

FOURTH MEETING

WORLD AREA FORECAST SYSTEM OPERATIONS GROUP (Cairo, Egypt, 26 to 28 February 2008)

EXECUTIVE SUMMARY¹

1. INTRODUCTION

1.1 The fourth meeting of the World Area Forecast System Operations Group (WAFSOPSG/4) was held in the Middle East (MID) Regional Office, Cairo, 26 to 28 February 2008. The meeting was attended by twenty-nine experts from fifteen States and four international organizations (the Agency for the Safety of Aerial Navigation in Africa and Madagascar (ASECNA), the International Air Transport Association (IATA), the International Federation of Air Line Pilots' Associations (IFALPA) and the World Meteorological Organization (WMO)).

1.2 The Vice Chairman, Mr. A. Al Harty, presided over the meeting throughout its duration.

2. FOLLOW-UP OF WAFSOPSG/3 CONCLUSIONS

2.1 With regard to the follow-up of the conclusions, the group noted that action had been completed on all the issues except for Conclusion 3/13 b) 2), which was re-addressed under Agenda Item 6.3 (Decision 4/1 refers).

3. REVIEW OF ICAO PROVISIONS RELATED TO WAFS

3.1 Under this agenda item, the group reviewed the regional procedures related to world area forecast system (WAFS) and proposed amendments which would introduce a reference to the new gridded forecasts of cumulonimbus (CB) clouds, icing and turbulence (Conclusion 4/2 refers).

3.2 The group also reviewed and endorsed the draft Amendment 75 to Annex 3 which would:

- a) improve the spatial and temporal resolution of WAFS forecasts in the GRIB code form;
- b) increase the lead time for issuance of significant weather (SIGWX) forecasts;
- c) allow the introduction of WAFS forecasts for CB clouds, icing and turbulence in the GRIB code form;
- d) simplify the content of SIGWX forecasts by eliminating elements that have never been included in such forecasts issued within the WAFS;

¹The full report is available at the following website: www.icao.int/anb/wafsopsg

- e) eliminate the requirement to indicate, subject to regional air navigation agreement, the areas of flight documentation available at international aerodromes; and
- f) eliminate amendments to WAFS forecasts. (Conclusion 4/3 refers).

4. OPERATION OF THE WAFS

4.1 The group took note of the WAFS management report which had been prepared by the WAFC Provider States and placed on the WAFSOPSG website. The group reviewed the management report, noted its content and expressed satisfaction with the scope of information provided.

4.2 The group noted that the OPMET bulletins were not identical in the international satellite communications system (ISCS) and the satellite distribution system for information relating to air navigation (SADIS) broadcasts and concurred that the format of ISCS and SADIS OPMET bulletins should be harmonized by the end of summer 2008 (Conclusion 4/4 refers).

4.3 To deal with errors in significant weather (SIGWX) forecasts in the BUFR code and the portable network graphics (PNG) chart forms, the group agreed that an administrative message should be issued by the world area forecast centre (WAFC) Provider States (Decision 4/5 refers). The introduction of such administrative messages would not require costly software changes by WAFS users.

4.4 In view of differences that existed between WAFC in the provision of height coordinates for forecasts of tropopause and maximum wind, the group agreed that the height coordinates should be harmonized. To minimize the impact on users, no changes should be made to the current GRIB 1-formatted forecasts; such changes should only be applied to the future GRIB 2-formatted forecasts. (Conclusion 4/6 refers).

4.5 In order to improve information on tropical cyclones (TC) and volcanic ash (VA) in the SIGWX forecasts, the group agreed that:

- a) indication of non-named TC should be clarified by eliminating the term “NIL” used hitherto (Decision 4/7 refers);
- b) feasibility of establishing coordination between WAFC and tropical cyclone advisory centres (TCAC) should be assessed as called for by the eighteenth meeting of the ASIA/PAC Air Navigation Planning and Implementation Regional Group (APANPIRG/18) (Conclusion 4/8 refers); and
- c) tropical cyclone advisories from non-TCAC could be used when adequate advisory guidance from the designated TCAC was not available (Decision 4/9 refers).

4.6 Regarding transparency during times of WAFC backup, the group noted that if the WAFC back-up were entirely transparent for end users as called for by the Satellite Distribution System Operations Group (SADISOPSG), WAFC production suites and vendors workstation software would require adjustments. Therefore, the group agreed that WAFC back-up should continue to be seamless, but not necessarily transparent, for end-users (Decision 4/10 refers).

4.7 To address the APANPIRG Conclusion 17/36 related to WAFS output performance indicators, the group concurred that their extension and the possibility of producing more operationally oriented output performance indicators should be studied (Conclusion 4/11 refers).

5. DEVELOPMENT OF THE WAFS

5.1 The group endorsed the results of the study undertaken by IATA which called for the

- a) introduction of two additional levels at FL 320 (275 hPa) and at FL 360 (225 hPa);
- b) replacement of the thinned grid with a regular grid with a resolution of 1.25; and
- c) improvement in the temporal resolution from 6 to 3 hours (Conclusion 4/12 refers).

The use of finer resolutions as suggested under a) to c) above was expected to lead to improvements in the WAFS upper-air forecasts, which would contribute to increase the user confidence in such forecasts and could subsequently result in a reduced demand for additional fuel, thus in reduced fuel burn and in a genuine cost savings for airlines. To address the APANPIRG Conclusion 18/41, the group agreed that the requirements of polar operations should be further studied by the WAFCs (Conclusion 4/12 refers). The group called for the WAFC Provider States to develop the higher resolution upper air forecasts, in time for the WAFSOPSG/5 Meeting in order to ensure their timely implementation (Conclusion 4/13 refers).

5.2 Concerning the gridded WAFS forecasts for icing, turbulence and CB clouds in the GRIB 2 code form, the WAFSOPSG Members from IATA, IFALPA and user States had evaluated the trial products available from the SADIS FTP service and the WAFC Provider States had developed guidelines for the visualization of these gridded forecasts. Concerning the evaluation undertaken by users, the group concurred with their views that the advantages of the new gridded forecasts included their high consistency, their compatibility with wind and temperature forecasts, and their relevance to flight operations irrespective of the duration of the flight. The group further agreed that the following issues should be addressed:

- a) *Overlapping period.* To minimize confusion, the overlap of the existing SIGWX forecasts with the new gridded forecasts be short; during the overlapping period, the gridded test forecasts should be clearly labelled as such;
- b) *Ease of use.* The visualization of the new gridded forecasts should be such that it would combine the high “at a glance” value of existing SIGWX forecasts with greater detail inherent to gridded forecasts;
- c) *Use of terminology.* All the qualifiers used to describe icing, turbulence and CB clouds in the gridded forecasts should relate to terms well-known to the user; and
- d) *Accuracy of the gridded forecasts.* It was considered important that the accuracy of the new gridded forecasts be assessed in order to ensure that their accuracy is similar, or superior, to that of the existing SIGWX forecasts (Conclusion 4/14 refers).

With regard to guidance related to gridded forecasts, the group endorsed the guidelines developed by the WAFC Provider States (Decision 4/15 refers) and called for the WAFC Provider States to develop comprehensive guidance in time for the WAFSOPSG/5 Meeting (Conclusion 4/16 refers). Finally, the group identified some outstanding issues related to the gridded forecasts and agreed that the WAFC

Provider States should undertake a systematic comparisons of these forecasts in order to establish their characteristics and limitations, in time of the WAFSOPSG/5 Meeting (Conclusion 4/17 refers).

5.3 The group considered the migration to the GRIB 2 code form and endorsed the implementation plan developed by the WAFSOPSG/5 Meeting, in close coordination with WMO, based on IATA user requirements (Decision 4/18 refers).

5.4 With regard to the visualization of WAFS forecasts in flight documentation, the group considered two issues:

- a) *Use of concatenated WAFS forecasts for long-haul flights.* Based on the results of a study undertaken by an ad hoc group, it was agreed that the Secretariat should develop Annex 3 provisions to enable the provision of concatenated route-specific wind/temperature forecasts generated from interpolating data from consecutive forecast times, for review by the WAFSOPSG/6 Meeting. Furthermore, the ad hoc group was tasked to study if the interpolation could similarly be applied to the new gridded forecasts (Conclusion 4/19 refers); and
- b) *Establishment of a web-based distribution of WAFS forecasts.* In view of the complexity of software required for the visualization of the new gridded forecasts, it was agreed that WAFSOPSG/6 Meeting should develop a web-based interface for the provision of a minimum set of WAFS charts. The web-based interface would be easily accessible and user friendly, and allow users to visualize a selection of products; it would replace the provision of WAFS SIGWX forecasts in the PNG chart form (Conclusion 4/20 refers).

5.5 With regard to the quality control of meteorological information included in the automatic dependent surveillance (ADS) messages, the group agreed that, in view of the explosive growth of WMO aircraft meteorological data relay (AMDAR) reports, there was no need to pursue work on the quality control of MET information contained in ADS reports (Decision 4/21 refers).

6. LONG-TERM PLANNING OF THE WAFS IMPLEMENTATION

6.1 The group reviewed and endorsed the WAFS 5-year plan, covering years 2008 to 2012, developed by the WAFSOPSG/6 Meeting (Decision 4/22 refers).

7. FUTURE WORK PROGRAMME

7.1 The group reviewed the work programme based on the discussions during the meeting (Decision 4/23).

8. ANY OTHER BUSINESS

8.1 In order to facilitate the implementation of the new gridded WAFS forecasts of CB clouds, icing and turbulence, and in particular their visualization, the group considered that it would be essential to convene a workshop involving the WAFSOPSG/6 Meeting, and WAFS user States and users. In view of the planned implementation of the gridded forecasts in 2010 and of the plans to convene a series of regional seminars on these forecasts during 2010, it was considered that the proposed

workshop should be held during 2009. Since the workshop would involve some WAFSOPSG members and could facilitate discussions at the WAFSOPSG/5 Meeting, it was agreed that a two-day workshop should be convened during the week of the WAFSOPSG/5 Meeting (Conclusion 4/24 refers).

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