International Civil Aviation Organization

WORKING PAPER

METP-WG/MOG/1-WP/15
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MEETING OF THE METEOROLOGY PANEL (METP) WORKING GROUP MOG

FIRST MEETING

Gatwick, London, United Kingdom, 8 to 11 September 2015

Agenda Item 4: Matters relating to WAFS
4.2: Other Operational Matters

PROVISION OF SAMPLE SOURCE DATA AND GENERIC VISUALISATIONS OF WAFS GRIDDED FORECASTS OF CUMULONIMBUS CLOUD, ICING AND TURBULENCE

(Presented by the WAFC Provider States)

SUMMARY

In order to assist the development of accurate visualisations of cumulonimbus cloud, icing and turbulence data, this paper apprises the group of sample data that has recently been made available by the WAFCs, and seeks endorsement to make the data easily available via an appropriate Meteorological Panel (METP) webpage.

1. INTRODUCTION

1.1 The group will be aware that the World Area Forecast System (WAFS) gridded forecasts of cumulonimbus cloud (CB), icing and turbulence have been considered operational since November 2013; and were available under 'trial' status for several years before.

1.2 In order to assist the development of accurate visualisations of the data, this paper apprises the group of sample data that has recently been made available by the World Area Forecast Centres (WAFCs), and seeks endorsement to make the resource available via an appropriate Meteorological Panel (METP) webpage.

2. DISCUSSION

2.1 The WAFS gridded forecasts for CB, icing and turbulence are described in "*Guidance on the Harmonized WAFS Grids for Cumulonimbus Cloud, Icing and Turbulence Forecasts*[1]". However,

[1] http://www.icao.int/safety/meteorology/WAFSOPSG/Guidance%20Material/Guidance%20on%20the%20Harmonized%20WA

because of the intended method of use (user defined thresholds) and the fact that there is no requirement for operational visualisations of the data by the WAFCs (Section 9.1.4 of Chapter 9 to ICAO Annex 3) it is considered that software developers would benefit from additional resource.

2.2 Accordingly, the WAFCs have developed generic visualisations of the data based on a sample dataset. The intent of these sample visualisations are to ensure that:

a) Software developers correctly decode the GRIB2 data and scan in the correct direction when parsing the data (WAFC London scans from South Pole to North Pole, WAFC Washington scans from North Pole to South Pole)

b) Correctly scale the data. For example, some software developers have questioned whether a value of 0.5 in the CB Horizontal Extent field represents 50% cover or 0.5% cover. In this case it represents 50% cover, but software developers have found it useful to have sample data with generic visualisations to ensure there are no gross errors of this type.

2.3 Once a software developer has confirmed that their systems are visualising the data in a manner consistent with the generic visualisations, they – and their users – can have confidence in the data when applying user specified thresholds.

3. CONTENT OF DATA AND INTENDED USE

3.1 The sample files consist of:

a) harmonized CB, icing and turbulence data as generated by both WAFCs for 0000 UTC on 15th November 2013.

b) generic visualisations of sample fields from both datasets.

3.2 The intent is that software developers process the CB, icing and turbulence data from both WAFCs. Their visualisations should match the sample visualisations provided.

3.3 Any gross errors such as scanning in the wrong direction or incorrect scaling of parameters can be identified by the software developer and corrected.

4. PAST AND FUTURE USE OF THE DATA

4.1 To date, a number of SADIS Workstation providers have made good use of the data to confirm that their systems correctly process and visualise the data from both WAFCs.

4.2 It is considered that it would be advantageous to make the sample data more easily available via an appropriate METP webpage. This would permit any software developer to make use of the resource by simply downloading the data.

FS%20Grids%20for%20Cumulonimbus%20Cloud,%20Icing%20and%20Turbulence%20Forecasts%20-%2011%20September%202012.pdf

4.3 The availability of such data would appropriate terms of use and caveats. It is suggested that the following guidance accompany any links to the sample data:

Sample visualisations for WAFS Cumulonimbus Cloud, icing, and turbulence:

Software developers may download the zip files below for sample visualisations and source GRIB2 data files of WAFS CB, icing, and turbulence gridded forecasts.

Note, the information is to permit users to confirm that their own decoding and visualisation processes are consistent with the intended outputs (correct orientation; correct scaling of values, etc).

The sample visualisations do not infer that specific thresholds/ranges should be set by users.

The sample visualisations do not infer that specific colour schemes should be used.

It is recommended that users test their systems using data from both WAFCs.

Once testing is complete, users should set thresholds, ranges, colour schemes etc as dictated by their Business Rules and in accordance with separate guidance regarding the operational use of WAFS GRIB2 CB, icing and turbulence data.

Important Note: The data from these links is historic and must not be used for operational purposes

KWBC sample visualisations and source files [links to zipped file of KWBC CB, ice, turbulence visualisations/files]

EGRR sample visualisations and source files [links to zipped file of EGRR CB, ice, turbulence visualisations/files]

4.4 Simple caveats are also included on the generic visualisations provided by the WAFCs (see examples in the **Appendix**).

4.5 Example generic visualisations are provided in the **Appendix**.

5. CONCLUSION.

5.1 In light of the foregoing, it is considered that it would be appropriate to make available on the METP WG-MOG website, sample data relating to WAFS gridded forecasts for CB, icing and turbulence.

5.2 Accordingly, the group is invited to formulate the following draft Conclusion

Conclusion 1/…. — Provision of generic visualisations and source data for WAFS gridded forecasts of cumulonimbus cloud, icing and turbulence

That, the WAFC Providers, be invited to make available on an appropriate ICAO METP website, source data and generic visualisations of WAFS gridded forecasts of cumulonimbus cloud, icing and turbulence.

Note. — Appropriate terms of use and caveats, as described [in section 4.3 of this Working Paper] to be displayed with the links.

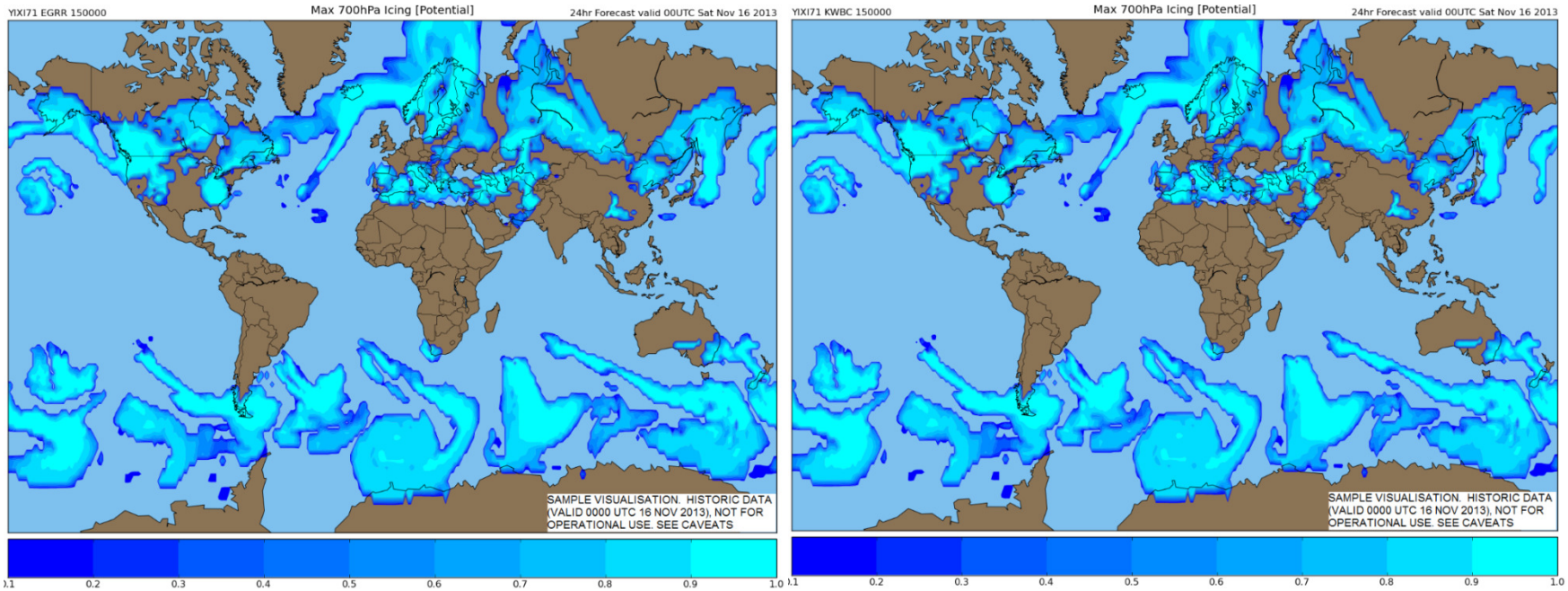
6. ACTION BY THE METP-WG/MOG

6.1 The METP-WG/MOG is invited to:

a) note the information contained in this working paper; and

b) decide on a draft conclusion for the group's consideration.

APPENDIX



Generic visualizations of maximum icing potential based on WAFC London harmonized GRIB2 data (left) and WAFC Washington (right) [both for 700hPa, T+24 Valid 0000 UTC 16 November 2013). Not surprisingly both visualisations are (for all practical purposes) identical. Note the 'health warning' in the bottom right corner and reference to caveats of use.

Software developers should use the raw data from both centres to ensure that their visualisations are also (for all practical purposes) identical to the generic visualisations above. This will ensure that there are no gross errors (such as scanning direction, scaling factors etc.).

— END —