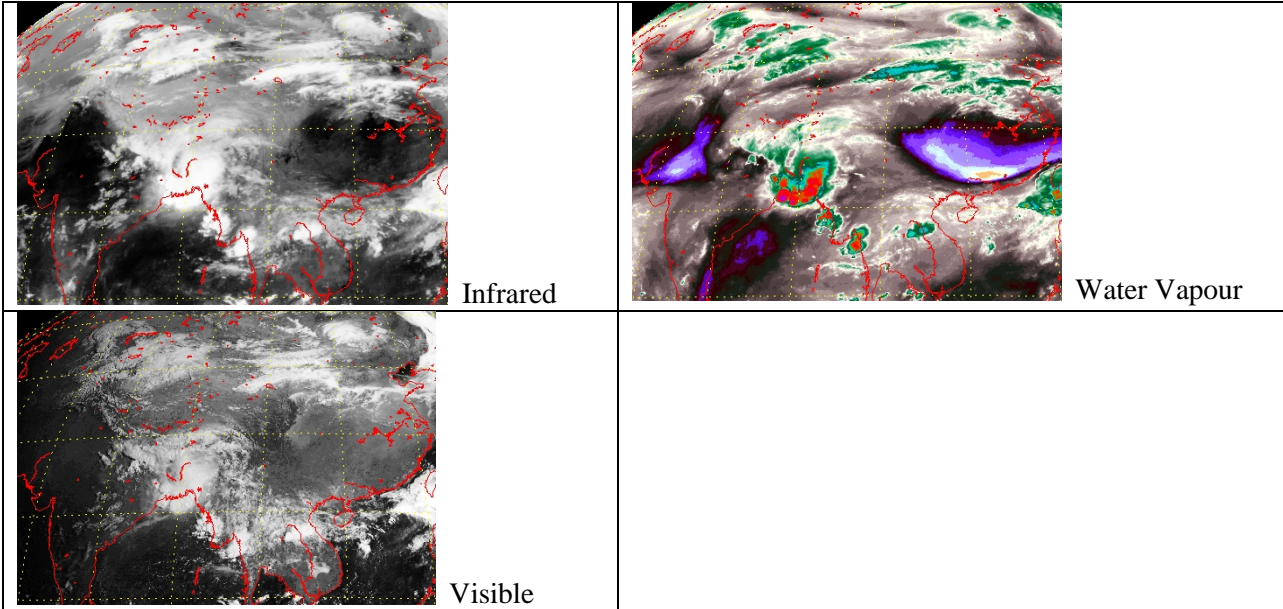


Figure 2: FY2E satellite images at 20110519 0028UTC



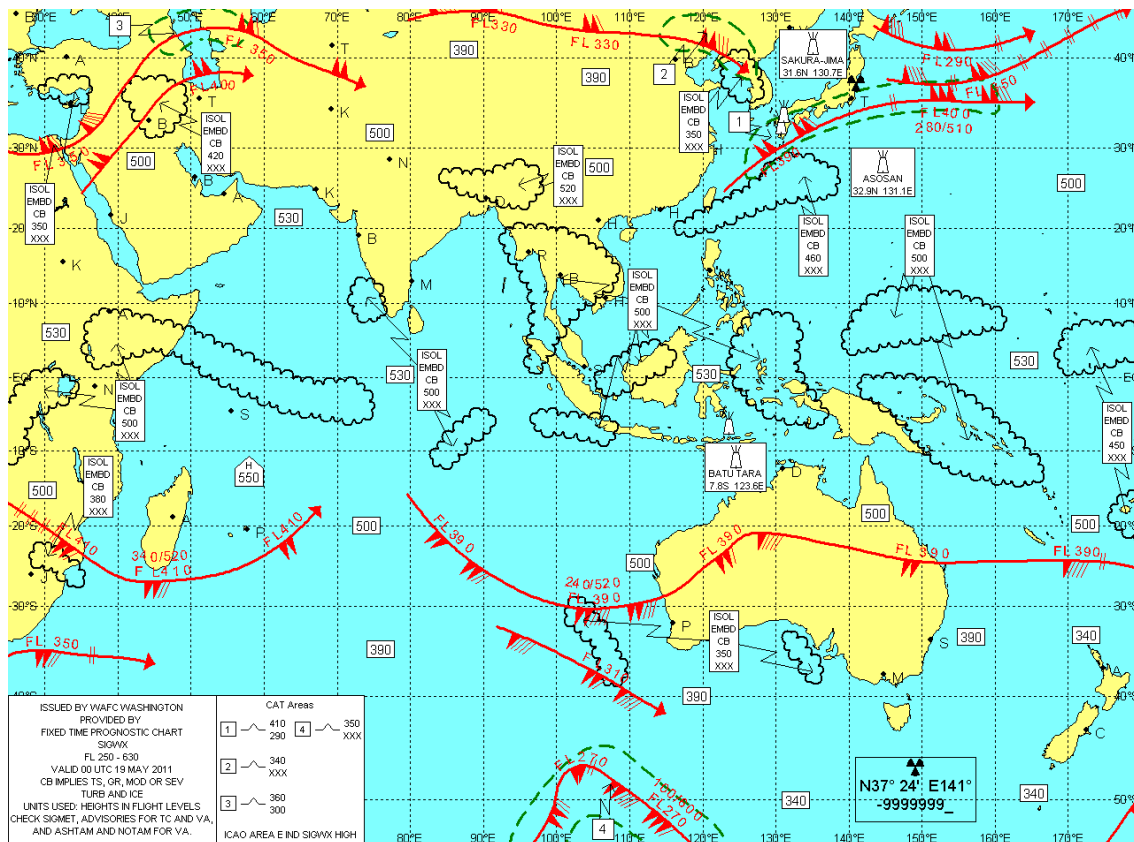


Figure 3: SIGWX FL250-630 issued by WAFC Washington valid for 00UTC 19 May 2011

— END —

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**APPENDIX G****AMENDMENT TO THE  
*GUIDANCE FOR HANDLING WAFS SIGWX CORRECTION MESSAGES***

Plain-text administrative messages, to be issued in the event of an error identified in the most recently issued WAFS SIGWX forecast (in BUFR code and/or PNG chart form) have been implemented by WAFS London and WAFS Washington since 31 December 2009. If received by a meteorological service provider, the meteorological service provider should make the content of the administrative messages available to the users of their SIGWX forecast. Users would then decide on the action in accordance with their safety management system. ~~The content of such administrative messages is to be brought to the attention of users of the WAFS SIGWX forecast at the pre-flight planning stage. Where relevant to a particular flight, such correction information may be forwarded to aircraft in flight, but is not mandatory.~~

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авиации

منظمة الطيران  
المدني الدولي

国际民用  
航空组织

**Ref.:** T 4/9.5:AP124/13 (MET)

21 August 2013

**Subject:** WAFS Internet File Services (WIFS) Accounts

**Action Required:** Reply no later than **30 September 2013**

Sir/Madam,

I have the pleasure to refer to the Seventeenth Meeting of the Meteorology Sub-Group (MET SG/17) of APANPIRG held in Bangkok, Thailand from 13 to 16 May 2013, and in particular to the Decision 17/4, reproduced below for your ease of reference:

**Decision 17/4 – Contact information for approving officials in WIFS user States**

That, the secretary be invited to take custodianship and future upkeep and reporting of a list of the approving officials, or designees, to approve requests within respective States for new WIFS accounts, or changes to existing accounts.

In view of the above mentioned, enclosed you will find the *List of WIFS accounts in the ASIA/PAC Regions*, which I would appreciate to be updated according to your State's information no later than **30 September 2013** providing the following information:

- a) any changes or updates to POC information; and
- b) the position, name and contact information of the person designated to approve any request of a new WIFS account or any change to an existing account within the State.

Please note that the WIFS Provider State requires that any request for new accounts or changes to existing accounts must be approved by the State's meteorological authority or the person assigned by them. Therefore it is important that the above contact information is provided to support the WIFS Provider State's approval process for new accounts or changes to existing accounts and to enable the WIFS Provider State to ensure its commitment to protect the integrity of States' obligations to disseminate WAFS information to their authorized users.

Accept, Sir/Madam, the assurances of my highest consideration.

Mokhtar A. Awan  
Regional Director

## APPENDIX A

### List of WIFS Accounts in the APAC Region

ICAO State	WIFS USER ID	POC Name	POC e-mail	POC Phone	Approving Official – Title and Name <sup>1</sup>	Approving Official e-mail
Australia	WAFSYMMC01	Ian Senior	ies@bom.gov.au	613-96694293		
	WAFSYMML02	Tim Hailes	t.hailes@bom.gov.au	61396694273		
	WAFSYMMM01	Tim Hailes	t.hailes@bom.gov.au	+613 9669 4273		
Brunei Darussalam	WAFSWBSB01	Yunus M. Tahir	hyunus.dkz@gmail.com	+673 2381342		
China	WAFSZBAA01	Jin Shan	ashan_1981@163.com	13520809610		
	WAFSZBAA02	Ke Wang	wangke1.66@tom.com	86-10-64595557		
	WAFSZBAA03	Aimin Liang	lycowner@163.com	86-10-64598450		
	WAFSZBAA04	Xiangyang Feng	fx06870@sina.com	86-10-64592560		
	WAFSZBBB01	Caiyan Lin	lincaiyan@atmb.net.cn	86-10-67339650		
	WAFSZSSS01	Haifeng Hu	hhfmetcaac@sina.com	86-21-22327561		
Fiji	WAFSNFFN01	Alipate Waqaicelua	Alipate.Waqaicelua@met.gov.fj	679-6724-888 (ext. 5015)		
	WAFSNFFN03	Leonard Bale	leonard.bale@met.gov.fj	6724888		
French Polynesia	WAFSNTAA01	Xavier Marescot	pf_tti_d@meteo.fr	+689 803371		
Hong Kong	WAFSBADJ99	Pak-wai Chan	pwchan@hko.gov.hk	+852 2926 8435		
	WAFSVHHH01	Pak-wai Chan	pwchan@hko.gov.hk	+852 2926 8435		
	WAFSVHHH02	Pak-wai Chan	pwchan@hko.gov.hk	+852 2926 8435		
India	WAFSVOBL01	Pradeep Nigam	pradeep.nigam@sds.co.in	+91 9343757826		
Indonesia	WAFSWIII01	Tri Samyo Rumidi	meteo.penerbangan@gmail.com	82114305015		
	WAFSWARR01	Eko Witjaksono	witjaksono@gmail.com	622146665111		
	WAFSWAAA01	Imam Sukardi	imamskd@yahoo.com	62 411 553019		
	WAFSWARR02	Syamsul Huda	syamsul.huda@bmkgo.go.id	6281347362299		

<sup>1</sup> The Meteorological (MET) Authority or their designated representative. WIFS will only recognize one approving official for each State.

ICAO State	WIFS USER ID	POC Name	POC e-mail	POC Phone	Approving Official – Title and Name <sup>1</sup>	Approving Official e-mail
	WAFSWIII02	Zulkarnain	zulkarnain@bmgk.go.id	+62 813 85391410		
	WAFSWADD01	Dar Yatno	daryatnobmgk@yahoo.com	081337995599		
	WAFSWIDD01	Yuyun Ardiansyah	yoeyun@gmail.com	6281317008355		
Japan	WAFSSRJD99	Junichi Ishida	j-ishida@met.kishou.go.jp	81-3-3212- 8341(ext.3351)		
	WAFSRJTD01	Junichi Ihsida	j-ishida@met.kishou.go.jp	81-3-3212- 8341(ext.3351)		
Kiribati	WAFSNGTA01	Iokenti Beniamina	beniamina70490@gmail.com	686 91074		
Korea	WAFSRKSI01	Mi-hee Lee	kimmh99@korea.kr	82-10-9046-1819		
Malaysia	WAFSWMKK01	Ab Llah Che Cob	ablah@met.gov.my	603 87872388		
Mongolia	WAFSZMUB01	Maasuren Dagva	maasuren@mcaa.gov.mn	+97611285048		
		Batlyi Bolormaa	bolormaa@mcaa.gov.mn	976-99809356		
Nauru	WAFSANYN01	Stryker Solomon	stryker.solomon@naurugov.nr	6745573127		
New Caledonia	WAFSNWWN02	Dominique Bielli	dominique.bielli@meteo.fr	00 687 27 93 20		
	WAFSNWWN03	Michel Argent	contact-iscs-nc@meteo.fr	+687 279300		
New Zealand	WAFSNZKL01	Keith Mackersy	Keith.Mackersy@caa.govt.nz	64-4-904 0543		
	WAFSNZKL02	Wim Vandijk	Wim.Vandijk@metervice.com	64-4-470 0731		
Papua New Guinea	WAFSAYPY02	Jimmy Gomoga	jgomoga@pngmet.gov.pg	675 324 4583		
Philippines	WAFSRPLL01	Rolymer Canillo	rpcanillo@yahoo.com	6329294570		
	WAFSRPHI01	Enrico Salita	ehsalita@yahoo.com	639178555896		
	WAFSRPVM01	Alfredo Jr. Quiblat	alquib@yahoo.com	63323401868		
	WAFSRPLL02	Rolymer Canillo	rpcanillo@yahoo.com	(632)9285287		
Samoa	WAFSNSAP01	Mulipola Ausetalia Titimaea	ausetalia.titimaea@mnre.gov.ws	+685 20855		

ICAO State	WIFS USER ID	POC Name	POC e-mail	POC Phone	Approving Official – Title and Name <sup>1</sup>	Approving Official e-mail
Singapore	WAFSWSS01	Chua Guat Mui	chua_guat_mui@nea.gov.sg	65-65422861		
Solomon Islands	WAFSAGGH01	Solomon Sammy	s.sammy@met.gov.sb	67736310 or (cell) 677 7471192		
Thailand	WAFSVTBB01	Siree Vatanavigkit	siree@aerothai.co.th	662-287-8508		
	WAFSVTBS01	Somchai Yimsricharoenkit	somchai_yim@tmd.go.th	+66(2)1340011 Ext 214		
	WAFSVTBD01	Siree Vatanavigkit	siree@aerothai.co.th	662-287-8508		

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Adapted from APANPIRG/24 Conclusions/Decisions – Action Plan

Conclusion/ Decision No --- Strategic Objective*	Title of Conclusion/Decision	Text of Conclusion/Decision	Responsibility	Deliverable	Target date	Status as of 31 March 2014	Action agreed by ANC
...	...	...	...	...	...	...	...
C 24/48 A & C	<b>Migration to WAFS gridded global forecasts in WMO GRIB Edition 2 code form as soon as possible</b>	<p>That, in view of the cessation of GRIB1 on 14 November 2013, States be invited to:</p> <p>a) urgently migrate to receiving, decoding and using the WAFS gridded global forecasts in WMO GRIB Edition 2 code form as soon as possible, if they have not already done so; and</p> <p>b) if required, urgently contact their workstation/software providers or consider contacting another State already using the GRIB2 datasets for assistance in migrating to GRIB2.</p> <p>Note: States who feel unable to migrate prior to 14 November 2013 should advise ICAO as soon as possible.</p>	ICAO APAC Office	State letter	July 2013	COMPLETE  State letter Ref.: T 4/8.1:AP118/ 13 (MET) issued 6 August 2013	To note
C 24/49 A & C	<b>Improvements to SIGMET Implementation and Distribution</b>	<p>That, the ICAO be invited to urge:</p> <p>a) MWOs to improve upon the compliance and availability of SIGMET information; and</p> <p>b) Regional OPMET databanks to ensure that all SIGMET data is forwarded to the SADIS and WIFS Providers in accordance with section 1.2.2 of Appendix 6 to ICAO Annex 3 — Meteorological Service for International Air Navigation.</p>	ICAO APAC Office	State letter	July 2013	COMPLETE  State letter Ref.: T 4/7.5:AP120/ 13 (MET) issued 9 August 2013	To urge compliance







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авиации

منظمة الطيران  
المدني الدولي

国际民用  
航空组织

**Ref.:** T 4/8.1:AP118/13 (MET)

6 August 2013

**Subject:** Migration to WAFS gridded global forecasts  
in WMO GRIB Edition 2 code form

**Action required:**

- 1) Migration to WAFS gridded global forecasts in  
WMO GRIB Edition 2 code form as soon as possible; and
- 2) Inform this office of the status of your GRIB 2  
migration preparations **no later than 10 September 2013**

Sir/Madam,

I have the pleasure to refer to the Twenty Fourth Meeting of the ASIA/PAC Air Navigation Planning and Implementation Regional Group (APANPIRG/24) held in Bangkok, Thailand from 24 to 26 June 2013, and in particular to the Conclusion 24/48, reproduced here for your ease of reference:

**Conclusion 24/48 – Migration to WAFS gridded global forecasts in WMO GRIB  
Edition 2 code form as soon as possible**

That, in view of the cessation of GRIB1 on 14 November 2013, States be invited to:

- a) urgently migrate to receiving, decoding and using the WAFS gridded global forecasts in WMO GRIB Edition 2 code form as soon as possible, if they have not already done so; and
- b) if required, urgently contact their workstation/software providers or consider contacting another State already using the GRIB2 datasets for assistance in migrating to GRIB2.

*Note: States who feel unable to migrate prior to 14 November 2013 should advise ICAO as soon as possible.*

...2/

As you will know, in accordance with Conclusion 7/10 of the Seventh Meeting of the World Area Forecast System Operations Group (WAFSOPSG/7) held in Lima, Peru from 17 to 21 September 2012, the WAFS Provider States have been invited to cease the preparation and issuance of WAFS gridded global forecasts in WMO GRIB Edition 1 code form at 0000 UTC on 14 November 2013.

In view of the above, both the Secretary General and the ICAO ASIA/PAC Regional Office previously distributed State letters (Ref: AN 10/3.1-13/2 and T 4/8.1:AP029/13 (MET); reproduced in the Attachment to this letter) requesting States/users to migrate to receiving, decoding and using the WAFS gridded global forecasts in WMO GRIB Edition 2 code form as soon as possible, if not already done so, in view of the superior temporal and spatial resolution provided by these forecasts.

In response to the previous State letter on this matter, the Regional Office received information on the migration to WAFS gridded global forecasts in WMO GRIB Edition 2 code form by the following States:

States already using GRIB2 operationally:

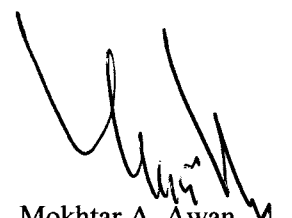
- Philippines
- Singapore

States not yet using GRIB2 operationally but expected to do so by 14 November 2013:

- China
- Fiji

To facilitate further assessment of States/users readiness for transition from GRIB1 to GRIB2 code form WAFS forecasts in the ASIA/PAC Region, I would appreciate it if you reply to this letter **no later than 10 September 2013** with any update available to the status of your Administration's preparations for the migration to WAFS gridded global forecasts in WMO GRIB Edition 2 code form.

Accept Sir/Madam, the assurances of my highest consideration.

  
Mokhtar A. Awan  
Regional Director



International  
Civil Aviation  
Organization

Organisation  
de l'aviation civile  
internationale

Organización  
de Aviación Civil  
Internacional

Международная  
организация  
гражданской  
авиации

منظمة الطيران  
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Tel.: +1 514-954-8219 ext. 7079

Ref.: AN 10/3.1-13/2

23 January 2013

**Subject:** Cessation of WAFS gridded global forecasts in WMO GRIB Edition 1 code form

**Action required:** Migrate to WAFS gridded global forecasts in WMO GRIB Edition 2 code form as soon as possible

Sir/Madam,

1. I have the honour to inform you that the Air Navigation Commission, at the tenth meeting of its 191st Session on 8 November 2012, reviewed the report of the seventh meeting of the World Area Forecast System Operations Group (WAFSOPSG/7) held in Lima, Peru from 17 to 21 September 2012. The Commission in particular noted the action to be taken with respect to sub-paragraph b) of Conclusion 7/11 (reproduced in the attachment) and requested that you be informed that, as of 14 November 2013, the world area forecast system (WAFS) gridded global forecasts in World Meteorological Organization (WMO) GRIB Edition 1 code form will cease to be available.

2. I should be grateful, therefore, if you are a user of the satellite distribution system for information relating to air navigation (SADIS) or of the WAFS Internet File Service (WIFS), that you migrate to receiving, decoding and using the WAFS gridded global forecasts in WMO GRIB Edition 2 code form as soon as possible, if you have not already done so, in view of the superior temporal and spatial resolution provided by these forecasts. Should you require assistance in the migration to WAFS gridded global forecasts in WMO GRIB Edition 2 code form, you are requested to contact the WAFS Provider States or your WAFS workstation software provider.

Accept, Sir/Madam, the assurances of my highest consideration.

Raymond Benjamin  
Secretary General

**Enclosure:**  
WAFSOPSG/7 Conclusion 7/11

**Conclusion 7/11 — Informing user States of the cessation of WAFS gridded global forecasts in WMO GRIB Edition 1 code form**

That ICAO, in coordination with WMO:

- a) inform all SADIS and WIFS user States that WAFS gridded global forecasts in WMO GRIB Edition 1 code form (GRIB1) will cease to be available with effect 0000 UTC on 14 November 2013, in lieu of the operational availability of upper-air gridded forecasts in WMO GRIB Edition 2 code form (GRIB2); and
- b) encourage concerned user States that have not already done so to migrate to using the WAFS GRIB2 forecasts.

*Note 1.— This follow-up is in accordance with the WAFS five-year plan endorsed by each meeting of the WAFSOPSG and WAFSOPSG Decision 7/9.*

*Note 2.— WAFS GRIB2 forecasts provide superior temporal and spatial resolution when compared to WAFS GRIB1 forecasts, are prepared by the WAFCs in accordance with Annex 3 — Meteorological Service for International Air Navigation, Appendix 3, 1.2 and have been available on the WAFS broadcast since November 2010.*



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**Ref.:** T 4/8.1:AP029/13 (MET)

22 February 2013

**Subject:** User readiness for transition from  
WMO GRIB Edition 1 to WMO GRIB Edition 2  
code form WAFS gridded global forecasts

**Action required:**

- 1) Migrate to WAFS gridded global forecasts in  
WMO GRIB Edition 2 code form as soon as possible; and
- 2) Inform this office of the status of your GRIB 2 migration  
preparations **no later than 19 April 2013**

Sir/Madam,

I have the pleasure to refer to the Twenty Third Meeting of the ASIA/PAC Air Navigation Planning and Implementation Regional Group (APANPIRG/23) held in Bangkok, Thailand from 10 to 14 September 2012, and in particular to the Conclusion 23/39, reproduced here for your ease of reference:

**Conclusion 23/39 - User readiness for transition from GRIB1 to GRIB2 code form  
WAFS forecasts**

That, ICAO urges States/users of WAFS forecasts in the ASIA/PAC Region to accelerate preparations for transition from WMO GRIB1 to GRIB2 WAFS forecasts if not already done so.

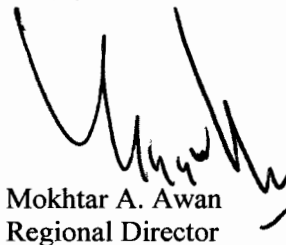
As you will know, in accordance with Conclusion 7/10 of the Seventh Meeting of the World Area Forecast System Operations Group (WAFSOPSG/7) held in Lima, Peru from 17 to 21 September 2012, the WAFS Provider States have been invited to cease the preparation and issuance of WAFS gridded global forecasts in WMO GRIB Edition 1 code form at 0000 UTC on 14 November 2013.

In view of the above, the Secretary General distributed State Letter Ref: AN 10/3.1-13/2 (reproduced in the attachment) requesting States/users to migrate to receiving, decoding and using the WAFS gridded global forecasts in WMO GRIB Edition 2 code form as soon as possible, if not already done so, in view of the superior temporal and spatial resolution provided by these forecasts.

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To facilitate an assessment of States/users readiness for transition from GRIB1 to GRIB2 code form WAFS forecasts in the ASIA/PAC Region, I would kindly request that you reply to this letter **no later than 19 April 2013** indicating the status of your Administration's preparations for the migration to WAFS gridded global forecasts in WMO GRIB Edition 2 code form.

Accept Sir/Madam, the assurances of my highest consideration.



Mokhtar A. Awan  
Regional Director



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**Ref.:** T 4/7.5:AP120/13 (MET)

9 August 2013

**Subject:** Follow-up of APANPIRG Conclusion 24/49 –  
Improvements to SIGMET Implementation and Distribution

**Action required:** As indicated below

Sir/Madam,

I have the pleasure to refer to the Twenty Fourth Meeting of the ASIA/PAC Air Navigation Planning and Implementation Regional Group (APANPIRG/24) held in Bangkok, Thailand from 24 to 26 June 2013, and in particular to the Conclusion 24/49, reproduced below for your ease of reference:

**Conclusion 24/49 – Improvements to SIGMET Implementation and Distribution**

That, the ICAO be invited to urge:

- a) MWOs to improve upon the compliance and availability of SIGMET information; and
- b) Regional OPMET data banks to ensure that all SIGMET data is forwarded to the SADIS and WIFS Providers in accordance with section 1.2.2 of Appendix 6 to ICAO Annex 3 — *Meteorological Service for International Air Navigation*.

As you are aware, SIGMET information is of highest priority among other types of meteorological information provided to aviation users. As SIGMET consists of warning information used to support both in-flight service and pre-flight planning, improvements to the implementation and distribution of SIGMET information in the ASIA/PAC Region will result in improved flight safety in both the time-critical operational phase and the non-time-critical pre-flight planning phase. Therefore, to support improved flight safety, and in response to APANPIRG Conclusion 24/49, above, you are kindly invited to ensure that:

- meteorological watch offices (MWO) established in your State prepare, supply and disseminate SIGMET messages in accordance with ICAO Annex 3 - *Meteorological Service for International Air Navigation* and regional air navigation agreement, including the dissemination of SIGMET to all regional OPMET data banks (RODB); and

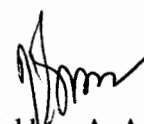
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- RODBs established in your State relay SIGMET messages to both the SADIS/Secure SADIS FTP provider and the WIFS provider so that SIGMET information is made available to users around the world via the satellite distribution system (SADIS) and the dedicated Internet systems (Secure SADIS FTP and WIFS).

I would also like to take the opportunity to draw to your attention the relevant regional guidance material (available at: <http://www.icao.int/APAC/Pages/edocs.aspx>, under the MET heading):

- **SIGMET Guide** – provides guidance to assist the MWOs in the ASIA/PAC Region in preparing and disseminating SIGMET information, including the location of the MWOs in the ASIA/PAC Region; and
- **ROBEX Handbook** – provides guidance for regional OPMET bulletins exchange (ROBEX), including exchange of SIGMET bulletins and the location of the RODBs in the ASIA/PAC Region and the AFTN addresses to be used.

Accept Sir/Madam, the assurances of my highest consideration.



Mokhtar A. Awan  
Regional Director







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**Ref.:** T 4/9.1.1:AP126/13 (MET)

20 August 2013

**Subject:** Implementation of the Volcano Observatory Notice for Aviation (VONA) format (Follow-up to APANPIRG/24 Conclusion 24/50 – Use of VONA format)

**Action required:** As discussed below

Sir/Madam,

I have the pleasure to refer to the Twenty Fourth Meeting of the ASIA/PAC Air Navigation Planning and Implementation Regional Group (APANPIRG/24) held in Bangkok, Thailand from 24 to 26 June 2013, and in particular to the Conclusion 24/50, supporting the Regional implementation of the International Airways Volcano Watch (IAVW) and reproduced below for your ease of reference:

**Conclusion 24/50 – Use of VONA format**

That, States be invited to consider ways to ensure implementation of the VONA format to report volcanic activities by Volcano Observatories.

As you will know, in relation to the international Standards and Recommended Practices for the dissemination of volcanic activity information by State volcano observatories, the use of the VONA format was introduced with the adoption of Amendment 76 to ICAO Annex 3 — *Meteorological Service for International Air Navigation* (effective: 15 July 2013, applicability: 14 November 2013). Specifically, Amendment 76 to Annex 3 introduces the following note in Appendix 2, paragraph 4.1 Information from State volcano observatories:

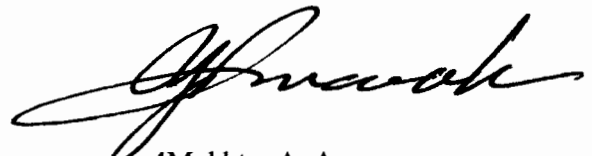
*Note 2.— The State volcano observatories may use the Volcano Observatory Notice for Aviation (VONA) format to send information to its associated ACCs, MWO and VAAC. The VONA format is included in the Handbook on the International Airways Volcano Watch (IAVW) (Doc 9766) which is available on the ICAO IAVWOPSG website.*

Furthermore, I would like to remind you that the Seventh Meeting of the International Airways Volcano Watch Operations Group (IAVWOPSG/7) held in Bangkok, Thailand, from 18 to 22 March 2013, concluded that additional guidance material will be developed on the use of the VONA for inclusion in Doc 9766 to support the implementation of Annex 3 (Amendment 76) provisions in this regard (IAVWOPSG/7 Conclusion 7/24 refers). *Note: Conclusion 7/24 envisages that the guidance material will be submitted to ICAO by the end of September 2013 for inclusion in Doc 9766.*

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In view of the above, and to promote the Regional implementation of the IAVW and the efficient and effective communication of volcanic activity information to support situational awareness for international air navigation in the ASIA/PAC Regions, you are kindly requested to ensure that the implementation of the VONA format is considered for any volcano observatory reporting in your State, in accordance with the relevant provisions and guidance contained in ICAO Annex 3 (Amendment 76) and Doc 9766.

Accept Sir/Madam, the assurances of my highest consideration.



Mokhtar A. Awan  
Regional Director



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**Ref.:** T 4/7.1.2:AP039/14 (MET)

11 March 2014

**Subject:** Follow-up to APANPIRG/24 Decision 24/53 –  
Guidance on QMS, competencies and cost-recovery

**Action required:** As discussed below

Sir/Madam,

I have the pleasure to refer to the Twenty Fourth Meeting of the ASIA/PAC Air Navigation Planning and Implementation Regional Group (APANPIRG/24) held in Bangkok, Thailand from 24 to 26 June 2013, and in particular to the Decision 24/53, reproduced below for your ease of reference:

***Decision 24/53 – Guidance on QMS, competencies and cost-recovery***

*That, ICAO investigates opportunities to provide States with guidance information regarding implementation of QMS, competencies and cost-recovery within the APAC Region.*

**QMS**

As you will be aware, the establishment and implementation of a quality management system (QMS) for aeronautical meteorological service came into effect on 15 November 2012 as an ICAO Standard in Amendment 75 to Annex 3 – *Meteorological Service for International Air Navigation* (Chapter 2.2, refers).

I would like to remind States that guidance on the establishment and implementation of a quality system is given in the *Manual on the Quality Management System for the Provision of Meteorological Service to International Air Navigation* (Doc 9873), developed jointly by the ICAO and the World Meteorological Organization (WMO).

Additionally, I am pleased to provide you the following set of principles that have been considered suitable by the WMO and ICAO Secretariats as minimum considerations to demonstrate the establishment and implementation of a properly organized QMS for aeronautical meteorological service provision:

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- 1) Availability of Quality Policy, Quality Manual and complete set of work instructions/process descriptions at all workplaces, and familiarity of staff with these documents;
- 2) Documented evidence of user consultation and feedback (publications, questionnaires, records of user meetings, actions stemming from these);
- 3) Evidence of corrective and preventive action processes; and
- 4) An internal audit plan, audit reports and documented follow-up decided by a Management Review meeting.

### Competencies

With respect to the competencies of meteorological personnel, you will be aware that, in accordance with ICAO Annex 3, each Contracting State shall ensure that the qualifications and training of meteorological personnel comply with the requirements of the WMO (ICAO Annex 3, chapter 2, 2.1.5, refers). The requirements concerning qualifications and training of meteorological personnel in aeronautical meteorology are given in WMO Publication No. 49, *Technical Regulations*, Volume I — *General Meteorological Standards and Recommended Practices*, Chapter B.4 — Education and Training.

The aforementioned publication includes provisions for both the education standards and the job specific competencies for aeronautical meteorological personnel in the categories of Meteorologist and Meteorological Technician. Note: I understand that the WMO provision (WMO Publication No. 49) concerning job specific competencies of aeronautical meteorological personnel became WMO international standard practice on 1 December 2013 and the provision concerning requirements for the underpinning qualifications, specific to the category of Meteorologist, will become WMO international standard practice on 1 December 2016.

For further information concerning the WMO requirements for qualifications, training and competencies of aeronautical meteorological personnel, please refer to your States' WMO Permanent Representative or the appropriate WMO Regional Association President.

### Cost-recovery

Finally, in view of the integral nature of QMS and competencies in the provision of aeronautical meteorological services and, therefore, the contribution to the overall cost of the provision of air navigation services resulting from programmes for QMS and competencies, I would like to draw your attention to the *Manual on Air Navigation Services Economics* (Doc 9161, 5<sup>th</sup> Edition) last published in November 2013, which provides guidance for determining and allocating the costs of aeronautical meteorological services.

In particular, I would like to highlight the updated guidance contained in Doc 9161 paragraph 3.41 concerning the provision and cost-recovery of meteorological services for air navigation at a regional or sub regional level. This new guidance pertains to situations where limited volume of air traffic presents challenges for implementing cost-recovery systems in line with the service level required. The guidance provides possible solutions where multinational agreements may be established on the basis of collective airspace blocks in order to achieve full cost-recovery and provide the full range of meteorological services required for air navigation."

Accept, Sir/Madam, the assurances of my highest consideration.

  
Arun Mishara  
Regional Director