



*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**

**UPDATE OF WORK PLAN OF WAFS TF**

(Presented by Chairman, WAFS Task Force)

**SUMMARY**

This paper presents an update of the Work Plan of the WAFS Task Force (WAFS TF).

**1. Introduction**

1.1 The Work Plan of the WAFS Task Force (WAFS TF) was first developed at the 14<sup>th</sup> meeting of the CNS/MET SG (CNS/MET SG/14) of APANPIRG. It was subsequently updated annually. The last update was made at the MET SG/17 meeting.

**2. Discussions**

2.1 The meeting may recall that under the Work Plan of WAFS TF, the work to be addressed by WAFS TF includes:

- (a) Promoting the migration from GRIB1 to GRIB2 WAFS forecasts;
- (b) Facilitating the utilization of gridded forecasts of icing, turbulence and CB clouds and providing user's feedback on the use of the gridded forecasts;
- (c) Establishing training requirements for WAFS products;
- (d) Consolidating guidance and information related to the implementation of WAFS and updates to WAFS services and products for easy reference by user States in the Asia and Pacific Region;
- (e) Providing inputs (via the MET SG) to APANPIRG on the regional planning and development of WAFS for coordination with the WAFSOPSG; and
- (f) Keeping the WAFS TF Work Plan up to date.

2.2 Regarding the task (a), the WAFSOPSG at its eighth meeting in September 2013 considered that "users had had 3 years to migrate from using the WAFS forecasts in GRIB1 code form to using the forecasts in GRIB2 code form, that the GRIB2 forecasts offered superior temporal and spatial resolution when compared with GRIB1 code form forecasts, and that the GRIB2 code form forecasts conformed with the 18th edition (Amendment 76) of Annex 3". WAFC Provider States subsequently ceased issuing WAFS forecasts in GRIB1 code form on 14 November 2013.

Noting the survey result by WAFS TF in early 2013 that 9 out of 31 States/Territories in the Asia/Pacific region were not ready for migration to using GRIB2 data operationally by the applicable date, WAFS TF will continue to monitor the adoption of GRIB2 data in the ASIA/PAC Region via its annual survey. As such, task (a) will be revised as “monitoring the operational use of GRIB2 WAFS forecasts in the ASIA/PAC Region”.

2.3 Based on the progress in performing the tasks of WAFS TF in the past year, the Work Plan is updated and is given in Appendix A. The progress of WAFS implementation in ASIA/PAC Region as given in Attachment I to the Work Plan will be discussed in a separate Working Paper.

2.4 The whole Work Plan will be further reviewed by WAFS TF, as necessary, during the MET SG/18 meeting.

**3. Action by the meeting**

3.1 The meeting is invited to note the information provided in this paper.

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## ICAO APANPIRG /MET WAFS TASK FORCE (WAFS TF)

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<b>2. DESCRIPTION</b>	
<i>Objective</i>	<i>Facilitate effective utilization of World Area Forecast System (WAFS) and associated services and products in the Asia Pacific Region.</i>
<i>Benefits</i>	<i>Improve the regional utilization of WAFS weather forecasts (including SIGWX forecasts, upper winds and upper-air temperatures, humidity, direction, speed and height of maximum winds and tropopause heights, as well as turbulence, icing, cumulonimbus clouds) used by airlines and ATM to optimize flight routes, which will enhance efficiency and reduce carbon emissions.</i>
<i>Terms of Reference</i>	<p><i>Under guidance from ICAO Secretariat:</i></p> <ul style="list-style-type: none"> <li><i>a) Facilitate the operational use of the WAFS in the Asia and Pacific Region;</i></li> <li><i>b) Promote awareness of current and future capabilities with respect to WAFS;</i></li> <li><i>c) Maintain awareness of the status of implementation of WAFS within the Asia and Pacific Region and any user State deficiencies;</i></li> <li><i>d) Monitor and evaluate the operational effectiveness of the use of WAFS datasets and products generated from those datasets; and</i></li> <li><i>e) Provide advice to the MET Sub-group on the above.</i></li> </ul>
<i>Work Program</i>	<p><i>The work to be addressed by the ASIA/PAC WAFS Task Force (WAFS TF) includes:</i></p> <ul style="list-style-type: none"> <li><i>a) <a href="#">Monitoring the operational use of</a> <del>Promoting the migration from GRIB1 to</del> GRIB2 WAFS forecasts;</i></li> <li><i>b) Facilitating the utilization of gridded forecasts of icing, turbulence and CB clouds and providing user's feedback on the use of the gridded forecasts;</i></li> <li><i>c) Establishing training requirements for WAFS products;</i></li> <li><i>d) Consolidating guidance and information related to the implementation of WAFS and updates to WAFS services and products for easy reference by user States in the Asia and Pacific Region;</i></li> <li><i>e) Providing inputs (via the MET SG) to APANPIRG on the regional planning and development of WAFS for coordination with the WAFSOPSG; and</i></li> <li><i>f) Keeping the WAFS TF Work Plan up to date.</i></li> </ul>

<b>3. COMMUNICATION STRATEGIES</b>				
<i>Description</i>	<i>Target Audience</i>	<i>Delivery Method</i>	<i>Frequency / Date</i>	<i>Responsibility</i>
<i>Work Plan</i>	<i>Task Force Members</i>	<i>Document via email</i>	<i>As required but reviewed at least yearly</i>	<i>Chair</i>
<i>General correspondence</i>	<i>Task Force Members</i>	<i>Email</i>	<i>As required</i>	<i>Task Force Members</i>
<i>Task Force Meeting</i>	<i>Task Force Members</i>	<i>Meeting</i>	<i>As required, supplemented by teleconference</i>	<i>Chair</i>
<i>Status &amp; Milestone Reports</i>	<i>ICAO Secretariat and Task Force Members</i>	<i>Report via email</i>	<i>At least yearly</i>	<i>Chair</i>
<i>Task Force Report</i>	<i>MET SG</i>	<i>Working/ Information Paper</i>	<i>Yearly</i>	<i>Chair</i>
<i>Task Force Report</i>	<i>APANPIRG WAFSOPSG</i>	<i>Working Paper</i>	<i>Yearly</i>	<i>Secretariat</i>

<b>4. PERFORMANCE FRAMEWORK FORM (PFF)</b>				
Tasks	Time Frame	Responsibility	Status	Milestone
Task 1 : <del>Monitor the operational use of</del> <del>Facilitate the migration from GRIB1 to</del> GRIB2 WAFS forecasts in the ASIA/PAC Region <del>by November 2013.</del>	201 <del>4</del> 3-2019	WAFS TF	In progress	<del>1, 4,</del> 45
Task 2 : Facilitate the implementation and utilization of gridded forecasts for icing, turbulence and CB clouds in the ASIA/PAC Region.	201 <del>4</del> 3-2019 <del>8</del>	WAFS TF	In progress	12, <del>34,</del> 45
Task 3 : Establish training requirements in WAFS products in the ASIA/PAC Region and provide this information to the WAFSOPSG.	201 <del>4</del> 3-2014 <del>8</del>	WAFS TF	In progress	<del>2,3,</del> 45
Task 4: Maintain and distribute WAFS service reference document to ASIA/PAC States	201 <del>4</del> 3-2019 <del>8</del>	WAFS TF	In progress	34
Task 5: Monitor the implementation and utilization of WAFS (including SADIS/Secure SADIS FTP/WIFS services) and training needs within the ASIA/PAC Region, and report to MET SG	201 <del>4</del> 3-2019 <del>8</del>	WAFS TF	In progress	<del>45,</del> 56

<b>5. MILESTONES</b>			
Milestone	Accountability	Dates	Status
<del>Milestone 1: Monitor the migration from GRIB1 to GRIB2 WAFS forecasts in ASIA/PAC Region</del>	<del>WAFS TF</del>	<del>16 May 13 (until cessation of GRIB1 data)</del>	<del>In progress</del>
Milestone 12: Monitor the performance and utilization of new gridded forecasts for icing, turbulence and CB clouds	WAFS TF Chair	17 Jul 145 Annual	In progress
Milestone 23: Report WAFS training needs	WAFS TF Chair	17 Jul 154 Annual	In progress
Milestone 34: Maintain and distribute WAFS service reference document to ASIA/PAC States	WAFS TF Chair	31 Nov 154 Annual	In progress
Milestone 45: Conduct survey on the implementation and utilization of WAFS (including SADIS/Secure SADIS FTP/WIFS services) and training needs within the ASIA/PAC Region and report to MET SG	WAFS TF Chair	17 Jul 154 Annual	In progress
Milestone 56: Update WAFS TF Work Plan	WAFS TF Chair	17 Jul 154 Annual	In progress

<b>6. WORK PLAN</b>				
<i>Activity / Milestone</i>	<i>Accountability</i>	<i>Predecessors</i>	<i>Date</i>	<i>Status</i>
<i>Activity 1: Monitoring of the migration from GRIB1 to GRIB2 WAFS forecasts in ASIA/PAC Region</i>				
<i>Activity 1.1: Analyse any survey results on the operational use of GRIB2 WAFS forecasts</i>	<i>WAFS TF</i>	<i>5.3</i>	<i>28 Apr 13 (until cessation of GRIB1 data)</i>	<i>In progress</i>
<i>Activity 1.2 Present findings to MET SG</i>	<i>WAFS TF Chair</i>	<i>1.1</i>	<i>16 May 13 (until cessation of GRIB1 data)</i>	<i>In progress</i>
<i>Milestone 1: Monitor the migration from GRIB1 to GRIB2 WAFS forecasts in ASIA/PAC Region</i>	<i>WAFS TF Chair</i>	<i>1.1-1.2</i>	<i>16 May 13 (until cessation of GRIB1 data)</i>	<i>In progress</i>
<b>Activity 12: Monitoring of the performance and utilization of new gridded forecasts for icing, turbulence and CB clouds</b>				
Activity 12.1: Monitor the performance of new gridded forecasts for icing, turbulence and CB clouds	WAFS TF	-	<del>30</del> May Apr 154 Annual	In progress
Activity 12.2: Provide summary on performance of new gridded forecasts for icing, turbulence and CB clouds for inclusion in MET SG working/information paper	WAFS TF Chair	12.1	<del>34</del> Jun May 154 Annual	In progress
Activity 12.3: Analyse any survey results on the utilization of new gridded forecasts for icing, turbulence and CB clouds	WAFS TF	<del>4</del> 5.3	<del>34</del> Jun May 154 Annual	In progress
Activity 12.4: Present findings to MET SG	WAFS TF Chair	12.2-12.3	<del>17</del> Jul 145 Annual	In progress
Activity 12.5: When necessary, prepare WAFSOPSG working/information paper on WAFS training needs	WAFS TF	12.2-12.4	Mar 15 18 mthly (no meeting in 2014; next in Mar 15)	In progress
Activity 12.6: When necessary, present paper to WAFSOPSG	WAFS TF via WAFSOPSG member	12.5	Mar 15 18 mthly (no meeting in 2014; next in Mar 15)	In progress
<i>Milestone 12: Monitor the performance and utilization of new gridded forecasts for icing, turbulence and CB clouds</i>	<i>WAFS TF Chair</i>	<i>12.1-12.6</i>	<i><del>17</del> Jul 145 Annual</i>	<i>In progress</i>

<b>Activity 23: Reporting of WAFS training needs</b>				
Activity 23.1: Analyse survey returns on WAFS training needs	WAFS TF Chair	45.3	31 May 145	In progress
Activity 23.2: Present survey finding to MET SG	WAFS TF Chair	23.1	17 Jul 154 Annual	In progress
<del>Activity 3.3: When necessary, prepare WAFSOPSG working/information paper on WAFS training needs</del>	WAFS TF Chair	23.1-23.2	Mar 15 18 mthly (no meeting in 2014; next in Mar 15)	In progress
Activity 23.4: When necessary, present paper to WAFSOPSG	WAFS TF via WAFSOPSG members	23.3	Mar 15 18 mthly (no meeting in 2014; next in Mar 15)	In progress
Milestone 23: Report WAFS training needs	WAFS TF Chair	23.2-23.4	17 Jul 154 Annual	In progress
<b>Activity 34: Maintenance and distribution of WAFS service reference document to ASIA/PAC States</b>				
Activity 34.1: WAFS TF to provide input on revising WAFS service reference document	WAFS TF	-	30 Sep Jun 145	In progress
Activity 34.2: Update of WAFS service reference document	WAFS TF Chair	34.1	17 Sep Jul 145	In progress
Activity 34.3: Upload WAFS service reference document (e-Document) to APAC web-site	ICAO Secretariat	34.2	31 Nov 145	In progress
Milestone 34: Maintain and distribute WAFS service reference document to ASIA/PAC States	WAFS TF Chair	34.2, 45.4	31 Nov 145	In progress
<b>Activity 45: Conduct survey on implementation and utilization of WAFS (including SADIS/Secure SADIS FTP/WIFS services) and training needs within the ASIA/PAC Region and report to MET SG</b>				
Activity 45.1: Develop a survey on the current and future implementation of WAFS (including SADIS/Secure SADIS FTP/WIFS services), the utilization of WAFS forecasts and WAFS training needs	WAFS TF	-	Nov 31 Oct 134 Update annually, if necessary	In progress
Activity 45.2: Distribute the survey to States	WAFS TF Chair	45.1	Dec 30 Nov 134 Annual	In progress
Activity 45.3: States to respond to survey	States	45.2	Feb 31 Jan 145 Annual	In progress
Activity 45.4: Analyse survey results	WAFS TF Chair	45.3	31 May 145 Annual	In progress



Activity <a href="#">45.5</a> : Present findings to MET SG	WAFS TF Chair	<a href="#">4.1</a> , <a href="#">12.3</a> , <a href="#">23.1</a> , <a href="#">45.4</a>	<a href="#">17 Jul 145</a> Annual	In progress
Activity <a href="#">45.6</a> : When necessary, prepare WAFSOPSG working/information paper	WAFS TF Chair	<a href="#">4.1</a> , <a href="#">12.3</a> , <a href="#">23.1</a> , <a href="#">45.4-45.5</a>	<a href="#">Mar 15</a> 18 mthly ( <del>no meeting in 2014;</del> next in <a href="#">Mar 15</a> )	In progress
Activity <a href="#">45.7</a> : When necessary, present paper to WAFSOPSG	WAFS TF via WAFSOPSG Members	<a href="#">45.6</a>	<a href="#">Mar 15</a> 18 mthly ( <del>no meeting in 2014;</del> next in <a href="#">Mar 15</a> )	In progress
<i>Milestone <a href="#">45</a>: Conduct survey on implementation and utilization of WAFS (including SADIS/Secure SADIS FTP/WIFS services) and training needs within the ASIA/PAC Region and report to MET SG</i>	WAFS TF Chair	<a href="#">45.1-45.7</a>	<a href="#">17 Jul 145</a> Annual	In progress
<b>Activity <a href="#">56</a>: Updating of WAFS TF Work Plan</b>				
Activity <a href="#">56.1</a> : Update the WAFS TF Work Plan (including the "Indicative Timetable for Implementation of WAFS" in Attachment I) before MET SG meeting	WAFS TF Chair	-	<a href="#">30 Jun 145</a> Annual	In progress
Activity <a href="#">56.2</a> : Report updated WAFS TF Work Plan at MET SG meeting	WAFS TF Chair	<a href="#">56.1</a>	<a href="#">17 Jul 145</a> Annual	In progress
<i>Milestone <a href="#">56</a>: Update WAFS TF Work Plan</i>	WAFS TF Chair	<a href="#">56.2</a>	<a href="#">17 Jul 145</a> Annual	In progress

**Indicative Timetable for Implementation of WAFS**

<b>Item</b>	<b>Task/Stage of Implementation of WAFS</b>	<b>Anticipated Date</b>
1	WAFS London products on access controlled internet site.	Completed
2	The establishment of back-up distribution arrangements for WAFS products.	Completed
3	Training in the operational conversion of GRIB forecasts to Wind / Temp charts.	Completed
4	All states that receive GRIB products capable of converting GRIB forecasts to Wind / Temp charts.	Completed
5	Removal of T4 Facsimile Wind / Temp charts from the satellite broadcast.	Completed
6	Training in the operational conversion of BUFR to SIGWX charts.	Completed
7	States having the ability to operate the decoding software to convert BUFR SIGWX messages into graphical format.	Completed
8	The satellite distribution by the two WAFCs of global SWH and of SWM for limited geographical areas in BUFR format.	Completed
9	Launch of SADIS 2G service.	Completed
10	SADIS 2G seminar for ASIA/PAC States.	Completed
11	Removal of T4 Facsimile SIGWX products from the satellite broadcast.	Completed
12	Procurement of SADIS 2G hardware by SADIS user States.	Completed
13	Termination of the SADIS 1G service.	Completed
14	Launch of trial gridded forecasts of icing, turbulence and convective clouds.	Completed
15	Implementation of WAFS Internet File Service (WIFS).	Completed
16	Workshop on gridded forecasts of icing, turbulence and convective clouds.	Completed

17	WAFCs begin provision of WAFS forecasts in the GRIB2 code form via internet based services (SADIS FTP/ Secure SADIS FTP /WIFS).	Completed
18	WAFCs begin broadcast of WAFS forecasts in the GRIB2 code form (excluding gridded forecasts of icing, turbulence and CB clouds) via satellite services (SADIS/ISCS).	Completed
19	WAFCs provide web-based gridded forecasts of icing, turbulence and CB clouds.	Suspended until further notice
20	Regional training on the use of the gridded forecasts.	<del>Initial training material forwarded to WAFSOPSG members on 15 Apr 2013 for comments</del> <a href="#">Completed</a>
21	WAFS end-user workstations upgraded to accept the GRIB2 code form.	May 2011 – November 2013
22	Termination of the ISCS-G2 service.	Completed
23	Planned cessation of WAFS upper air forecasts in GRIB 1 format. GRIB2 will be the sole format provided.	<del>November 2013</del> <a href="#">Completed</a>
24	Implementation of Secure SADIS FTP Service.	Completed
25	Re-prioritisation of GRIB2 over GRIB1.	Completed
26	SADIS FTP will be ceased. Secure SADIS FTP will be the sole Internet based service provided by the UK.	Completed
27	The GRIB2 maximum icing potential deemed operational for Extended Division Time Operation (EDTO) purposes.	March 2011
28	The GRIB2 forecasts for icing, turbulence and CB clouds expected to be endorsed for operational use with Amendment 76 to ICAO Annex 3.	<del>November 2013</del> <a href="#">Completed</a>
29	Implementation of WAFS re-issuance policy for WAFS GRIB2 and WAFS SIGWX forecasts.	September 2014