



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

Agenda Item 7: Research, development and implementation issues in the MET field

7.1 WAFS

REGIONAL PROGRESS IN WAFS IMPLEMENTATION

(Presented by Chairman, WAFS Task Force)

SUMMARY

This paper provides an update on the progress of WAFS implementation in the ASIA/PAC Region.

1. Introduction

1.1 This paper provide an update on the progress of WAFS implementation in the ASIA/PAC Region subsequent to MET SG/17 and discuss the follow-up actions that are needed to ensure implementation and utilization of the WAFS products in the ASIA/PAC Region.

2. Regional Progress

2.1 The progress of WAFS implementation in ASIA/PAC Region has been tracked by Attachment I to the WAFS TF Work Plan. A draft revision to the Attachment is included as Appendix I to this paper for review by the meeting. Particular attention is drawn to the following items that are already due for completion or will be due for completion within the next year:

Item	Task/Stage of Implementation of WAFS	Anticipated Date
20	Regional training on the use of the gridded forecasts.	Initial training material forwarded to WAFSOPSG members on 15 Apr 2013 for comments
21	WAFS end-user workstations upgraded to accept the GRIB2 code form.	May 2011 – November 2013

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|----|--|----------------|
| 23 | Planned cessation of WAFS upper air forecasts in GRIB 1 format. GRIB2 will be the sole format provided. | November 2013 |
| 28 | The GRIB2 forecasts for icing, turbulence and CB clouds expected to be endorsed for operational use with Amendment 76 to ICAO Annex 3. | November 2013 |
| 29 | Implementation of WAFS re-issuance policy for WAFS GRIB2 and WAFS SIGWX forecasts. | September 2014 |

2.2 Regarding item 20, it was recalled that WAFS Provider States was expected to develop computer-based initial training material for WAFS gridded global forecasts for CB clouds, icing and turbulence in order to support implementation under Amendment 76 to Annex 3 (WAFSOPSG/7 Conclusion 7/13). At WAFSOPSG/8, WAFS London reported that there had been some technical issues regarding the development of the training material using a “Moodle” training tool but that this was expected to be available by the end of September 2013. Subsequently, online training material was made available at: <https://elearning.metoffice.gov.uk/course/view.php?id=117>. The training material in all official languages of ICAO was also made available at WAFSOPSG website. Item 20 is considered completed.

2.3 Items 21 and 23 are related to the cessation of GRIB1 broadcast in November 2013, which has been completed.

2.4 GRIB2 forecasts for icing, turbulence and CB clouds were endorsed for operational use with Amendment 76 to ICAO Annex 3. Item 28 is considered completed.

2.5 Regarding item 29, the WAFSOPSG/7 meeting agreed, in view of the reasonable needs and expectations of users, together with the principles of the quality management system and the current capabilities of the WAFSs, a re-issuance policy for WAFS GRIB2 and WAFS SIGWX forecasts, which is expected to be implemented on 16 September 2014. This item was reviewed at the WAFSOPSG/8 meeting and the expected completion date of 16 September 2014 was maintained.

3. Issues on WAFS Gridded Forecasts of Icing, Turbulence and CB Clouds

3.1 The meeting may recall that harmonized forecasts of gridded forecasts of icing, turbulence and CB clouds are produced by the two WAFSs since November 2011. The note on the trial nature of these harmonized forecasts was subsequently removed as part of Amendment 76 to ICAO Annex 3. The WAFS Provider States were also tasked to provide enhanced verification statistics of these harmonized products (WAFSOPSG/8 Conclusion 8/10).

3.2 The meeting may note that WAFS London notified users on 23 July 2014 of an issue with CAT potential data via SADIS administrative message (NOUK10 EGRR 231330, see Appendix II) following a recent model change. The issue apparently first appeared on 1200UTC 15 July 2014, eight days before the notification was issued. Appendix III shows a sample chart with problematic data field for forecast based on 1200UTC 15 July 2014 and a sample chart with normal data field for forecast based on 0600UTC 15 July 2014 (i.e., before 1200UTC 15 July 2014).

3.3 To address this issue, WAFC London used WAFC Washington mean and maximum CAT as sole input into the harmonized CAT potential data field. This change was effective from forecasts based on 1200UTC data, 23 July 2014. However, WAFC Washington only stopped disseminating problematic CAT potential data field starting from the forecast based on 1800UTC 23 July 2014 (i.e., one model run later, see Appendix IV). Moreover, WAFC Washington only issued a WIFS administrative message (NOXX10 KKCI 291200) on 29 July 2014, six days after the corresponding SADIS administrative message and in the message, it did not explicitly state which parameters were affected (see Appendix V).

3.4 Considering that these gridded forecasts are no longer trial products, it is considered that the robustness of such gridded forecast should be improved. In the light of the latest discussion at the Conjoint MET Divisional Meeting 2014, the implementation of WAFS database, populated with meteorological information from appropriate models should be pursued in earnest. Moreover the meeting might like to consider requesting both WAFCs to:

- (a) improve the monitoring of their own forecast products as well as the harmonized products in order to identify problem and error in the earliest possible time. Particular attention should be paid whenever there are any changes in operating environment, changes in model, etc.;
- (b) improve the coordination between the two WAFCs so that there would be coordinated action and notification to users;
- (c) provide details of the forecast/products affected; and
- (d) extend the verification and provide performance statistics for both the harmonized and un-harmonized forecast.

4. Action by the Meeting

4.1 The meeting is invited to note the information provided in this paper and to exchange views on the progress of WAFS Implementation in the ASIA/PAC Region.

Appendix I

Indicative Timetable for Implementation of WAFS

Item	Task/Stage of Implementation of WAFS	Anticipated Date
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 WAFSCs 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.	Initial training material forwarded to WAFSOPSG members on 15 Apr 2013 for comments Completed
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 GRIB1 format. GRIB2 will be the sole format provided.	November 2013 Completed
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.	November 2013 Completed
29	Implementation of WAFS re-issuance policy for WAFS GRIB2 and WAFS SIGWX forecasts.	September 2014

SADIS Admin Message (NOUK10 EGRR 231330) dated 23 July 2014

NOUK10 EGRR 231330

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ATTENTION ALL SADIS USERS

INCIDENT NUMBER: CRQ152467

SERVICES AFFECTED:
SECURE SADIS FTP

DATASTREAMS AFFECTED:
GRIB

DETAILS: WAFC LONDON GRIB2 CAT POTENTIAL DATA

WAFC LONDON HAS BECOME AWARE OF AN ISSUE WITH THE CAT POTENTIAL DATA FOLLOWING A RECENT MODEL CHANGE.

TO ADDRESS THIS ISSUE WAFC LONDON WILL USE WAFC WASHINGTON MEAN AND MAX CAT AS SOLE INPUT INTO THE HARMONISED CAT POTENTIAL DATA FIELDS.

THIS CHANGE WILL BE EFFECTIVE FROM FORECASTS BASED ON 1200 UTC DATA, 23 JULY 2014. IT WILL BE IN PLACE UNTIL FURTHER NOTICE.

THIS CHANGE WILL ADDRESS THE ISSUE IDENTIFIED. NO OTHER WAFC GRIB2 DATA OUTPUT IS AFFECTED.

DATE/TIME OF NEXT UPDATE: THE INTERIM SOLUTION WILL BE IN PLACE UNTIL A PERMANENT SOLUTION IS IDENTIFIED. NOTIFICATION WILL BE PROVIDED.

ISSUED BY: SADIS MANAGER
LOCATION: WAFC LONDON

A COPY OF THIS MESSAGE WILL APPEAR AT (USE LOWER CASE):
[HTTP://WWW.METOFFICE.GOV.UK/SADIS/NEWS/](http://www.metoffice.gov.uk/sadis/news/)

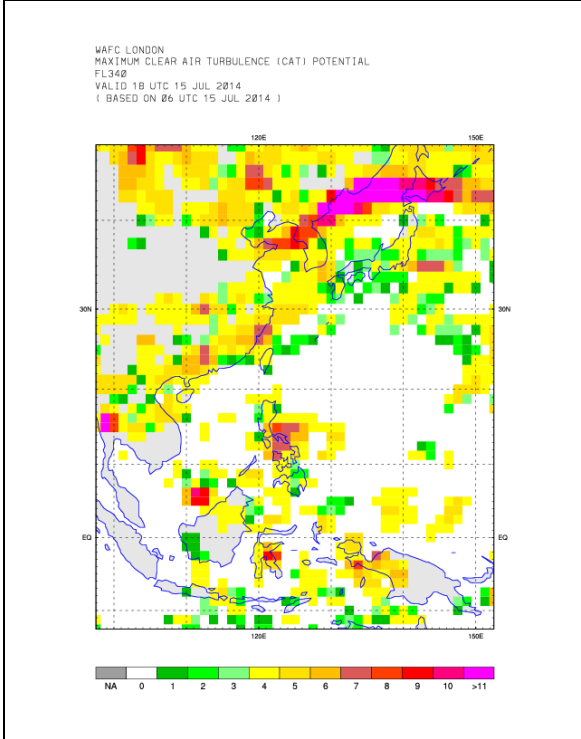
WAFC LONDON SERVICE DESK CONTACT DETAILS:
EMAIL: SERVICEDESK@METOFFICE.GOV.UK
TELEPHONE: +44 (0)1392 886666

Released : 23 Jul 2014 14:58

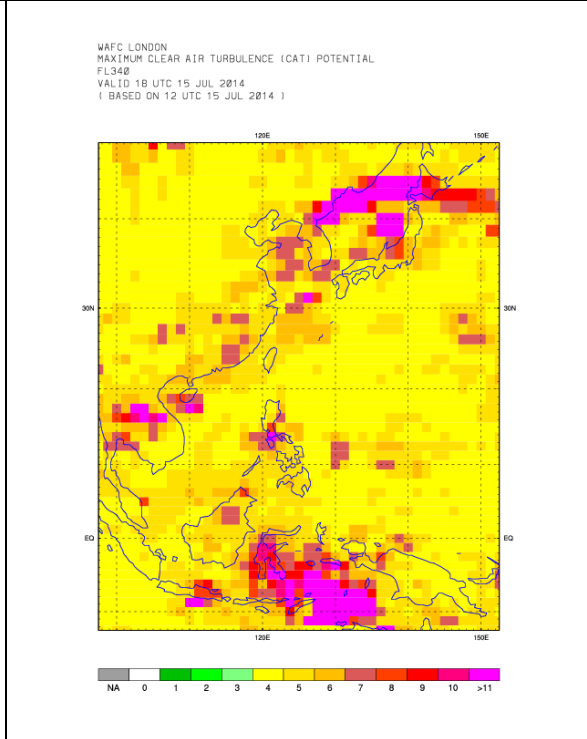
Appendix III

Sample charts showing problematic and normal CAT Potential data field

Sample chart with normal maximum CAT potential data field the minimum data value of which is "0" (white in color code)

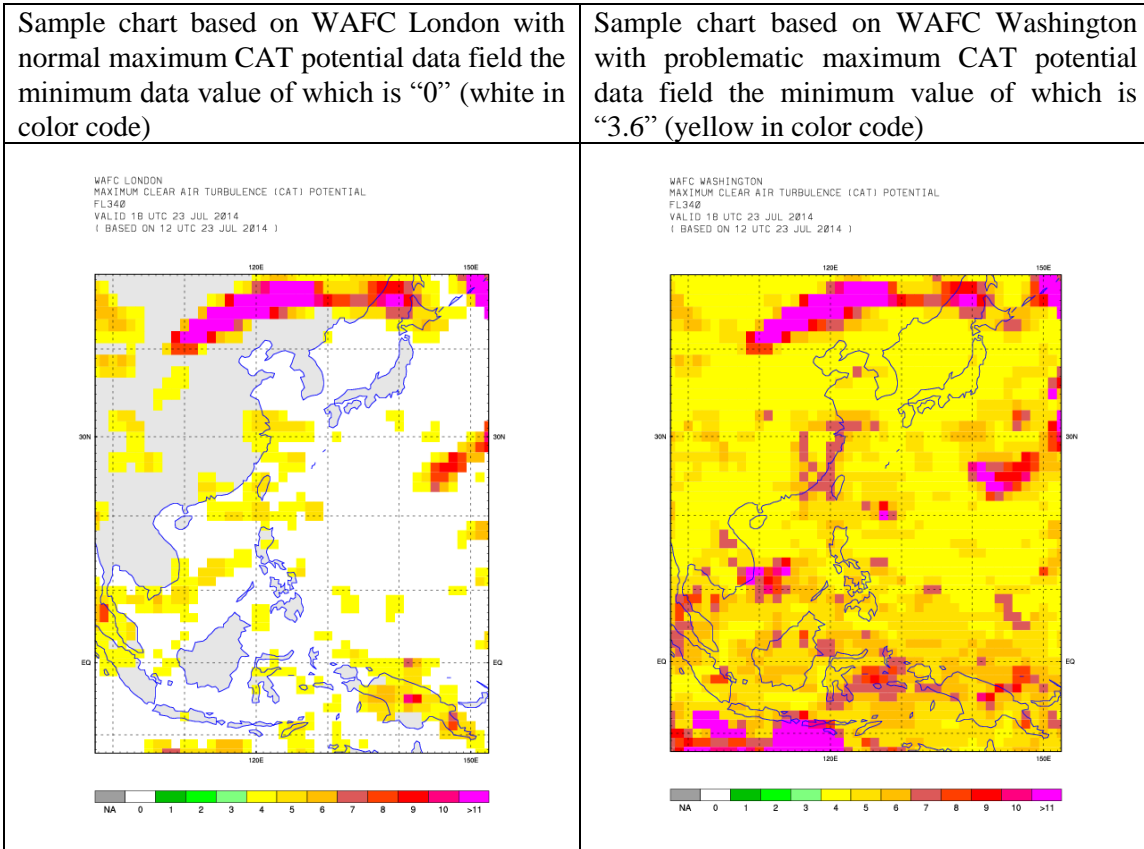


Sample chart with problematic maximum CAT potential data field the minimum value of which is "3.6" (yellow in color code)



Appendix IV

Sample CAT potential charts, for the same flight level and validity time for model run using same based time, from WAFC London (without problematic data field) and WAFC Washington (with problematic data field)



Appendix V

WIFS Admin Message (NOXX10 KKCI 291200) dated 29 July 2014

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NOXX10 KKCI 291200

W AFC WASHINGTON ADVISES ALL USERS OF TRIAL CB CLOUD, ICING AND
TURBULENCE WAFS FORECASTS IN GRIB2 FORMAT THAT PRODUCTION
PROBLEMS HAVE TRIGGERED CONTINGENCY MEASURES AND THE
ISSUANCE OF NON-HARMONIZED FORECASTS.

STANDARD WAFS FORECAST PARAMETERS IN GRIB2 FORMAT (WIND,
TEMPERATURE, HUMIDITY, TROP HEIGHT, MAX WIND, MAX WIND HEIGHT)
ARE UNAFFECTED, AND ARE AVAILABLE AS NORMAL.

W AFC WASHINGTON APOLOGIZES FOR ANY INCONVENIENCE CAUSED DUE
TO THIS ISSUE.