



WORKING PAPER

**MEETING OF THE METEOROLOGY PANEL (METP)
WORKING GROUP MOG**

FIRST MEETING

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

Agenda Item 3: Matters relating to SADIS

3.4: Development of the SADIS under METP and WGs

PROVISION OF GRAPHICAL LOW LEVEL FORECASTS ON SECURE SADIS FTP

(Presented by the SADIS Provider State)

SUMMARY

This working paper responds to the SADISOPSG/19 Conclusion 19/26, in relation to the provision of graphical low level forecasts on the Secure SADIS FTP Service.

Action by the METP-WG/MOG is in paragraph 4.

1. INTRODUCTION

1.1 The group will recall that at the nineteenth meeting of the Satellite Distribution Operations Group (SADISOPSG/19)¹, the group formulated SADISOPSG Conclusion 19/26 requesting that the SADIS Provider, in coordination with the SADIS Technological Developments Team (SADISOPSG TDT), undertake a feasibility study in relation to making area forecasts for low-level flights available on Secure SADIS FTP.

1.2 This paper presents the group with the outcomes of that study and a proposal for future development.

2. DISCUSSION

2.1 As noted in section 1.1, the SADISOPSG/19 meeting formulated Conclusion 19/26, repeated below for reference;

Conclusion 19/26: Feasibility study into making area forecasts for low-level flights issued in graphical form available on Secure SADIS FTP

¹ SADISOPSG/19, 27-29 May; London, United Kingdom

That the SADIS Provider State, in coordination with the SADISOPSG Technological Developments Team, be invited to:

- a) explore the feasibility of making area forecasts for low-level flights issued in graphical form available on the Secure SADIS FTP service; and
- b) report back to the SADISOPSG/20 Meeting (or successor expert group).

Note. — The study should consider, as a minimum, the technical feasibility of collecting and disseminating standardized and non-standardized formats on Secure SADIS FTP, associated costs, and any potential downstream implications on SADIS workstations/users.

It should also be noted that SADISOPSG Decision 19/25 explicitly agreed that low-level area forecasts shall not be distributed via SADIS 2G.

2.2 Accordingly, the SADIS Provider in coordination with SADISOPSG TDT considered the options available. The considerations and outcomes are presented in detail in the Appendices to this working paper. **Appendix A** provides a source of extracts from ICAO Annex 3 in relation to low-level area forecasts in graphical format as considered by the ad hoc group.

2.2.1 There does not appear to be a specified data format (BUFR, PNG, XML/GML etc) for low-level area forecasts in chart form. Although there is a plan to move towards provision of data in XML/GML formats (iWXXM), at the moment this does not seem to be specified in relation to low-level area forecasts. In the absence of explicit guidance, the ad hoc group considers that the PNG format should be used, and that a limit of 250KB per image file should apply.

2.2.2 There does not appear to be any existing requirement to distribute this data via SADIS (or WIFS). The distribution requirements are specified thus (section 4.4 of Appendix 5 to ICAO Annex 3) "shall be exchanged between aerodrome meteorological offices and/or meteorological watch offices responsible for the issuance of flight documentation for low-level flights in the flight information regions concerned". Accordingly, it is suggested that in the short term a suitable Conclusion be agreed by an appropriate METP Working Group - perhaps similar to SADISOPSG/7 Conclusion 7/8 for distribution of AIRMET and GAMET (copied below for reference).

SADISOPSG Conclusion 7/8 — Inclusion of AIRMET and GAMET on the SADIS broadcast

That the SADIS provider State include AIRMET messages and GAMET area forecasts on the SADIS broadcast.

Note. — Only AIRMET messages and GAMET forecasts from the Regions which have expressed an aeronautical requirement for these products in the ICAO ANPs would be included.

In the longer term the appropriate ICAO group may wish to modify guidance in ICAO Annex 3 accordingly.

2.2.3 With regard to the condition in SADISOPSG Conclusion 7/8 relating to the expression of a requirement in the Air Navigation Plan (ANP,) the group will be aware that only the EUR Region currently has such a clause.

2.3 **Provision of the data on Secure SADIS FTP:**

2.3.1 The SADISOPSG TDT has considered the extant guidance in ICAO Annex 3, and also the practicalities in receiving, processing and making available on Secure SADIS FTP.

2.3.2 As such, the SADISOPSG TDT provides some initial proposals in relation to making low-level area forecasts in graphical form available on Secure SADIS FTP. These proposals are presented in **Appendix B**.

3. **CONCLUSION**

3.1 Following review by the SADISOPSG TDT, it is considered feasible to provide low-level area forecasts in graphical format on Secure SADIS FTP if the general principles as set out in **Appendix B** to this document are followed. In addition, if the SADISOPSG endorse the provision of a development Secure SADIS Web service (separate Working Paper presented to this meeting), then more rigorous pre-operational testing can be undertaken for any new low-level area forecasts in graphical format.

3.2 In light of the foregoing, the group is invited to formulate the following draft Conclusion;

Conclusion 1/xx Provision of low-level area forecasts in graphical format on Secure SADIS FTP.

That, the SADIS Provider, in coordination with the SADIS Gateway Provider undertake a 6 month trial to make available certain low-level area forecasts that have been supplied in graphical format on Secure SADIS FTP.

Note 1. — Only low-level area forecasts in graphical format from the Regions which have expressed an aeronautical requirement for these products in the ICAO Air Navigation Plans would be included.

Note 2. — It will be assumed that Regional Air Navigation Plans that currently enable distribution of AIRMET and GAMET via SADIS, should be interpreted as enabling distribution of low-level area forecasts in graphical format.

Note 3: - Originating States (or their agents) shall ensure that such data complies with the principles set out in Appendix B [to this Working Paper] .

Note 4: - The SADIS Provider to implement the necessary changes to Secure SADIS FTP by 19 January 2016.. A review of this change to the service will be presented by the SADIS Provider at the next appropriate METP WG-MOG meeting.

Note 5: - During the initial trial period of 6 months, the SADIS Provider shall have the right to terminate – without notice – provision of the data if, in the opinion of the SADIS Provider, it endangers the service as whole.

4. **ACTION BY THE METP-WG/MOG**

4.1 The METP-WG/MOG is invited to:

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

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

APPENDIX A: Relevant extracts from ICAO Annex 3 in relation to low-level area forecasts.

References:

ICAO Annex 3 – Meteorological Service for International Air Navigation

[note, it is believe that some minor editorial changes are expected to some of the cited paragraphs with applicability of Amendment 77 to ICAO Annex 3 (November 2016). Unless otherwise noted it is not believed these will change the intent of the sections quoted]

1. Content and layout

- 1.1. With regard to the content and layout of low-level area forecasts, Appendix 1 to ICAO Annex 3 provides two MODEL SWL examples. These are reproduced for reference in Figure 1.

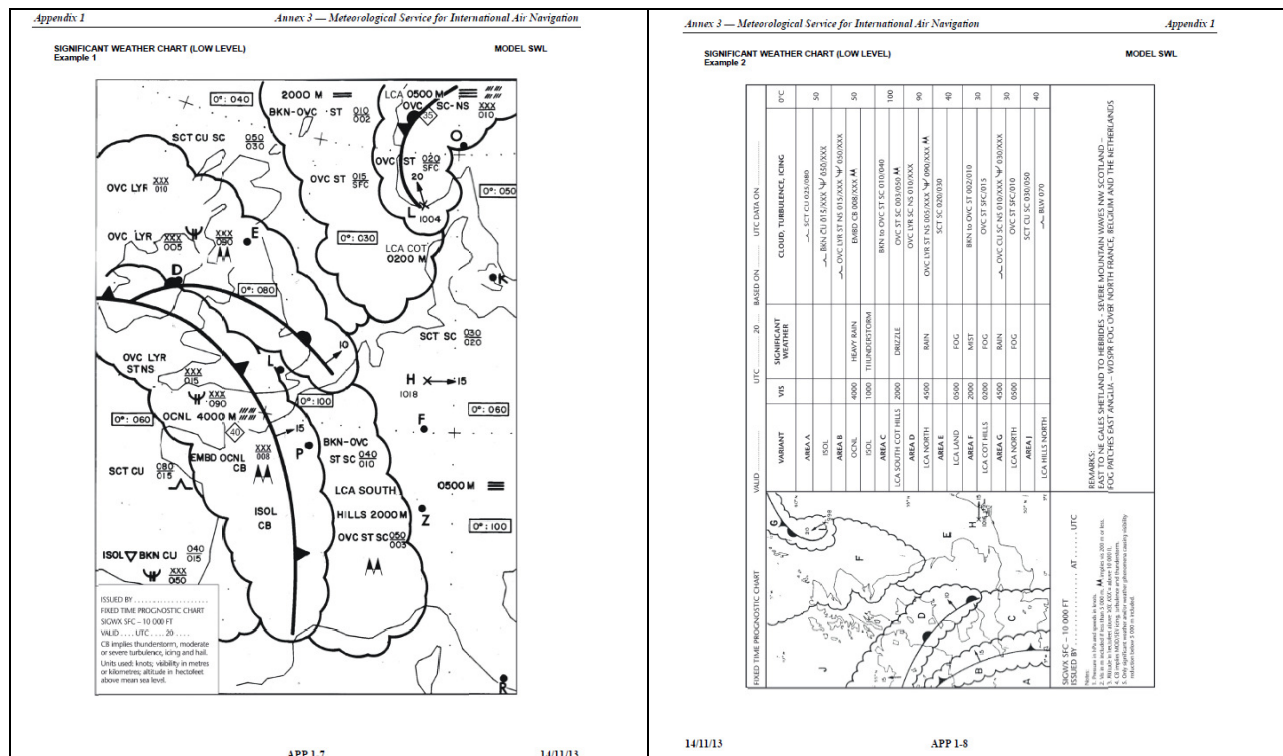


Figure 1: Two examples of MODEL Significant weather charts (low-level), ICAO Annex 3 (Amendment 76).

- 1.2. These are referred to explicitly (highlighted) in section 4.3.1 of Appendix 5 to ICAO Annex 3;

4.3.2 When chart form is used for area forecasts for low-level flights, the forecast of SIGWX phenomena shall be issued as **low-level SIGWX** forecast for flight levels up to 100 (or up to flight level 150 in mountainous areas, or higher, where necessary). Low-level SIGWX forecasts shall include the following items:

2. Validity

(10 pages)

METP-WG-MOG-1.WP.7 en Graphical low level fcsts. on Sec. SADIS.doc

- 2.1. ICAO Annex 3 specifies the issuance and validity requirements in relation to area forecasts for low-level flights in section 6.5.3 (Chapter 6).

6.5.3 Area forecasts for low-level flights prepared in support of the issuance of AIRMET information shall be issued every 6 hours for a period of validity of 6 hours and transmitted to meteorological watch offices and/or aerodrome meteorological offices concerned not later than one hour prior to the beginning of their validity period.

- 2.2. But also note the reference in Chapter 6; section 6.5.1.

6.5.1 When the density of traffic operating below flight level 100 (or up to flight level 150 in mountainous areas, or higher, where necessary) warrants the routine issue and dissemination of area forecasts for such operations, the frequency of issue, the form and the fixed time or period of validity of those forecasts and the criteria for amendments thereto shall be determined by the meteorological authority in consultation with the users.

- 2.3. There does appear to be a minor inconsistency between these two paragraphs.

- 2.4. It is assumed (though it is not explicitly stated) that the above extracts would apply equally to low-level forecasts provided chart form.

3. Distribution

- 3.1. With regard to the distribution, or exchange, of low-level area forecasts, section 4.4 of Appendix 5 to ICAO Annex 3 states:

4.4 Exchange of area forecasts for low-level flights

Area forecasts for low-level flights prepared in support of the issuance of AIRMET information shall be exchanged between aerodrome meteorological offices and/or meteorological watch offices responsible for the issuance of flight documentation for low-level flights in the flight information regions concerned.

- 3.2. Item 9.1.3g) of ICAO Chapter 9 describes the provision of GAMET area forecast and/or area forecasts for low-level flights in chart form in the context of service to operators and flight crew members;

g) subject to regional air navigation agreement, GAMET area forecast and/or area forecasts for low-level flights in chart form prepared in support of the issuance of AIRMET information, and AIRMET information for low-level flights relevant to the whole route;

4. Amendment/correction criteria

- 4.1. ICAO Annex 3 refers to amendment criteria (highlighted) of low-level area forecasts (and it is assumed those issued in chart form), in Chapter 6; section 6.5.1.

6.5.1 When the density of traffic operating below flight level 100 (or up to flight level 150 in mountainous areas, or higher, where necessary) warrants the routine issue and dissemination of area forecasts for such operations, the frequency of issue, the form and the fixed time or period of validity of those forecasts and the criteria for amendments thereto shall be determined by the meteorological authority in consultation with the users.

5. Data format

- 5.1. ICAO Annex 3 does not explicitly specify a data format for Area forecasts for low-level in chart form.

APPENDIX B: Proposals with regard to provision of low-level area forecasts on Secure SADIS FTP.

Specification for inclusion on Secure SADIS FTP:

File format:

To be in portable networks graphic (PNG) format.
Each file to be a single, static image only (i.e. no multipage or multi-image files).

File size

To be a maximum of 250 Kbytes

Image content:

Each image should include contact details of the issuing office – this to enable users to contact the originator in the event of clarification being necessary.

Image headers:

Each image file is to be encapsulated in a WMO envelope, and attributed a WMO AHL in accordance with established procedures. To the maximum extent possible, issuing States will align WMO AHLs with those of Low Level Graphic Forecasts issued by other States to permit efficient routing. The issuing State is responsible for assigning such a WMO AHL. The issuing State shall be responsible for ensuring that correct assignments are made to any amendments or corrections to their low-level area forecasts.

Issue times, validity, amendment and correction criteria:

It shall be the responsibility of the originating State to determine issue times, validity times, amendment criteria and correction criteria. The SADIS Provider shall consider the data to be 'unscheduled', and therefore shall not monitor for availability/timeliness. It is recommended that the issuing State (or nominated agent) arrange to actively monitor the availability of its own data on the Secure SADIS FTP service.

Distribution to the SADIS Provider:

That low level forecasts in graphical format shall be forwarded to the SADIS Gateway, using AMHS and extant AFS data-distribution protocols.

Presentation on Secure SADIS FTP:

'ALL' folder '.dat' files.

The image files will be distributed via the 5 minute '.dat' files within the 'ALL' folder of Secure SADIS FTP. This shall be the primary means of receiving the data by users, and receiving amendments and/or corrections.

'LOW_LEVEL_AREA_FORECASTS_GRAPHICS'.

In addition, a single folder shall be created on Secure SADIS FTP, identified as 'LOW_LEVEL_AREA_FORECASTS_GRAPHICS' and will be expected to function in a similar fashion to the current 'VOLCANIC_ASH_ADVISORY_GRAPHICS' folder.

Within this folder, each image file will be presented as a distinct file. The filename simile of the WMO AHL (including any amendment or correction suffixes) shall be used by software accessing the service to inspect and download the files. Files will not be deleted until the folder expiry time (18 hours) has been reached. In the event that an image file is received with an existing WMO AHL assignment, then the older file will be overwritten with the newly received file. It is the responsibility of the originator to ensure that any corrections or amendments are correctly identified in order to prevent inadvertent overwriting of existing files.

Pre-operational test phase:

New image files from a given State will be made available for a period of 6 weeks on the Secure SADIS Development server for the SADIS Provider to identify any problems (note, access to the development system outside the Met Office is not possible).

Operational Implementation:

On assumption that the examples are considered acceptable by the SADIS Technological Developments Team, the data will be made available on the operational Secure SADIS FTP service.

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