



International Civil Aviation Organization

**MIDANPIRG Meteorology Sub-Group  
Sixth Meeting (MET SG/6)**

*(Cairo, Egypt, 14 - 16 November 2017)*

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**Agenda Item 4: Performance Framework for MET implementation in the MID Region**

**4.1 Review of the implementation of WAFS and SADIS**

SUMMARY OF RECENT AND FORTHCOMING  
DEVELOPMENTS TO THE WAFS

*(Presented by WAFS London)*

**SUMMARY**

This paper reports out on the progress of World Area Forecast System (WAFS) since the last meeting of the MID MET Sub Group in March of 2016. Some of these developments have had a direct impact on end users. A number of important developments are planned to the WAFS in future years key elements of these are highlighted in this paper for the consideration of the group.

**1. INTRODUCTION**

1.1 This paper presents developments to the WAFS since the sixth meeting of the MID MET Sub Group (1-3 March 2016, Cairo). There have been two meetings of the Meteorological Operations Group Working Group relating to WAFS (WG-MOG/3 WAFS<sup>1</sup> and WG-MOG/4 WAFS<sup>2</sup>) since MID METSG/6. Users are encouraged to review information relating to WAFS, available on the ICAO WG-MOG website at URL: <http://www.icao.int/airnavigation/METP/MOG/Pages/default.aspx>.

**2. RECENT DEVELOPMENTS**

**2.1 Provision of additional flight levels to WAFS Upper Air Forecasts**

In accordance with Amendment 77 to ICAO Annex 3 – *Meteorological Service for International Air Navigation*; both World Area Forecast Centres (WAFS) commenced production and distribution of data for 3 additional flight levels as part of their WAFS gridded upper air forecast datasets. The extra levels are FL080 (750hPa); FL210 (450hPa); and FL480 (125hPa). Implementation was effective from the 1200 UTC model availability on 9 November 2016.

**Action:** *Note this information. Contact your Secure Aviation Data Information Service (SADIS) or WAFS Internet File Service (WIFS) Workstation provider to ensure that software is updated to benefit from the additional vertical levels.*

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<sup>1</sup> 15 – 16 June, 2015; Gatwick, United Kingdom

<sup>2</sup> 4 – 7 April, 2017; Exeter, United Kingdom

## **2.2 Purposeful delay of WAFC Significant Weather (SIGWX) forecast data by one hour, once each year by each WAFC during scheduled WAFC SIGWX backup events.**

In accordance with WG-MOG/3 Decision 3/1, both WAFCs were invited, once per year during one of the scheduled WAFC backup events, to purposefully delay the issuance of data by one hour. This was intended to introduce more realism into the backup events, since during real backup events data may be delayed by up to two hours.

To comply with WG-MOG/3 Decision 3/1, WAFC London implemented the delay during the backup event on 11 January 2017. Further, as required by the Decision, WAFC London and WAFC Washington notified users of the delay via SADIS and WIFS administrative messages.

WAFC London can report that no users reported any adverse impact with regard to the delay, in part due to the prior notification provided.

WAFC Washington implemented a similar delay during the scheduled WAFC Washington backup undertaken on 26 July 2017. No problems were reported.

*Action: Note this information. Users are encouraged to always monitor SADIS and WIFS administrative messages in order to be aware of such matters. Also, regularly review the schedule of WAFC backup events, here <http://www.icao.int/airnavigation/METP/MOG/Pages/WAFS.aspx> (Forthcoming and Historical Record of WAFC Backup Tests).*

## **2.3 Updated Guidance and Training for States on the use and visualization of new gridded WAFS forecasts**

The WAFCs have updated the guidance relating to use of harmonised CB, icing and turbulence forecasts. The updated guidance 'WAFS\_HazardGridUserGuide' is available <http://www.icao.int/airnavigation/METP/MOG/Pages/WAFS.aspx>.

A training module regarding the use of WAFS gridded CB, icing and turbulence forecasts is available from the same webpage. The training module is provided via the Internet with an English language voiceover. In addition, ICAO has provided PDF versions of the training module in the following languages: Arabic, Chinese, English, French, Russian and Spanish.

*Action: Users should regularly review the guidance and training data.*

## **3. FORTHCOMING DEVELOPMENTS**

### **3.1 Developments to WAFS in relation to the Aviation System Block Upgrades schedule.**

The WAFCs are developing plans to enhance the WAFS consistent with the schedule expressed at the Meteorology Divisional Meeting (7-18 July 2014, Montréal, Canada), and consequently aligned with the Aviation System Block Upgrade schedule.

An overview of the proposed WAFS developments was presented at METP WGMOG/4 (4-7 April 2017, Exeter, UK) and the WAFCs will present mature proposals for consideration by the METP at its third meeting (anticipated latter half of 2018). This includes changes to the GRIB data resolution, and updated icing, turbulence and CB forecast algorithms.

*Action: Note this information. Regularly review material as submitted to the METP Working Groups and the METP.*

#### 4. STANDING ARRANGEMENTS

##### 4.1 Inclusion of WAFS GRIB2 Clear Air Turbulence (CAT) and Cumulonimbus (CB) Cloud verification data on the 'WAFS London Performance Indicators' page

Verification data for harmonized WAFS gridded upper air forecasts for CAT potential and CB cloud forecasts is available from the "WAFS London Performance Indicators" webpage: <http://www.metoffice.gov.uk/aviation/responsibilities/icao>. The verification data should be used in conjunction with the guidance material noted in 2.2 above.

*Action: This information should be consulted regularly in order to obtain the most benefit from these forecast fields.*

##### 4.2 Inclusion of WAFS GRIB2 ICING verification data on the WAFS Washington website

Verification data for harmonized WAFS gridded upper air forecasts for Icing potential is available from the "WAFS Washington webpage: <http://www.emc.ncep.noaa.gov/gmb/icao/>. The verification data should be used in conjunction with the guidance material noted in 2.3 above.

*Action: This information should be consulted regularly in order to obtain the most benefit from these forecast fields.*

##### 4.3 BUFR Edition used to encode WAFS SIGWX

The WAFS Provider's will continue to issue SIGWX forecasts in BUFR format using BUFR Edition 3. There are no current plans to migrate to BUFR Edition 4.

*Action: Note this information and ensure that your systems remain compatible with the BUFR Edition 3 for decoding of SIGWX BUFR. Note also that the SIGWX forecasts in PNG form will continue to be issued until further notice.*

##### 4.4 Quarterly WAFS SIGWX backup tests

The WAFS Provider States have continued to test their SIGWX backup procedures in the event that one WAFS is unable to produce SIGWX forecasts in the BUFR-code and PNG-chart format. Routine backup tests are conducted quarterly, with the results posted on the METP/WG-MOG/WAFS website in the document Forthcoming and Historical Record of WAFS Backup Tests' available via URL: <http://www.icao.int/airnavigation/METP/MOG/Pages/WAFS.aspx>.

Forthcoming backup tests are outlined in the same document: Notification of WAFS backup tests is promulgated via SADIS in advance, by way of administrative messages.

Note that, in accordance with information provided in section 2.2, each WAFS will delay the issuance of SIGWX forecasts by one hour during one scheduled WAFS Backup event each year.

*Action: Note this information and regularly visit the WG-MOG website to obtain information pertaining to WAFS backup tests and procedures.*

4.5 **Access to Internet based services (SADIS FTP and WIFS)**

The policies regarding the development of clear guidelines with regard to the accessing of data from SADIS FTP and from WIFS have been previously established by WAFSOPSG<sup>3</sup>, SADISOPSG<sup>4</sup> and SCRAG<sup>5</sup>. Detailed information is available

<http://www.icao.int/airnavigation/METP/MOG/Pages/SADIS.aspx>.

***Action:** Note this information. Users are encouraged to establish and regularly test backup accounts with the alternative provider to be used in the rare event that their normal SADIS FTP service is unavailable. It is the user's responsibility to apply for and arrange backup accounts.*

**5. ACTION BY THE MID MET SUB-GROUP**

5.1 The MID MET Sub Group is invited to:

- a) note the contents of this paper; and
- b) discuss any relevant matters as appropriate.

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<sup>3</sup> World Area Forecast System Operations Group – disbanded 2015

<sup>4</sup> Satellite Distribution System Operations Group – disbanded 2015

<sup>5</sup> SADIS Cost Recovery Administrative Group