

## UPDATE TO FOURTH ROUND SADIS FTP WORKSTATION SOFTWARE EVALUATION CRITERIA

*(as endorsed by WG-MOG/3 (SADIS) 13-14 June 2016, Final Report, agenda item 5)*

Workstation provider: **COROBOR**  
 Software application: **MESSIR-AERO**  
 Software Version No. (Release date): **7.8.3.0**  
 Evaluation date: **Completed 30 January 2017**  
 Evaluation location: **Vincennes (FRANCE) – COROBOR Headquarters**  
 Evaluator: **Chris Tyson, SADIS Manager.**











### **Scope of Evaluations:**



*It should be noted that the evaluations are ‘high level’ evaluations of functionality, and not detailed technical certifications of compliance. Note that:*

*a) The software evaluation process does not certify or endorse any single software application; neither does it recommend one application over another. The software evaluations are the results of software reviews that the Met Office has carried out on behalf of the ICAO SADISOPSG. The purpose of these reviews is to verify whether the applications can deliver certain minimum functions which the SADISOPSG considers are essential for the correct use of the WAFS and OPMET data; and*

*b) It remains the responsibility of the user to ensure that procured software meets their full requirements. It is not intended that the software evaluations fulfil this task. The results from the software evaluations may be used as one additional source of information to aid any procurement process but should not be viewed in isolation of other important procurement requirements.*

<b>Software Functionality</b>	<b>Available and Compliant?</b>  ✓✗	<b>Comments</b>
1. Display of OPMET data and other data types in text format	✓	N/A
2. WAFS GRIB2 decoder and compliant display package	✓	N/A

<b>Software Functionality</b>	<b>Available and Compliant?</b> 	<b>Comments</b>
3. WAFS SWH and SWM BUFR decoder and compliant display package		N/A
4. Display and ability to prompt users of the arrival of BUFR SIGWX or PNG SIGWX chart corrections		N/A
5. Display and ability to prompt users of the arrival of SADIS administrative messages		N/A
6. Display of tropical cyclone advisory statements		N/A
7. Display of tropical cyclone advisory graphics		N/A
8. Display of volcanic ash advisory statements		N/A
9. Display of volcanic ash graphics		N/A
10. Display bulletin contents from the WMO header		N/A
11. Display of special AIREPS		N/A
12. Display of WAFS SIGWX charts in the PNG (portable network graphics) chart format.		N/A

<b>Software Functionality</b>	<b>Available and Compliant?</b> 	<b>Comments</b>
13. Processes Digital Signature and Digital Certificate to check authenticity and integrity of Secure SADIS FTP		N/A

*Note. – Please refer to the accompanying notes that detail the requirements and whether the functionality was **COMPLIANT** or **NON-COMPLIANT** at time of evaluation.*

## Requirements

The numbers of the notes below correspond to the numbers of the items listed in the table above. For a software package to receive a ✓ or **COMPLIANT** as opposed to ✗ or **NON-COMPLIANT** in the "Available and Compliant" column on the table, all of the functions detailed below need to be satisfied for each functionality item.

For every workstation provider agreeing for their software to be evaluated under these criteria, the intention is to make the information available to all existing and prospective SADIS users via the SADIS web page at URL: <http://www.metoffice.gov.uk/aviation/sadis/software>.

### Ability for the data to be sourced from SADIS FTP.

1. i) The ability to receive and display OPMET data and other data types in text format (including TAFs, METARs, SPECIs, SIGMETs, EUR region AIRMETs and GAMETs, and ASHTAMs and NOTAMs related to volcanic ash);

**Objective 1:** Demonstrate retrieval of all TAFs from each of the following regions; CARSAM, NAM, EUR/NAT, MID, ASIAPAC; using SADIS User Guide Annex 1 for ICAO Location IDs. Retrieval of 20 random TAFs from each of the regions above as directed by the SADIS Manager during the evaluation will also be required. **COMPLIANT**

**Objective 2:** Demonstrate retrieval of all METARs from each of the following regions; CARSAM, NAM, EUR/NAT, MID, ASIAPAC; using SADIS User Guide Annex 1 for ICAO Location IDs. Retrieval of 20 random METARs from each of the regions above as directed by the SADIS Manager during the evaluation will also be required. **COMPLIANT**

**Objective 3:** Demonstrate retrieval of SPECIs from each of the following regions; CARSAM, NAM, EUR/NAT, MID, ASIAPAC. **COMPLIANT**

**Objective 4:** Demonstrate retrieval of valid SIGMETs from each of the following regions; CARSAM, NAM, EUR/NAT, MID, ASIAPAC. **COMPLIANT**

**Objective 5:** Demonstrate retrieval of valid AIRMETs from EUR region. **COMPLIANT**

**Objective 6:** Demonstrate retrieval of valid GAMETs from EUR region. **COMPLIANT**

**Objective 7:** Demonstrate retrieval of valid ASHTAM and NOTAMS relating to volcanic ash<sup>1</sup>. **COMPLIANT**

- ii) Prompt users of the arrival of a SIGMET, SPECI, ASHTAM and NOTAM related to volcanic ash.

**Objective 1:** Demonstrate alerts of received SIGMETs. **COMPLIANT**

**Objective 2:** Demonstrate alerts of received SPECIs. **COMPLIANT**

**Objective 3:** Demonstrate alerts of received ASHTAM and NOTAMS relating to volcanic ash<sup>2</sup>. **COMPLIANT**

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<sup>1</sup> It is acknowledged that there may be no available bulletins in which to demonstrate this. Self certification is acceptable.

2. i) The functionality to enable a user to produce a wind-temperature chart from the GRIB2 data over a configurable user-specified area. Global coverage is required. The ability to produce charts spanning the International Date Line and including all of the standard ICAO areas<sup>3</sup> is required.

**Objective 1:** Demonstrate display of wind/temperature chart from WAFC London and WAFC Washington<sup>4</sup> GRIB2 data. Display examples for a sample of different levels (at least 5) and different timesteps (at least 3). **[COMPLIANT]**

- ii) A “zooming facility” for GRIB2 chart areas.

**Objective 1:** Demonstrate the maximum and minimum levels of 'zoom' that the user can use. **[COMPLIANT]**

**Objective 2:** Demonstrate the 'pan' functionality of the software. **[COMPLIANT]**

- iii) The ability to produce a wind-temperature chart from GRIB2 encoded data that is largely identical as far as layout is concerned to the wind and temperature example chart contained in Appendix 1 of Amendment 76 to ICAO Annex 3. The product must clearly display whether the chart is derived from the WAFC London or WAFC Washington GRIB2 encoded data and additionally include the provider of the GRIB2 encoded data<sup>5</sup>.

**Objective 1:** Demonstrate that the product identifies whether the chart is derived from the WAFC London or WAFC Washington GRIB encoded data. **[COMPLIANT]**

- iv) The functionality to enable a user to produce Cumulonimbus, icing and turbulence charts from the GRIB2 data over a configurable user-specified area. Global coverage is required. The ability to produce charts spanning the International Date Line and including all of the standard ICAO areas<sup>6</sup> is required.

**Objective 1:** Demonstrate display of Cumulonimbus, icing and turbulence<sup>7</sup> charts from WAFC London and WAFC Washington<sup>8</sup> GRIB2 data. Display examples of mean and maximum forecast data for a range of timesteps and levels, but demonstrating at least one example of every parameter<sup>9</sup>. **[COMPLIANT]**

3. i) The functionality to enable a user to produce a SWH and a SWM SIGWX chart from BUFR data over a configurable user-specified area. Global coverage for the SWH data is required. The ability to produce charts spanning the International Date Line and covering all of the standard ICAO

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<sup>2</sup> It is acknowledged that there may be no available bulletins in which to demonstrate this. Self certification is acceptable.

<sup>3</sup> A, B, B1, C, D, E, F, G, H, I, J, K, M, NAT, EUR, MID, SOUTH ASIA

<sup>4</sup> Strictly, it is up to the end user of the system to determine what source of WAFS data they use for their gridded WAFS upper air forecasts. Both WAFC London and WAFC Washington GRIB2 data is available on SADIS FTP.

<sup>5</sup> Provider is a requirement of Amendment 75.

<sup>6</sup> A, B, B1, C, D, E, F, G, H, I, J, K, M, NAT, EUR, MID, SOUTH ASIA

<sup>7</sup> Test data and sample visualisations can be provided to assist in this element of the evaluation.

<sup>8</sup> Strictly, it is up to the end user of the system to determine what source of WAFS data they use for their gridded WAFS upper air forecasts. Both WAFC London and WAFC Washington GRIB2 data is available on SADIS FTP.

<sup>9</sup> Sample source data and visualisations can be provided to assist in demonstrating this functionality.

areas<sup>10</sup> is required for the SWH data.

**Objective 1:** Demonstrate display of WAFC London SIGWX BUFR data over 3 previously defined, custom areas. Areas are at discretion of Software provider, but should demonstrate the extremes of useable zoom settings, and one should cross the international dateline. [COMPLIANT]

**Objective 2:** Demonstrate display of WAFC Washington SIGWX BUFR data over 3 previously defined, custom areas. Areas are at discretion of Software provider, but should demonstrate the extremes of useable zoom settings, and one should cross the international dateline. [COMPLIANT]

**Objective 3:** Demonstrate how areas of the globe not covered by SWM SIGWX BUFR forecast data are indicated to the user (i.e. how does the user know there is no information?). [COMPLIANT]

**Objective 4:** Demonstrate how user configurable areas are created. [COMPLIANT]

**Objective 5:** Demonstrate and provide hard copies of all SIGWX Charts for all ICAO Areas (excepting Area L). [COMPLIANT]

**Objective 6:** Demonstrate the ability to process WAFC SIGWX BUFR data during WAFC Backup events (WAFC London backing up WAFC Washington and WAFC Washington backing up WAFC London). [COMPLIANT]

ii) A “zooming facility” for BUFR chart areas.

**Objective 1:** Demonstrate the limits of zoom for SIGWX charts generated from SIGWX BUFR. [COMPLIANT]

iii) The ability to produce a SIGWX chart from BUFR encoded data that is *identical* as far as the meteorological content is concerned (including depiction of non-CB cloud areas and jetstream depth notation), *identical* as far as the chart legend<sup>11</sup> box text, and *largely identical* as far as other features are concerned (e.g. the position of text boxes), to a standard portable network graphics (PNG) SIGWX chart for the same area and meets the latest ICAO Annex 3 requirements. The product must clearly display whether the chart is derived from WAFC London or WAFC Washington BUFR encoded data, and the provider<sup>12</sup> of the data. If the software allows the user to modify any of the plotted meteorological parameters, reference to either WAFC *must* be automatically removed if such modification is carried out by the end user.

**Objective 1:** Provide for close scrutiny and comparison with equivalent WAFC generated PNG forecasts, the system’s own ICAO Chart areas as generated from WAFC SIGWX BUFR. All ICAO areas must be provided, selecting from 2 validity times. To be compliant, the system’s own SIGWX charts must be identical in meteorological content to that of the WAFCs PNG charts. [COMPLIANT]

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<sup>10</sup> A, B, B1, C, D, E, F, G, H, I, J, K, M, NAT, EUR, MID, SOUTH ASIA

<sup>11</sup> Note requirement to include ‘Provider’ information as per Amendment 75

<sup>12</sup> Required in Amendment 75

**Objective 2:** Text box/arrow head placement must lead to an unambiguous indication to users (including dispatchers and aircrew) of the meteorological situation<sup>13</sup>. **[COMPLIANT]**

**Objective 3:** The product must clearly display whether the chart is derived from WAFC London or WAFC Washington BUFR encoded data, and the 'Provider' of the data. **[COMPLIANT]**

**Objective 4:** Demonstrate that if the software allows the user to modify any of the plotted meteorological parameters, reference to either WAFC *must* be automatically removed if such modification is carried out by the end user. **[COMPLIANT]**

- iv) The ability to handle BUFR bulletins that contain no data – i.e. bulletins that are empty apart from message header information. In particular, this applies to the BUFR bulletins associated with surface fronts, namely:

JUFE00 EGRR, JUFE00 KKCI, JUJE00 EGRR; and JUJE00 KKCI.

**Objective 1:** Demonstrate that BUFR bulletins that contain no data do not cause a failure of the display of SIGWX. **[COMPLIANT]**

4. i) The ability to receive, prompt users and display the arrival of WAFS SIGWX corrections. These corrections are text messages issued with the following WMO header: FXUK65 EGRR or FXUS65 KKCI for BUFR-code and/or PNG SIGWX chart corrections.

**Objective 1:** Demonstrate that the user is alerted to FXUK65 EGRR and FXUS65 KKCI messages. **[COMPLIANT]**

5. i) The ability to receive, display and prompt users of the arrival of SADIS administrative messages. These are text messages issued with the following WMO headers:

NOUK10 EGRR; NOUK11 EGRR; NOUK12 EGRR; NOUK13 EGRR; NOUK31 EGGY; and NOBX99 EBBR

**Objective 1:** Demonstrate that the user is alerted to NOUK10 EGRR and NOUK11 EGRR messages. **[COMPLIANT]**

6. 1) The ability to receive, display and prompt users of the arrival of tropical cyclone advisory statements. These bulletins are in text format and are of the form FK\*\*\*\* CCCC.<sup>14</sup>

**Objective 1:** Demonstrate that the user is alerted to FK\*\*\*\* CCCC messages. **[COMPLIANT]**

7. 2) The ability to receive, display and prompt users of the arrival of tropical cyclone advisory graphics. These bulletins are in PNG format and are of the form T<sub>1</sub>T<sub>2</sub>A<sub>1</sub>A<sub>2</sub>ii<sup>15</sup> CCCC.<sup>16</sup>

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<sup>13</sup> It is essential that dispatchers and aircrew can quickly and unambiguously understand the meteorological situation from the charts.

<sup>14</sup> Prior to Evaluation, as much evidence of receipt, notification and display (screenshots, or other evidence) should be collected to demonstrate such messages are dealt with appropriately

**Objective 1:** Demonstrate that the user is alerted to T<sub>1</sub>T<sub>2</sub>A<sub>1</sub>A<sub>2</sub>i i CCCC messages relating to tropical cyclone advisory graphics. **COMPLIANT**

8. i) The ability to receive, display and prompt users of the arrival of volcanic ash advisory statements. These bulletins are in text format, and the WMO headers of those currently available for dissemination of SADIS are listed below. These bulletin headers are of the form FV\*\*\*\* CCCC<sup>17</sup>.

FVAK(20-25) PAWU; FVXX(01-03) EGRR; FVXX05 EGRR; FVXX(20-27) KNES;  
FVXX(01-05) LFPW; FVFE01 RJTD; FVCN(01-04) CWA0; FVAU(01-10) ADRM;  
FVAG(01-05) SABM; and FVPS(01-05) NZKL.

**Objective 1:** Demonstrate that the user is alerted to the above messages. **COMPLIANT**

9. i) The ability to receive and display volcanic ash graphics (VAG). These graphical charts are in PNG chart format (as available). The products that may be available for dissemination on SADIS have the following WMO headers:

PFXD(01-10) ADRM; PFXD(01-03) EGRR; PFXD05 EGRR; PFXD(20-27) KNES;  
PFXD(05-09) LFPW; PFXD01 RJTD; PFXD(01-05) NZKL; PFXD(01-04) SABM;  
PFXD(01-04) CWA0; PFXD(21-25) PAWU(21-25)<sup>18</sup>

**Objective 1:** Demonstrate that the user is alerted to the above messages. **COMPLIANT**

10. i) The functionality to enable a user to display the contents of a single bulletin (including all types of bulletins except GRIB and BUFR encoded bulletins) by typing in the WMO header of the bulletin.

**Objective 1:** Demonstrate retrieval of at least 20 bulletins covering a range of bulletin types. **COMPLIANT**

11. i) The ability to receive, display and prompt users of the arrival of special AIREPS. These bulletins are in text format, and the WMO headers of the bulletins currently available for dissemination on SADIS are listed below. The bulletins are of the form UA\*\* (60-79) CCCC.<sup>19</sup>

UA//60-69 CCCC;; and UA// (70-79) CCCC

**Objective 1:** Demonstrate that the user is alerted to the above messages. **COMPLIANT**

12. i) The ability to receive WAFS SIGWX charts in the PNG (portable network graphics) chart format

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<sup>15</sup> Currently, there is only one known TCAC issuing Tropical Cyclone Advisories in graphical form. La Reunion uses PZXD0(1-4) FMEE.

<sup>16</sup> Prior to Evaluation, as much evidence of receipt, notification and display (screenshots, or other evidence) should be collected to demonstrate such messages are dealt with appropriately

<sup>17</sup> Prior to Evaluation, as much evidence of receipt, notification and display (screenshots, or other evidence) should be collected to demonstrate such messages are dealt with appropriately

<sup>18</sup> Prior to Evaluation, as much evidence of receipt, notification and display (screenshots, or other evidence) should be collected to demonstrate such messages are dealt with appropriately

<sup>19</sup> Prior to Evaluation, as much evidence of receipt, notification and display (screenshots, or other evidence) should be collected to demonstrate such messages are dealt with appropriately



and display them using standard visualisation software, e.g. web browser.

**Objective 1:** Demonstrate the display and provision in hard copy form of the PNG format SIGWX Charts. Demonstrate for at least 5 ICAO Areas (including at least 2 SWM), for at least 2 different validity times. **[COMPLIANT]**

**Objective 2:** Demonstrate the ability to process WAFC SIGWX PNG charts during WAFC Backup events (WAFC London backing up WAFC Washington and WAFC Washington backing up WAFC London). **[COMPLIANT]**

- 13 i) To correctly process files and Digital Certificate/Digital Signatures in order to check authenticity and integrity of data downloaded from Secure SADIS FTP.

**Objective 1:** Demonstrate that the Digital Certificate is checked, and relevant details are available for authenticity checks. **[COMPLIANT]**

**Objective 2:** Demonstrate that the system can deal with a change of Digital Certificate. **[COMPLIANT]**

**Objective 3:** Demonstrate how a user is alerted to a failure of processing the Digital Certificate, and the options available to the user with regard to continuing to accept data. **[COMPLIANT]**

**Objective 4:** Demonstrate how user responses to Objective 3 are logged and stored. **[COMPLIANT]**

**Objective 5:** Demonstrate that the Digital Signature is appropriately handled/processed with the relevant file to prove that there has been no corruption/tampering. **[COMPLIANT]**

**Objective 6:** Demonstrate how a user is alerted to a failure to confirm that a file has not been corrupted/tampered with, and the options available to the user with regard to continuing to accept data. **[COMPLIANT]**

**Objective 7:** Demonstrate how user responses to Objective 6 are logged and stored. **[COMPLIANT]**

**Objective 8:** Explain the 're-try/re-poll' policy, should initial attempts at re-loading Digital Certificates/Digital Signatures produce fails<sup>20</sup>. **[COMPLIANT]**

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<sup>20</sup> This is required to deal with rare occasions where there may be a small delay in the availability of the Digital Signatures after the relevant and equivalent data file has been delivered.