



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 3: Review outcomes from ICAO global groups

REVIEW OUTCOMES OF SADISOPSG/18 AND SADISOPSG/19

(Presented by the Secretariat)

SUMMARY

This paper presents a summary of outcomes from the Eighteenth and Nineteenth Meetings of the Satellite Distribution System Operations Group, held in Dakar, Senegal, from 29 to 31 May 2013 and London, United Kingdom, from 27 to 29 May 2014.

1. Introduction

1.1 The Satellite Distribution System Operations Group's Eighteenth Meeting (SADISOPSG/18) was held in Dakar, Senegal, from 29 to 31 May 2013 and Nineteenth Meeting (SADISOPSG/19) was held in London, United Kingdom, from 27 to 29 May 2014. The participation of SADISOPSG members¹ from ICAO Member States², the Agency for Aerial Navigation Safety in Africa and Madagascar (ASECNA), the International Air Transport Association (IATA) and the World Meteorological Organization (WMO), provided the group the opportunity to keep under review the SADIS operations to ensure that the system meets agreed requirements and to make recommendations to ICAO for the further development of the SADIS.

1.2 All available documentation pertaining to SADISOPSG/18 and SADISOPSG/19 is at the following website: <http://www.icao.int/safety/meteorology/sadisopsg/Pages/default.aspx>.

2. Discussion

2.1 The group is reminded that SADISOPSG meetings have been held once every twelve months (approx.) since the first meeting (SADISOPSG/1) in June 1996. They necessarily serve as an integral part of the SADISOPSG coordination and work programme where conclusions and decisions related to the operation and development of the SADIS are adopted and progress on the SADISOPSG deliverables is monitored and reported.

¹ Twenty-eight (28) participants attended SADISOPG/18; twenty-one (21) participants attended SADISOPG/19

² Eight (8) States attended SADISOPG/18; ten (10) States attended SADISOPG/19

2.2 With reference to the SADISOPSG (/18 and /19) discussions, agenda items 1 to 3 addressed meeting organizational matters and follow-up to previous meetings; agenda item 4 principally addressed the operation of SADIS including management issues; agenda item 5 principally addressed issues related to the content of the SADIS broadcast; agenda item 6 principally addressed issues related to the development of the SADIS broadcast; and agenda items 7 to 10 addressed the long-term planning of the SADIS, the SADIS User Guide, the regular review and update of the SADISOPSG work programme and any other business.

2.3 Outcomes from SADISOPSG/18 / SADISOPSG/19 included the adoption of 9 / 12 decisions and 19 / 15 conclusions related to the operation and development of the SADIS.

2.4 The group is reminded that follow-up action to SADISOPSG/18 included:

- State letter Ref.: AP077/13 (MET), dated 18 June 2013, as follow-up to **Conclusion 18/4 – Update of the list of SADIS operational focal points;**
- State letter Ref.: AP078/13 (MET), dated 18 June 2013, as follow-up to **Conclusion 18/8 – Improving the availability of OPMET information on SADIS;** and
- State letter Ref.: AP079/13 (MET), dated 18 June 2013, as follow-up to **Conclusion 18/9 – Revision to Annex 1 to the SADIS User Guide (SUG) concerning OPMET information from non-AOP aerodromes.**

2.5 The group is reminded that follow-up action to SADISOPSG/19 included:

- State letter Ref.: AP086/14 (MET), dated 9 June 2014, as follow-up to **Conclusion 19/3 – Update of the list of SADIS operational focal points;**
- State letter Ref.: AP087/14 (MET), dated 9 June 2014, as follow-up to **Conclusion 19/8 – Improving the availability of OPMET information on SADIS;** and
- State letter Ref.: AP088/14 (MET), dated 9 June 2014, as follow-up to **Conclusion 19/9 – Revision to Annex 1 to the SADIS User Guide (SUG) concerning OPMET information from non-AOP aerodromes.**

2.6 For ease of reference, copies of the SADISOPSG/18 and SADISOPSG/19 Executive Summaries are in **the Attachment 1** and **Attachment 2** to this paper. The full reports of the meeting discussions are available at the website listed at 1.2, above.

2.7 The group is reminded that a definitive date and venue of the next meeting of the SADISOPSG (or successor expert group) was not determined, though clarity in this respect was expected to be forthcoming during the latter half of 2014 or first half of 2015 and would be communicated by the Secretariat to all concerned accordingly.

3. Action by the Meeting

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

EIGHTH MEETING**INTERNATIONAL AIRWAYS VOLCANO WATCH OPERATIONS GROUP
(IAVWOPSG)**

(Melbourne, Australia, 17 to 20 February 2014)

EXECUTIVE SUMMARY**1. INTRODUCTION**

1.1 The Eighth Meeting of the International Airways Volcano Watch Operations Group (IAVWOPSG/8), held at the premises of the Australian Bureau of Meteorology, 17 to 20 February 2014, was attended by thirty-five experts from eight volcanic ash advisory centre (VAAC) Provider States, user States, the International Air Transport Association (IATA), the International Coordinating Council of Aerospace Industries Associations (ICCAIA), the International Federation of Air Line Pilots' Associations (IFALPA), the International Union of Geodesy and Geophysics (IUGG) and the World Meteorological Organization (WMO).

1.2 Mr. Peter Lechner, the Chairman of the IAVWOPSG, presided over the meeting throughout its duration. Mr. Raul Romero, Technical Officer Meteorology, from ICAO Headquarters, Montréal was Secretary of the meeting, assisted by Mr. Michael Berechree, National Manager Aviation Weather Services, Bureau of Meteorology.

2. FOLLOW-UP OF IAVWOPSG/7 CONCLUSIONS

2.1 Regarding the follow-up action of IAVWOPSG/7 conclusions, the group noted that, except for Conclusions 6/23, 7/13, 7/19, 7/20, 7/22, 7/23, 7/30, 7/34, 7/36 and 7/37 which are still valid since work was still underway, action was considered to be complete on all the issues (Decision 8/1 refers).

**3. REVIEW OF ICAO PROVISIONS RELATED TO THE
INTERNATIONAL AIRWAYS VOLCANO WATCH (IAVW)**

3.1 The group reviewed the IAVW-related regional procedures contained in the Basic Air Navigation Plan (ANP) and Facilities And Services Implementation Document (FASID) to render them compatible with Annex 3 — *Meteorological Service for International Air Navigation*. In this regard, the group amended the procedures which will be referred to the ICAO Regional Offices for processing (Conclusion 8/2 refers).

3.2 With regard to IAVW-related guidance material, the group agreed to further review the conclusions and state of the science related to the development and use of “agreed techniques” for remotely sensed and in-situ volcanic ash observations and to develop associated guidance material for the VAACs (Conclusion 8/3 refers).

3.3 The group agreed to include changes to the guidance material relating to phases of an eruption into the *Handbook on the International Airways Volcano Watch (IAVW) — Operational Procedures and Contact List* (Doc 9766) to ensure consistency with the manual on *Flight Safety and Volcanic Ash* (Doc 9974) (Conclusion 8/4 refers).

3.4 To develop protocols on coordination of operational response, specifically in the case of large events the group agreed to progress discussions concerning the definition of a “lead VAAC” in order to achieve consensus in developing examples to illustrate how to coordinate the VAACs operational response for inclusion in Doc 9766, *Handbook on the International Airways Volcano Watch (IAVW) — Operational Procedures and Contact List* (Conclusion 8/5 refers).

3.5 The group agreed to include guidance for VAACs regarding collaborative decision analysis and forecasting (CDAF) process in the *Handbook on the International Airways Volcano Watch (IAVW) — Operational Procedures and Contact List* (Doc 9766) (Conclusion 8/6 refers).

3.6 To allow the participation of stakeholders in a ATM collaborative decision making process the group tasked an ad-hoc group to assess the possibility for expanding the guidance for the CDAF process for volcanic ash advisories by the VAACs, to include State volcano observatories and meteorological watch offices (MWOs), in order to provide CDAF outcomes to other stakeholders (Conclusion 8/7 refers).

3.7 The group tasked the Secretary, in coordination with the METWSG Secretary as necessary, to include in the regional SIGMET guides proposed guidance material for the provision of SIGMET information for a complex volcanic ash cloud (Conclusion 8/8 refers).

3.8 The group invited WMO in coordination with ICAO to update model chart for SIGMET for volcanic ash in graphical form (Model SVA) in Annex 3 – *Meteorological Service for International Air Navigation*, Appendix 1, with an example that allows for the display of observed and forecast volcanic ash (Conclusion 8/9 refers).

3.9 Regarding the development of a standardized international volcano database the group agreed, in order to give users certainty and to remove any confusion with the preceding database, that effective 1 March 2014, the VAACs that have not already done so implement operational use of the standardized international volcano database as provided by the Smithsonian Institution to assign volcano name and number in volcanic ash advisories (Decision 8/10 refers).

4. OPERATION OF THE IAVW

4.1 To extend the IAVW coverage to near-global the group invited VAAC London to extend its area of responsibility to Northern Europe to cover Finland, Kobenhavn, Norway and Sweden flight information regions (FIRs) and the area North of N71 between E060 and E090 (Conclusion 8/11 refers). Additionally the group tasked an ad-hoc group to develop a proposal for the coverage of the unmonitored area north of the area of responsibility of VAAC Tokyo (Conclusion 8/12 refers). Finally VAAC Toulouse was invited to extend its area of responsibility southward from S60 to the South Pole (Conclusion 8/13 refers).

4.2 In relation with situational awareness for aviation operators and to facilitate the non-operational aspects of global volcanology, including services to aviation and the establishment of appropriate arrangements, the group tasked an ad-hoc group to continue to assess the feasibility of the establishment of a “volcanology desk” (Conclusion 8/14 refers).

4.3 The group endorsed version 1.0 of the Roadmap for IAVW in Support of International Air Navigation (Decision 8/15 refers).

4.4 To address the issue of errors introduced by representing areas affected by volcanic ash (or any feature) on map projections other than the projection on which the forecast was originally

prepared the group tasked an ad-hoc group to further progress work on updating the Model VAG and Model SVA contained in Appendix 1 to Annex 3 — *Meteorological Service for International Air Navigation* taking into account the need for consistency with the requirement that the volcanic ash advisory and SIGMET for volcanic ash are based upon accepted map projections (Conclusion 8/16 refers)

4.5 To update the WMO abbreviated header lines used by VAAC London when providing back-up for VAAC Toulouse the group tasked the secretary to update Table 4-3 (Volcanic ash advisory bulletin headers) of the *Handbook on the International Airways Volcano Watch (IAVW) — Operational Procedures and Contact List* (Doc 9766) (Conclusion 8/17 refers).

4.6 Regarding the provision of volcanic ash information beyond the current T+18 hours the group supported the provision of simple graphical depiction of the ash cloud by the VAACs at the T+24 hours timeframe. In this regard the group tasked an ad-hoc group, consisting *inter alia* of all the VAACs, to jointly develop and produce a trial T+24 hour forecast of volcanic ash clouds, to compile the results of the trial, as well as the feedback from the users, in order to provide a progress report (Conclusion 8/18 refers).

4.7 With regard to the allocation of forecast confidence in the production of volcanic ash advisories the group tasked all VAACs Provides States, in coordination with IATA and IFALPA, to undertake a collaborative operational trial of the provision of confidence information in the remarks section of volcanic ash advisories (conclusion 8/19 refers).

4.8 With regard to possible ways to address the improvement of the reporting of no volcanic ash the group tasked the Secretary to update the *Handbook on the International Airways Volcano Watch — Operational Procedures and Contact List* (Doc 9766) by adding a new paragraph 4.6 concerning the dissemination of aircraft reports of volcanic ash to VAACs (Conclusion 8/20 refers). In addition the group tasked an ad-hoc group to further assess the feasibility and means to improve the dissemination of aircraft reports of volcanic ash to VAACs (Conclusion 8/21 refers).

5. DEVELOPMENT OF THE IAVW

5.1 Concerning existing aerosol monitoring capabilities that could be beneficially employed in the framework of a composite observing system for volcanic ash in support of the IAVW the group invited the World Meteorological Organization (WMO)-International Union of Geodesy and Geophysics (IUGG) Volcanic Ash Scientific Advisory Group (VASAG) to further progress aerosol observation capabilities and related activities, such as improved volcanic ash monitoring, as part of the on-going science work items relating to volcanic cloud thickness and stratification and reducing dispersion model output uncertainty (Conclusion 8/22 refers)

6. MATTERS RELATED TO THE ASSESSMENT OF THE NEED TO PROVIDE INFORMATION ON SOLAR RADIATION STORMS AND OTHER BIO-HAZARDS

6.1 With regard to the amendment proposal concerning the introduction of space weather services for international air navigation, to be reviewed by the Meteorology Divisional Meeting as part of Amendment 77 to Annex 3 (with intended applicability in November 2016) the group agreed that it should make progress as far as possible and therefore tasked an ad-hoc group to develop a *Manual on Space Weather for International Air Navigation* that should include information to support the required space weather services and their associated effects and impacts on international air navigation (Conclusion 8/23 refers).

6.2 The group endorsed version 3.0 of the concept of operations for space weather information in support of international air navigation (Decision 8/24 refers).

7. **FUTURE WORK PROGRAMME**

7.1 Regarding the future work programme, the group reviewed the work programme and proposed changes based on the discussions under Agenda Items 4 to 8 (Decision 8/25 refers).

8. **ANY OTHER BUSSINESS**

8.1 With regard to the eruption of the Indonesian volcano Kelut in February 2014 the group invited the International Coordinating Council of Aerospace Industries Associations (ICCAIA) to coordinate the collection and sharing of engineering and/or technical data from at least one aircraft that encountered the Kelut volcanic ash cloud to help improve the understanding of volcanic cloud related impacts on aircraft components including engines (Conclusion 8/26 refers).

— END —

NINETEENTH MEETING**SADIS OPERATIONS GROUP
(London, United Kingdom, 27 to 29 May 2014)****EXECUTIVE SUMMARY¹****1. INTRODUCTION**

1.1 The nineteenth meeting of the SADIS Operations Group (SADISOPSG/19) was held, on an exceptional basis, at the Civil Aviation Authority (CAA), London, United Kingdom, 27 to 29 May 2014. Twenty-one (21) participants from ten (10) States, including the focal point representative of the European OPMET Data Management Group (EUR OPMET DMG), and three (3) international organizations (the Agency for Aerial Navigation Safety in Africa and Madagascar (ASECNA), the International Air Transport Association (IATA) and the World Meteorological Organization (WMO)) attended the meeting.

1.2 As Chair, Ms. Gaborekwe Khambule (South Africa) presided over the meeting throughout its duration, assisted by Ms. Juan Zou (China) as Vice-Chair.

2. FOLLOW-UP OF SADISOPSG/17 CONCLUSIONS

2.1 With regard to the follow-up of the SADISOPSG/18 conclusions, the group agreed that action had been completed on all of the conclusions (Decision 19/1).

3. OPERATION OF THE SADIS

3.1 Concerning the annual SADIS management report, which provides a point of reference for the reporting of important SADIS-related events during the period under review (previous 12-months) and a repository for information relating to the provision and availability of the service, the group reviewed the latest management report prepared by the SADIS Provider State and endorsed targets to be applied to the monitoring of timeliness and availability of WAFC London upper-air gridded data and significant weather forecasts on SADIS 2G and Secure SADIS FTP (Decision 19/2).

3.2 With regards to the list of SADIS operational focal points, the group concurred that it provided useful contacts for the SADIS Provider State and the ICAO Regional Offices concerned to resolve operational issues, and agreed that ICAO should consult with States in order to update the list in time for the dispatch of the SADIS efficacy questionnaire in December 2014 (Conclusion 19/3).

3.3 The group reviewed the operation of SADIS during 2013/2014 based on the annual SADIS management report referenced above and on the responses of sixty (60) user States to the annual questionnaire on the operational efficacy of the SADIS. Concerning the annual questionnaire, the group was pleased to note the consistently high percentage of users reporting good availability of OPMET information and WAFS forecasts on both the SADIS 2G satellite broadcast and the Secure SADIS FTP service. The group developed a revision to the annual questionnaire to be used for the dispatch of the 2014/2015 SADIS operational efficacy questionnaire in December 2014 (Decision 19/4).

¹The full report is available at the following website: www.icao.int/safety/meteorology/sadisopsg/

3.4 The group, including IATA, agreed that the SADIS 2G satellite broadcast and the Secure SADIS FTP service had continued to meet the operational requirements during the period under review (namely 2013/2014) and that the SADIS Cost Recovery Administrative Group (SCRAG) be informed accordingly (Conclusion 19/5).

3.5 The group reviewed the SADIS inventory for 2014/2015 and, in order to ensure that SADIS continued to meet the approved operational requirements, developed an amendment to the inventory that would be forwarded to the SCRAG accordingly (Conclusion 19/6).

4. CONTENT OF THE SADIS BROADCAST

4.1 OPMET information

4.1.1 The group considered the level of alignment of the *scheduled* and *non-scheduled* OPMET information content of the SADIS and the WAFS Internet File Service (WIFS). Appreciating the recent efforts of the OPMET gateway providers in this regard, the group nevertheless agreed that the SADIS and WIFS Provider States, in coordination with the European OPMET Data Management Group, should continue efforts to align the scheduled OPMET information (with Annex 1 of the SADIS User Guide (SUG)) and, to the extent practicable, the non-scheduled OPMET information (Conclusion 19/7).

4.1.2 The group considered matters related to the non-implementation of the requirements for OPMET information on SADIS – more specifically, the lack of availability of METAR/SPECI and TAF from certain aerodromes. In this regard, recognizing the importance of the OPMET information for users, and that States are required to provide or have agreed to provide the OPMET information from the AOP aerodromes or non-AOP aerodromes respectively listed in Annex 1 of the SUG, the group agreed that States whose OPMET information had been identified as “not available” on SADIS during routine monitoring conducted by the SADIS Gateway should be encouraged to ensure that the OPMET information be produced and disseminated through the regional OPMET bulletin exchange schemes as a matter of urgency. In addition, the group agreed that regional OPMET bulletin exchange schemes should be consistent with the OPMET information requirements contained in Annex 1 of the SUG, including up-to-date processes and procedures to support implementation (Conclusion 19/8).

4.1.3 Concerning the requirements for OPMET information (specifically METAR/SPECI and TAF) from non-AOP aerodromes on SADIS, the group reviewed a revision of the requirements based on a proposal made by IATA. In this regard, the group agreed that States should be consulted accordingly on the amended or additional user requirements, as well as those where there was no longer a user requirement. In addition, the group agreed that the Secretariat should undertake a review of the process used to revise Annex 1 of the SUG concerning OPMET information from non-AOP aerodromes (Conclusion 19/9).

4.1.4 With respect to the provision of *non-scheduled* OPMET information (e.g. SIGMET and AIRMET information, volcanic ash and tropical cyclone advisories) on SADIS, the group discussed the maintenance of information containing WMO abbreviated header lines used by States to exchange the information. In this regard, the group tasked to the Secretariat to undertake a review of the Regional SIGMET Guide template with a view to determining whether tables containing such information could be included therein, and to conduct an assessment of the feasibility of making such information available in an electronic form on an appropriate ICAO website (Conclusion 19/10).

4.1.5 The group agreed that a review of the *SADIS Gateways Operations Handbook* should be conducted by the SADIS Gateway Provider, in coordination with the SADISOPSG Technological Developments Team, including with respect to the OPMET monitoring requirements for aerodromes

listed in Appendix C of the handbook, in order to validate or to propose modification thereto (Conclusion 19/11).

4.2 **WAFS forecasts**

4.2.1 Insofar as WAFS forecasts on SADIS was concerned, the group was informed that WAFSOPSG/8 (2013) had proposed that upper-air wind and temperature data and geopotential altitude data at flight levels 80 (750 hPa), 210 (450 hPa) and 480 (125 hPa) be added to the complement of WAFS data. The group noted that this proposal had been included in draft Amendment 77 to Annex 3 which would next be considered by the Meteorology Divisional Meeting in July 2014. At a future stage, and subject to the adoption by the Council of the said amendment to Annex 3, the group noted there would be a need to consider the inclusion of this additional WAFS data on SADIS. For now however, the group agreed that no specific action was required other than to monitor developments.

5. **DEVELOPMENT OF THE SADIS**

5.1 **Report of the SADISOPSG Technological Developments Team**

5.1.1 The group recalled that the SADISOPSG Technological Developments Team (TDT) was expected to monitor, report and propose action on technological developments having an impact on SADIS. The group noted that the issues dealt with by the SADISOPSG TDT since the last meeting were related to:

- a) recent enhancements/changes to the SADIS;
- b) monitoring of WAFS data availability on SADIS 2G and Secure SADIS FTP;
- c) implementation of a mid-life upgrade to the SADIS Gateway Coremet system; and
- d) investigations into SADIS 2G satellite reception signal problems on the premises of the SADIS Provider

5.1.2 Insofar as recent enhancements/changes to SADIS was concerned, with specific reference to the withdrawal of WAFS upper-air gridded global forecasts in WMO GRIB 1 code form and noting that WAFS forecasts (in WMO GRIB 2 code form) for CB clouds, icing and turbulence were now available for operational use instead of trial use, the group agreed that there was a need to undertake the associated removal of redundant (trial nature) folders on the Secure SADIS FTP service (Conclusion 19/12).

5.1.3 Insofar as the monitoring of WAFS data availability on SADIS 2G and Secure SADIS FTP was concerned, the group agreed that, in view of ensuring continuity of timeliness and availability monitoring, the SADIS Provider should undertake the migration of the monitoring system used from an existing development system to a dedicated, operational standalone server (Conclusion 19/13).

5.1.4 Insofar as the implementation of a mid-life upgrade to the SADIS Gateway Coremet system was concerned, the group was pleased to learn that a contract for the upgrade had recently been let, which was expected to result in the upgrade entering operational service in January 2015. Noting that estimated project costs attributable to SADIS had been provided to the SCRAG in 2013, the group agreed that actual project costs, as reported by the SADIS Provider State, should now also be provided to the SCRAG accordingly (Conclusion 19/14).

5.1.5 Insofar investigations into SADIS 2G satellite reception signal problems on the premises of the SADIS Provider was concerned, the group reviewed a report that outlined alternative methods of monitoring that were considered or trialed, the current status of the monitoring system, and recommendations for further work. The group endorsed that no additional significant expense should be incurred by the SADIS Provider for the purposes of monitoring of WAFS data integrity/availability via SADIS 2G and that an existing arrangement that makes use of both the SADIS Provider's own SADIS 2G VSAT and a data feed supplied by a third party provided acceptable levels of monitoring (Decision 19/15).

5.2 **SADIS satellite broadcast**

5.2.1 Concerning the distribution of corrections to WAFS gridded global forecasts (in WMO GRIB 2 code form) and significant weather forecasts (in WMO BUFR code form and PNG chart form) on SADIS, as a consequence of WAFSOPSG/7 Conclusion 7/5, the group noted that the distribution of corrections to these WAFS forecasts would require no reconfiguration of SADIS 2G, but would require some reconfiguration of Secure SADIS FTP (see 5.3.3 below).

5.3 **SADIS Internet-based FTP Service**

5.3.1 Acknowledging recent (2013) enhancements/changes to the Secure SADIS FTP service (specifically increases to the allocated bandwidth and implementation of dynamic partitioning) and taking into account subsequent user feedback that indicated that further improvement may be beneficial, the group considered whether a further increase the bandwidth allocation for Secure SADIS FTP between the SADIS Provider and its Internet Service Provider should be implemented. In this regard, notwithstanding that a small number of users/States had expressed a need for an increase of the referred allocated bandwidth, the group was of the opinion that for the vast majority of users the recent enhancements were sufficient for the next 12 months at least.

5.3.2 In respect of the use of concatenated data files on Secure SADIS FTP, and noting that a small number of users had reported difficulties handling the data files, the group agreed that the SADIS Provider, in coordination with the SADISOPSG TDT, should consider alternative means of providing and updating concatenated data files containing WAFS GRIB2 bulletins on Secure SADIS FTP (Conclusion 19/16).

5.3.3 Further to 5.2.1 above, the group endorsed the distribution of corrected WAFS gridded global forecasts and significant weather forecasts on SADIS 2G and Secure SADIS FTP (Decision 19/17) and agreed to a related modification to the processes to be used to handle such forecasts on Secure SADIS FTP (Conclusion 19/18).

5.3.4 As a follow-up to WAFSOPSG/8 Conclusion 8/7, concerning a user requirement for the provision of one-minute updates to the data available on Secure SADIS FTP, the group reviewed a feasibility study prepared by the SADIS Provider State which proposed three options to progress this issue. Appreciating development, testing and cost implications associated with two of the three options, the group agreed that the simplest and most cost effective means with which to satisfy the user requirement was to provide an additional file (and folder) that provides one-minute updates for traditional alphanumeric coded OPMET information on Secure SADIS FTP (Conclusion 19/19).

5.4 **SADIS workstation software evaluations**

5.4.1 The group reviewed and endorsed an update to the fourth-round SADIS workstation software evaluation criteria (Decision 19/20).

6. **LONG-TERM PLANNING OF SADIS**

6.1 Based on an update by the SADIS Provider State, the group endorsed a concise long-term plan for SADIS for the years 2015 to 2019 inclusive (Decision 19/21).

7. **THE SADIS USER GUIDE**

7.1 The group reviewed and endorsed Amendment No. 2 to the fifth edition of the SADIS User Guide, available on the SADISOPSG website, which addressed, *inter alia*, the deletion of references to the (now decommissioned) WAFS gridded global forecasts in WMO GRIB 1 code form, improved specificity with respect to the availability on SADIS of WAFS forecasts (in GRIB and BUFR code forms and PNG chart form) and volcanic ash and tropical cyclone advisories (in PNG chart form), and improved specificity with respect to WAFS backup contingency and the associated availability of WAFS forecasts on SADIS (Decision 19/22).

8. **FUTURE WORK PROGRAMME**

8.1 With respect to Deliverable SADISOPSG-05 that addressed an assessment of the potential impact of the introduction of METAR/SPECI and TAF in table-driven codes (specifically in WMO BUFR code form) on the SADIS Gateway operations, and noting the recent commencement of a transition to using contemporary, non-proprietary code forms such as XML/GML for the dissemination of OPMET information in digital form, the group agreed that Deliverable SADISOPSG-05 had been overtaken by events and should be updated accordingly (Decision 19/23). The group reviewed and updated the deliverables, executive summaries and tasks teams in its work programme (Decision 19/24).

9. **ANY OTHER BUSINESS**

9.1 **Area forecasts for low-level flights on SADIS**

9.1.1 When considering the potential inclusion of area forecasts for low-level flights issued in a graphical form on SADIS, and noting a lack of standardization in the format, file size and issuance time, as well as unknown impacts on the SADIS 2G satellite broadcast and on SADIS workstations/users, the group concurred that such forecasts should *not* be disseminated on SADIS 2G. The group however did concede that such products could be included on Secure SADIS FTP, either in a standardized format (such as digital form using GML from, say, 2019) or in a non-standardized format subject to further review by the SADIS Provider State in coordination with the SADISOPSG Technological Developments Team (Decision 19/25 and Conclusion 19/26).

9.2 **Structure of Annexes 2 and 3 of the SADIS User Guide**

9.2.1 The group noted that Annex 2 of the SADIS User Guide (SUG) presented the WMO abbreviated header lines used for METAR/SPECI and TAF collective bulletins according to ICAO Region, ICAO State and ICAO location indicator of the aerodrome concerned, whereas Annex 3 of the SUG presented the same information according to "WMO Area". In view of downstream difficulties that the existing structure of Annex 3 of the SUG could pose for users (e.g. certain States and/or certain aerodromes were not immediately identifiable within the annex), the group agreed that a feasibility study should be undertaken by the EUR OPMET Data Management Group with a view to structuring Annex 3 of the SUG based on ICAO Regions/States (Conclusion 19/27).