



**WORKING PAPER**

**SATELLITE DISTRIBUTION SYSTEM OPERATIONS GROUP (SADISOPSG)**

**THIRTEENTH MEETING**

**Dakar, Senegal, 27 to 29 May 2008**

**Agenda Item 4: Operation of the SADIS**

- 4.1: SADIS management report**
- 4.2: SADIS focal points**
- 4.3: Operational efficacy of the SADIS**
- 4.4: SADIS inventory**
- 4.5: SADIS implementation**

**ISSUES RELATED TO THE OPERATION OF SADIS**

(Presented by the Secretary)

**SUMMARY**

Under this agenda item, the group is expected to consider the:

- a) summary of the management report;
- b) list of SADIS focal points;
- c) operational efficacy of the SADIS during the past year;
- d) SADIS inventory; and
- e) implementation of the SADIS.

**1. INTRODUCTION**

1.1 In accordance with conclusions of earlier SADISOPSG meetings, the group will consider the following items:

- a) the summary of the complete management report, to be presented by the member for the SADIS Provider State;
- b) the list of SADIS focal points;
- c) replies received by the Secretariat from SADIS users concerning the operational efficacy of the SADIS during the past year (in response to Conclusions 3/1 and 3/2 and Decision 4/3). Based on this information, the group will develop the annual

statement of the SADIS operational efficacy, to be forwarded to the SADIS Cost Recovery Administrative Group (SCRAG);

- d) the SADIS inventory, updated by the SADIS Provider State, to be reviewed and amended, as necessary, by the meeting, before its submission to the SCRAG; and
- e) the implementation of the SADIS, in the light of the updated list of SADIS users (relying on the SADIS broadcast and/or on the SADIS FTP service), provided by the Secretary.

## **2. DISCUSSION**

### **2.1 SADIS management report**

2.1.1 The group may wish to note that, in accordance with Conclusion 7/1, the SADIS Provider State has prepared a management report which was placed on the ICAO SADISOPSG website more than two months prior to this meeting. The group may wish to express its compliments to the SADIS Provider State for providing a detailed and informative report on the web. The group will be pleased to note that the complete management report includes statistics on the non-scheduled OPMET messages received at the SADIS uplink station, compiled in response to Conclusion 8/8. Furthermore, a list of aerodromes, corresponding to Annex 1 to the SADIS User Guide, whose OPMET data has not been received at the SADIS uplink station, as called for by Conclusion 8/7 b), has been included in the addendum to the management report.

2.1.2 A concise summary of the management report highlighting the main issues and developments that have taken place during the previous 12-month period is given in SADISOPSG/13-WP/8. The group is invited to note the key highlights of the SADIS programme between March 2007 and February 2008.

### **2.2 SADIS focal points**

2.2.1 The group will recall that the PIRGs endorsed the SADISOPSG/4 draft conclusion concerning the nomination by SADIS user States of SADIS operational focal points; such a list was considered to provide useful contacts for the SADIS Provider State and the ICAO regional offices to resolve issues regarding, inter alia, missing or incorrectly formatted messages and headers. The current list of focal points, updated by the Secretary based on a consultation with all SADIS user States in response to Conclusion 12/2, is given in Appendix A.

2.2.2 In view of the importance of the list of SADIS focal points, it may be agreed that ICAO should consult all the SADIS user States to ensure that the information is current. The group may wish to review the list of SADIS operational focal points and formulate the following conclusion:

#### **Conclusion 13/... — Update of the list of SADIS focal points**

That, the Secretariat consult all the SADIS user States in order to update the list of the SADIS focal points in time for the dispatch of the SADIS efficacy questionnaire in January 2009.

## 2.3 States'/users' views on SADIS efficacy

### Results of the consultation

2.3.1 It may be recalled that, in accordance with SADISOPSG Conclusions 1/4 and 2/3, the group agreed to provide an annual statement of SADIS operational efficacy to the SCRAG, based on the views of States/users on the subject, solicited by ICAO prior to each meeting. The Secretariat has circulated the questionnaire to all States under the SADIS "footprint" and to the Agence pour la Sécurité de la Navigation Aérienne en Afrique et à Madagascar (ASECNA). To improve the response rate of the annual SADIS questionnaire, the questionnaire was placed on the SADISOPSG website in an interactive format and sent, in addition to users and States, to the SADIS focal points, in response to Conclusion 6/2. The group will be pleased to note that, the number of replies has increased from the past year (from 42 to 48). This increase could be attributed to the fact that the interactive questionnaire was available before the dispatch of the information to SADIS users.

2.3.2 A tabulated summary was compiled by the Secretariat based on the completed questionnaires returned by States. Specific comments provided by States have also been included under the remarks column for ease of reference. The summary is shown in Appendix B. In accordance with Decision 9/3, the summary was subsequently forwarded to the SADIS Provider State which have prepared, on behalf of the SADISOPSG Operational Efficacy Assessment Team, a report on the operational efficacy (WP/9 refers), as called for by Decision 4/4.

2.3.3 An analysis of the completed questionnaires indicate the following (the statistics for year 2006-2007 in brackets, in accordance with Conclusion 6/3) (indicated in percentage, out of a total of 48 and 42 replies, respectively, rounded to the nearest 5 per cent):

- a) concerning the need for repairs:
  - 1) 15 (20) per cent of receivers had to be returned for repairs; and
  - 2) 0 (10) per cent of replies indicated shipping problems;
- b) 10 (10) per cent of States considered that the administrative messages were not adequate;
- c) concerning the data:
  - 1) 75 (85) per cent of States reported good availability of upper-air data in the GRIB code form;
  - 2) 85 (50) per cent of States reported good availability of SIGWX data in the BUFR code form; and
  - 3) 85 (85) per cent of States reported good availability of OPMET messages;
- d) concerning the occurrence of signal quality problems with the VSAT, 10 (20) per cent of States reported such problems;
- e) concerning the availability of WAFS SIGWX forecasts:

- 1) 65 (60) per cent of States were in a position to covert the BUFR-coded SIGWX forecasts into WAFS charts; and
- 2) 65 (45) per cent of States are using WAFS forecasts in the PNG format;
- f) 70 (35) per cent of States reported that they have implemented the SADIS 2G reception; and
- g) 70 (80) per cent of States reported that they did not use the 24-hour help desk.

2.3.4 It may be noted that, the figures are comparable to those received last year. The group will be pleased to note that in three areas, positive developments have taken place:

- a) the percentage of States indicating good availability of BUFR bulletins has substantially increased (sub-paragraph c) 2) refers);
- b) the percentage of States experiencing signal problems has decreased (sub-paragraph d) refers; and
- c) the percentage of States having installed the SADIS 2G reception has significantly increased (sub-paragraph f) refers).

2.3.5 The group may wish to note that in two areas, the perception of the SADIS service has deteriorated over the last 12 months:

- a) *availability of the upper-air data in the GRIB code form* (sub-paragraph c) 1) refers). The group may wish to consider that the decrease in the availability is a reflection on the SADIS 2G data losses (notably to GRIB) that have occurred during the last year and resulting in missing GRIB sequence numbers. The group will be pleased to note that as a result of the efforts by the SADIS Provider State, the situation is much improved; and
- b) *level of assistance provided by the UK Met Office Service Desk* (20 per cent of users of the service desk were dissatisfied whilst no users expressed dissatisfaction one year earlier, Appendix B refers). The group will note that that the dissatisfaction appears to be related to the speed of reaction and resolution when service interruptions have occurred. This feedback has since been passed to the appropriate services by the SADIS Provider State to ensure that improvements are implemented where necessary.

2.3.6 Based on the responses received, the group may wish to reiterate its satisfaction with the quality of SADIS service considered good by a clear majority of users and with the fact that the number of States with serious difficulties with their SADIS VSAT has remained small.

### **Format of the questionnaire**

2.3.7 The group will recall that the questionnaire on SADIS efficacy was developed by the Secretariat in consultation with the Chairman of the SADISOPSG and the SADIS Provider State and last revised at the SADISOPSG/12 Meeting (Decision 12/3 refers) to reformulate the question related to the usefulness of the PNG format, in view of their use as a back-up to the BUFR-coded SIGWX forecasts, in accordance with the World Area Forecast System Operations Group (WAFSOPSG) Conclusion 3/9.

2.3.8 The group is invited to make its customary review of the format/content of the questionnaire, given in Appendix C. Since the replies received did not indicate any misunderstanding related to the questions posed, the group may wish to agree that the format should continue to be used with only editorial changes related to the period to be covered (i.e. 2008-2009 instead of 2007-2008). The group may wish to formulate the following decision:

**Decision 13/ — SADIS efficacy questionnaire**

That, the questionnaire provided in Appendix<sup>1</sup> to this report be used in future consultations with States/users on the operational efficacy of the SADIS broadcast.

**Annual statement**

2.3.9 The group, including IATA, may wish to agree that, in the light of comments received, the SADIS broadcast continued to meet the operational requirements during the period under review and to formulate the following conclusion:

**Conclusion 13/... — Annual statement of operational efficacy of SADIS 2007/2008**

That, the Chairman of the SADISOPSG be invited to inform the Chairman of the SCRAG that during the period 2007/2008 the SADIS continued to meet the operational requirements.

**2.4 SADIS inventory**

2.4.1 The latest inventory which formed the basis for SADIS cost recovery purposes was developed by the SADISOPSG/12 Meeting and used by SCRAG at its eight meeting held in Paris in November 2007. In order to ensure the currency of the SADIS inventory, proposals for amendments to the inventory have been made by the SADIS Provider State. These amendments are of an editorial nature and have little impact on SADIS users. The draft inventory is in the appendix to WP/10 with changes highlighted using the red-line/strike-out markings. The group is invited to review these draft amendments and formulate conclusion as proposed in WP/10.

**2.5 SADIS implementation**

2.5.1 The latest situation in respect of VSAT installations and authorized access is provided in Appendix D. The group may wish to note that the number of States and users has slightly increased during 2007/2008 with ninety-five (ninety-one in 2006/2007) Contracting States relying on a total of 133 (132 in 2006/2007) SADIS VSAT receivers and seventeen (fourteen in 2004/2005) FTP servers. A further eleven (ten in 2006/2007) Contracting States have received authorized access, some of which are in the process of installing SADIS VSAT receivers or FTP servers. It may be noted that, the number of systems continued to increase, in particular due to the growing interest in the SADIS FTP service.

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<sup>1</sup> The draft questionnaire is given in Appendix C to this paper.

3. **ACTION BY THE SADISOPSG**

3.1 The SADISOPSG is invited to:

- a) note the information in this paper; and
- b) review the
  - 1) concise summary of the management report in WP/8;
  - 2) list of SADIS focal points in Appendix A to this paper;
  - 3) format of the SADIS efficacy questionnaire in Appendix C to this paper; and
  - 4) draft amendments to the SADIS inventory in Appendix A to WP/10; and
- c) decide on the draft decisions and conclusions proposed for the group's consideration.

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**APPENDIX A**

**SADIS OPERATIONAL FOCAL POINTS**

(Updated on 16 April 2008)

*Note.— This list is kept up-to-date by the ICAO Secretariat based on the input from States.*

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APPENDIX B

SUMMARY OF QUESTIONNAIRE RESPONSE

State	No. of VSATs						Overall Assessment of VSAT				WAFS SIGWX				24 Hr Help Desk		
		Signal Quality Prob- lems	Data Availability			Admin. Messages Adequate	VSAT	Faults			BUFR Conver- sion	PNG Format	Impl. SADIS 2G		Did you use?	OK?	
			GRIB	BUFR	OPMET			Local Techni- cian	Return- ed	Ship- ping Prob- lem							
Overall Assessment of SADIS	2	4 a)	4 b) i)	4 b) ii)	4 b) iii)	4 c)	5 a)	5 b) i)	5 b) ii)	5 b) i) ii)	6	7	8		9		
Name	No.	Y/N	G/A/P	G/A/P	G/A/P	Y/N	G/A/P	X or “_”	X or “_”	Y/N	Y/N	Y/N	Y/N	Y/N	Year	Y/N	Y/N
Azerbaijan	-	N	G	G	G	Y	G	X	-	-	N	N	Y	-	N	-	
Bahrain	1	N	G	G	G	Y	G	-	X	N	Y	Y	N	April 2008	N	-	
Belgium	2	Y	P	A	G	Y	G	-	-	-	Y	N	Y	-	Y	N	
Benin	1	N	G	G	G	Y	G	X	-	-	N	Y	Y	-	N	-	
Bulgaria	1	N	G	G	G	Y	G	-	-	-	Y	Y	Y	-	N	-	
Burkina Faso	1	N	G	G	G	Y	G	X	-	-	N	N	Y	-	N	-	
Cameroon	1	N	A	G	G	Y	G	-	-	-	Y	N	N	-	N	-	
Central African Republic	1	N	A	G	G	Y	G	X	-	-	N	Y	Y	-	N	-	
Chad	1	N	G	G	A	Y	G	-	-	-	N	Y	Y	-	N	-	
China	2	N	G	G	G	Y	G	-	X	Y	Y	Y	N	July 2008	Y	Y	
China, Hong Kong	2	N	G	G	G	Y	G	-	X	N	Y	Y	Y	-	Y	Y	
Congo	1	N	G	G	G	N	G	-	-	-	N	Y	Y	-	N	-	
Cote d’Ivoire	1	Y	G	G	G	Y	A	X	-	-	Y	Y	N	-	N	-	



State	No. of VSATs						Overall Assessment of VSAT				WAFS SIGWX				24 Hr Help Desk		
		Signal Quality Prob- lems	Data Availability			Admin. Messages Adequate	VSAT	Faults			BUFR Conver- sion	PNG Format	Impl. SADIS 2G		Did you use?	OK?	
			GRIB	BUFR	OPMET			Local Techni- cian	Return- ed	Ship- ping Prob- lem							
Overall Assessment of SADIS	2	4 a)	4 b) i)	4 b) ii)	4 b) iii)	4 c)	5 a)	5 b) i)	5 b) ii)	5 b) i) ii)	6	7	8		9		
Name	No.	Y/N	G/A/P	G/A/P	G/A/P	Y/N	G/A/P	X or “-”	X or “-”	Y/N	Y/N	Y/N	Y/N	Y/N	Year	Y/N	Y/N
Croatia	1	N	G	A	G	Y	P	X	-	-	Y	Y	N	December 2008	Y	Y	
Czech Republic	1	N	G	G	G	Y	G	-	-	-	Y	N	Y-	-	N	-	
Egypt	1	N	G	G	G	Y	G	X	-	-	N	Y	Y	-	N	-	
Estonia	2	N	A	G	G	N	G	-	X	N	Y	Y	Y	summer 2008	N	-	
Equatorial Guinea	1	N	G	G	G	Y	G	-	-	-	Y	N	Y	-	N	-	
Finland	3	N	A	G	G	Y	A	-	-	-	Y	N	Y	-	Y	Y	
Gabon	1	N	G	G	G	Y	G	-	-	-	N	N	Y	-	N	-	
Gambia	1	-	-	-	-	-	-	-	-	-	-	-	N	Third quarter 2008	N	-	
Germany	1	N	A	G	A	Y	A	-	-	-	Y	Y	Y	-	Y	N	
Ghana	1	N	G	G	G	Y	G	X	-	-	N	Y	Y	-	N	-	
Greece	2	N	G	G	G	Y	G	-	-	-	Y	N	N	early 2008	Y	Y	
Italy	2	N	G	G	G	Y	G	X	-	-	Y	Y	Y	-	N	-	
Latvia	1	N	A	A	G	Y	G	-	X	N	Y	Y	Y	-	N	-	
Malaysia	1	Y	G	G	G	Y	G	X	-	-	Y	N	N	-	N	-	
Mali	1	N	G	G	A	Y	G	-	-	-	N	Y	Y	-	N	-	
Mauritania	1	N	G	G	G	Y	G	-	-	-	N	N	N	-	N	-	
Nepal	1	N	G	G	G	Y	G	X	-	-	Y	Y	Y	-	Y	Y	

State	No. of VSATs						Overall Assessment of VSAT				WAFS SIGWX				24 Hr Help Desk	
		Signal Quality Problems	Data Availability			Admin. Messages Adequate	VSAT	Faults			BUFR Conversion	PNG Format	Impl. SADIS 2G		Did you use?	OK?
			GRIB	BUFR	OPMET			Local Technician	Returned	Ship- ping Problem						
Overall Assessment of SADIS	2	4 a)	4 b) i)	4 b) ii)	4 b) iii)	4 c)	5 a)	5 b) i)	5 b) ii)	5 b) i) ii)	6	7	8		9	
Name	No.	Y/N	G/A/P	G/A/P	G/A/P	Y/N	G/A/P	X or “_”	X or “_”	Y/N	Y/N	Y/N	Y/N	Year	Y/N	Y/N
Netherlands	2	N	A	A	A	Y	G	-	-	-	Y	N	Y	-	Y	Y
Niger	2	N	G	G	G	N	G	-	-	-	Y	Y	N	-	N	-
Nigeria	1	N	G	G	G	Y	G	X	-	-	N	Y	Y	-	N	-
Oman	2	N	G	G	G	Y	G	-	X	N	Y	Y	Y	-	N	-
Poland	1	N	A	G	A	Y	G	-	-	-	N	Y	Y	-	N	-
Republic of Moldova	1	N	G	-	G	Y	G	-	-	-	N	Y	N	February 2008	N	-
Romania	1	N	G	G	G	Y	G	X	-	-	Y	Y	Y	-	Y	Y
Russian Federation	1	N	G	G	G	Y	G	-	-	-	Y	Y	Y	-	N	-
Senegal	1	N	G	G	G	Y	A	X	-	-	Y	Y	N	2008	N	-
Serbia	2	N	G	G	G	Y	G	-	-	-	Y	N	Y	-	N	-
Sri Lanka	1	N	G	G	G	Y	G	-	-	-	N	N	Y	-	N	-
Sweden	2	N	G	G	G	Y	G	-	-	-	Y	N	N	December 2008	Y	Y
Switzerland	2	Y	A	A	A	N	A	-	-	-	Y	N	Y	-	Y	N
Syria	2	N	G	G	G	Y	G	X	-	-	Y	Y	Y	-	Y	Y
Togo	1	N	G	-	G	Y	G	-	-	-	N	N	N	Not known	N	-
Turkey	1	N	G	G	G	N	G	-	X	N	Y	Y	Y		N	-
Ukraine	1	Y	G	G	G	Y	G	-	-	-	Y	Y	Y	-	N	-
United Kingdom	8	N	G	G	G	N	G	-	-	-	N	Y	N	-	Y	Y

State	No. of VSATs						Overall Assessment of VSAT				WAFS SIGWX				24 Hr Help Desk		
		Signal Quality Prob- lems	Data Availability			Admin. Messages Adequate	VSAT	Faults			BUFR Conver- sion	PNG Format	Impl. SADIS 2G		Did you use?	OK?	
			GRIB	BUFR	OPMET			Local Techni- cian	Return- ed	Ship- ping Prob- lem							
Overall Assessment of SADIS	2	4 a)	4 b) i)	4 b) ii)	4 b) iii)	4 c)	5 a)	5 b) i)	5 b) ii)	5 b) i) ii)	6	7	8		9		
Name	No.	Y/N	G/A/P	G/A/P	G/A/P	Y/N	G/A/P	X or “_”	X or “_”	Y/N	Y/N	Y/N	Y/N	Y/N	Year	Y/N	Y/N
TOTALS	70	Y-5 N-42	G-37 A-9 P-1	G-40 A-5 P-0	G-41 A-6 P-0	Y-41 N-6	G-41 A-5 P-1	15	7	Y-1 N-6	Y-30 N-17	Y-30 N-17	Y-33 N-15	-	Y-14 N-34	Y-11 N-3	
48 States		N/A-1	N/A-1	N/A-3	N/A-1	N/A-1	N/A-1	N/A-1				N/A-1	N/A-1				

**REMARKS:****Bahrain**

6. Supplier: IES

**Belgium**

4a) No problem with reception, but many periods with problems at UK uplink side resulting in missing data.

4b)i) See question 4a); many GRIB run with missing messages.

4b)ii) Missing BUFR messages from time to time, probably also due to uplink problems.

4b)iii) Not systematically checked as these are in parallel received via AFTN.

6. Supplier: Netsys Int'l (Pty) Ltd; Package: FlightMan.

9. We get quick feedback, but most of the time no solution; e.g., "the SADIS2G problem continues and is unlikely to be fixed soon" does not help us much further.

**Benin**

10. SADIS 1G receiver out of operation 10.10.07. Sent to Dakar for repair. Back in service 18.12.07. SADIS 2G receiver not received yet.

**Bulgaria**

6. ATSA staff

**Burkina Faso**

Improved reception since the implementation of SADIS 2G.

**Cameroon**

4a). Normally good signal.

4b) Sometimes missing data on the upper-wind charts

4b)ii) Some maps damaged or completely black.

6. Supplier: COROBOR. Package: MESSIR SADIS.

10. Distribution very good and regular. Problems related to decoding software.

**Central African Republic**

6. Problems (cabling and receiver) repaired by local technician.

9. Distribution of wind/temp/humidity data average. Temperature data available only on 850 hPa between 30 October-mid-December 2007.

10. Installation of SADIS 2G with the antenna constituted a clear improvement as far as the availability of OPMET and quality of service are concerned.

**REMARKS:****Chad**

- 4b)iii) Except for some centres, HSSS, HAAB, DNKN, DNMM, FKRR.
- 10. Reception excellent except some centres in eastern and western Africa.

**China**

- 6. Supplier: Developed by ourselves

**Croatia**

- 4b)ii) Double text boxes for some regions appear often.
- 5a) The reception was interrupted often.
- 5b)II LNB and receiver exchanged with spares.
- 6. Supplier: COROBOR Package: MESSIR

**Hong Kong, China**

- 6. Supplier: GIS meteo; Package: MapMaker

**Czech Republic**

- 5b) No faults developed on the VSAT receiving equipment during the period under review.
- 6. Supplier: IBL Software Engineering Germany/Slovakia; Package: Aero weather.
- 7b) PNG format through the SADIS FTP service is a good back-up and it would be useful to keep it beyond the trial period as a regular service.

**Egypt**

- 5b) Local technicians coordinate with the local agency.

**Equatorial Guinea**

- 1+0. In order to optimize SADIS FTP representation, the purchase of receivers and the allocation of IP addresses as a function of the location should be coordinated.

**Finland**

- 4a) Heavy snow fall lowers the signal level and 1G seems to be more tolerable than 2G.
- 4bi) In transmission some thchnical problems.
- 4c) Most of the time.
- 6. Supplier: COROBOR Package: MESSIR-AERO 2G..

**REMARKS:****Gabon**

- 5b) No problems in 2007.
- 10. Some short interruptions during 2007, which has slightly affected the operational system.

**Gambia**

- 4a) SADIS 1G at Bia was not operating during the period mentioned above.
- 10. Due to hard disk problem our SADIS 1G was not operating during the above-mentioned period.

**Ghana**

- 4c) There was no panic when service or products were unavailable.
- 5b) Software related.
- 10. The SADIS footprint has greatly enhanced our service delivery.

**Latvia**

- 4b) i) ii) Due to error in SADIS 2G Satellite demodulation Radyne DD2401
- 5b) Error in receiving software (Satellite demodulator Radyne DD2401) was repaired by VADOS with Paradigm Communication cooperation.
- 6. Supplier: SWDI
- 10. During 2007 SJSC "Latvijas Gaisa satksme" was used WAFC charts received via SADIS ftp server. BUFR decoding software is on test mode.

**Malaysia**

- 4a) The SADIS Uconix receiver system malfunctioned and was not able to receive data since 26 November 2007.
- 6. Supplier: COROBOR Systems MESSIR AERO Package: V 6.40.0.2-5CK
- 7. No plans to implement.

**Mali**

- 10. Interruption of reception during September/October 2007

**Nepal**

- 5b) Old LNB and wires were changed and new one installed.
- 6. Supplier: COROBOR  
Package: MESSR AERO

**REMARKS:****Netherlands**

- 4b)i) There have been occasional problems.
- 4b)iii) Some CSN numbers are missing per day.
- 6. Supplier: COROBOR; Package: Paradigm
- 9. Problems in receiving products are known by the SADIS Provider State.

**Niger**

- 5b) No problems
- 6. SIGWX low-level.
- 10. Good functioning of SADIS with the exception of some problems in the vertical cross-section of winds.

**Nigeria**

- 5b)i) Occasional reorientation of antennae.

**Oman**

- 6. Supplier: IBL software Engineering Package: Aero Weather

**Poland**

- 4b) Message sequence is often interrupted, messages are lost at several locations at the same time.
- 4b)iii) Several outages and data losses, sequence interruption.
- 4c) Direct notification via e-mail is highly accepted.
- 10. Currently SADIS 2G has a low operational reliability, too many outages and data losses during November/December 2007 and January 2008.

**Republic of Moldova**

- 5b) We had no necessity in repairing of the equipment until now.
- 8. After upgrade of the software for BUFR, we intend to implement the SADIS 2G reception within 3-4 months.

**Romania**

- 5a) Three situations when reception on channel 3 was lost temporarily.
- 5b)i) Re-configuration of the MEGAPAC(2.3) switch
- 6. Supplier: COROBOR systems Package: MESSIR Vision

**REMARKS:****Russian Federation**

- 6. Supplier: MapMakers Group Ltd; IRAM Package: SIG Meteo; MeteoExpert
- 9. Three receivers of systems SADIS-I (e.e. Vrakovo, Domodedovo. Sheremeryevo airports are in repair since 2003.

**Senegal**

- 4a) Wind/temperature forecasts often not received or received incomplete both in SADIS broadcasts and on the SADIS FTP.
- 4b)i) Some interruption in the reception.
- 4b)ii) Numerous interruptions during the extraction from the SADIS FTP website, SADIS 2G not installed.
- 4b)iii) SIGMET from MWOs in ACCRA and CONAKRY not received.
- 5a) SADIS 1G in use, SADIS 2G not yet available.
- 6. Supplier: COROBOR MS 2G.
- 8. SADIS 2G under procurement by ASECNA , software already available.

**Serbia**

- 6. Supplier: COROBOR Package: MetAIS version 2.1

**Sri Lanka**

- 4a) SADIS 2G was commissioned in January 2007. Until then SADIS 1G which was installed in Sri Lanka was unserviceable.

**Sweden**

- 6. Supplier: NETSYS; Package: MetAIS version 2.1.

**Switzerland**

- 4 a)b) Broadcast data loss.
- 4c) Often no proactive action by the provider.
- 5a) Data loss problem not caused by the equipment
- 6. Supplier: Developed by MeteoSwiss. Package: TrialChart
- 9. Often not aware of broadcast problem by the provider, therefore, also seen as a user problem.

**Syria**

- 10. The SADIS is very good for weather forecasts.



**REMARKS:**

**Togo**

8. We do not have a SADIS 2G receiver yet.

**Turkey**

6. Supplier: IBL software engineering. Package: BRIB and BUFR decoder and display packages.

**Ukraine**

6. Supplier: COROBOR Package: MESSIR VISION

**United Kingdom**

- 4c) Introduction of UK Met Office e-mail service has made this better.  
8. A number of users are using SADIS 2G in trial mode at present.  
10. There appears to have been a lot of problems with SADIS 2G delivery over the last couple of months. Hopefully this will be sorted before 1G is switched off. SIGWX in BUFR is extremely usefull to us as we use it in several of our aviation products including overlaying CAT areas on routs plats. We also actively use the ISGWX in PNG format and would like to see the production of these continue past the trial phase.

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**APPENDIX C**

**ASSESSMENT OF THE OPERATIONAL EFFICACY OF THE SADIS  
BROADCAST 2008-2009**

1. State:
2. Number of SADIS VSATs installed and operational in your State?
3. Location of SADIS VSATs in your State?
4. Overall assessment of the SADIS broadcast during the period **February 2008 to January 2009**  
(tick appropriate bracket)

- a) signal quality (reception)

no problems encountered [ ]  
problems encountered (as specified below) [ ]

*Remarks:* \_\_\_\_\_

- 
- b) data/product availability at the VSAT receiver (i.e., excluding the performance of user processing/display equipment and associated software)

- i) WAFS global upper-air wind/temperature/humidity bulletins in the GRIB code

good [ ]  
average [ ]  
poor [ ]

*Remarks:* \_\_\_\_\_

- 
- ii) WAFS SIGWX bulletins in the BUFR code form

good [ ]  
average [ ]  
poor [ ]

*Remarks:* \_\_\_\_\_

---

iii) OPMET message information (METAR, TAF, SIGMET etc.)

good	[ ]
average	[ ]
poor	[ ]

Remarks: \_\_\_\_\_

---

c) administration (service) messages

Do you consider that the administrative messages broadcast on SADIS were sufficient to keep you advised of the broadcast status?

yes	[ ]
no	[ ]

Remarks: \_\_\_\_\_

---

5. a) Overall assessment of the reliability of VSAT receiving equipment  
(i.e. excluding user processing and display equipment and associated software)

good	[ ]
average	[ ]
poor	[ ]

Remarks: \_\_\_\_\_

---

b) If faults developed in the VSAT receiving equipment, were these faults repaired by:

i)	local technicians <sup>1</sup> or	[ ]
ii)	shipping the unit back to the service provider	[ ]

If you ticked i) above, indicate the nature of the repairs.

If you ticked ii) above, were any difficulties encountered regarding the response of the service provider and/or shipping of the faulty units for repair?

yes	[ ]
no	[ ]

---

<sup>1</sup> Users should ensure that repair by local technicians does not infringe warranty of the equipment.

Remarks: \_\_\_\_\_

---

6. Are you able to produce WAFS SIGWX charts from the BUFR code form which are compliant with software criteria available from [www.metoffice.gov.uk/sadis/software/index.html](http://www.metoffice.gov.uk/sadis/software/index.html)?

yes	<input type="checkbox"/>
no	<input type="checkbox"/>

If you ticked “yes” above, indicate the name of the software supplier and software package being used.

supplier: \_\_\_\_\_

package: \_\_\_\_\_

7. Are you currently using WAFS SIGWX charts in the PNG format, provided as a back-up to the BUFR-coded SIGWX forecasts?

yes	<input type="checkbox"/>
no	<input type="checkbox"/>

8. Have you implemented the SADIS 2G reception ?

yes	<input type="checkbox"/>
no	<input type="checkbox"/>

If you ticked “no” above, indicate when you intend to implement the SADIS 2G reception (cessation of the SADIS 1G programme on 31 December 2008).

\_\_\_\_\_

9. Assessment of SADIS 24-hour Helpline/Faults Desk

During the period under review, did you have occasion to contact the SADIS 24-hour Helpline/Faults Desk?

yes	<input type="checkbox"/>
no	<input type="checkbox"/>

If “yes”, was the technical support provided satisfactory?

yes	<input type="checkbox"/>
no	<input type="checkbox"/>

*Remarks:* \_\_\_\_\_

\_\_\_\_\_

*Note.— Note.— If in your replies above you indicate “average” or “poor”, it would be appreciated if a brief explanation of the problem could be provided.*

10. Additional comments related to the operational efficacy of the SADIS broadcast.

*Remarks:* \_\_\_\_\_

\_\_\_\_\_

— — — — —

**APPENDIX D**  
**STATUS OF IMPLEMENTATION OF SADIS**  
**(as of 16 April 2008)**

*Note. — Non-operational users are indicated in italics.*

*X = VSAT (SADIS 1G); or VSAT (SADIS 1G) and FTP service;*

*XX = VSAT(SADIS 2G); or VSAT (SADIS 2G) and FTP service;*

*F = FTP service only*

*\* = approved SADIS hardware and/or software supplier*

<i>ICAO Contracting State</i>		<i>User</i>		<i>Location</i>	<i>Operational</i>
1	Afghanistan	1	National Meteorological Service	Kabul Airport	X
2.	Algeria	2	National Meteorological Service	Dar-El-Beida	X
	<i>Algeria</i>		<i>National Meteorological Service</i>	<i>Essidikia Oran</i>	
3.	Armenia	3	Hydromet	Yerevan Airport	X
4.	Austria	4	Austro Control	Vienna	XX
5.	Azerbaijan	5	Air Navigation Service	Baku Airport	XX
6.	Bahrain	6	Civil Aviation Authority	Bahrain International Airport	X
7.	Bangladesh	7	National Meteorological Service	Dhaka Airport	X
8.	Belgium	8	Belgocontrol	Brussels Airport	XX
	Belgium	9	Eurocontrol	Brussels	XX
9.	Benin	10	National Meteorological Service	Cotonou International Airport	X
10.	Botswana	11	National Meteorological Service	Gaborone Airport	XX
11.	Bulgaria	12	Air traffic services	Sofia Airport	XX
12.	Burkina Faso	13	National Meteorological Service	Ouagadougou Airport	X
	<i>Burundi</i>		<i>National Meteorological Service</i>		
13.	Cameroon	14	National Meteorological Service	Douala Airport	X
14.	Central African Republic	15	National Meteorological Service	Bangui	XX
15.	Chad	16	National Meteorological Service	N'Djamena Airport	XX
16.	China	17	CAAC	Beijing Airport	XX
	China	18	CAAC	Guangzhou Airport	X
	China	19	Hong Kong Observatory	Hong Kong Intl. Airport	XX
	China	20	Observatory	Kowloon	X
	China	21	Civil Aviation Authority	Macau Airport	X
17.	Congo	22	National Meteorological Service	Brazzaville Airport	X

ICAO Contracting State		User		Location	Operational
18.	Côte d'Ivoire	23	National Meteorological Service	Abidjan Airport	X
19.	Croatia	24	Croatia Control Ltd.	Zagreb Airport	X
20.	Cyprus	25	National Meteorological Service	Nicosia	XX
21.	Czech Republic	26	HydroMet	Prague	XX
22.	Democratic People's Republic of Korea	27	Civil Aviation Authority	Pyongyang Airport	XX
23.	Democratic Republic of the Congo	28	National Meteorological Service	Kinshasa Airport	X
24.	Denmark	29	Meteorological Institute	Copenhagen	X
	Denmark	30	SAS Airline	Copenhagen	X
	Denmark	31	Air Support A/S	Billund	F
25.	Egypt	32	National Meteorological Service	Cairo Airport	XX
	Egypt	33	Main Military Weather Forecast Centre	Cairo	XX
26.	Equatorial Guinea	34	National Meteorological Service	Malabo Airport	X
	Eritrea		National Meteorological Service		
27.	Estonia	35	Air Navigation Service	Tallinn Airport	XX
	Estonia	36	National Meteorological Service	Tallinn	X
28.	Ethiopia	37	National Meteorological Service	Addis Ababa Airport	XX
	Ethiopia	38	Ethiopian Airlines	Addis Ababa Airport	X
29.	Finland	39	Air Navigation Services (Civil Aviation Administration)	Helsinki-Vantaa Airport	XX
	Finland	40	Air Navigation Services (Civil Aviation Administration)	Tampere ACC	X
30.	France	41	Corobor *	Paris	F
	France	42	Météo-France International (MFI) *	Toulouse	F
31.	Gabon	43	National Meteorological Service	Libreville Airport	X
32.	Gambia	44	National Meteorological Service	Banjul Airport	X
33.	Georgia	45	National Meteorological Service	Tbilisi Airport	X
34.	Germany	46	EuroWings	Dortmund Airport	X
	Germany	47	Lufthansa	Frankfurt Airport	XX
	Germany	48	UKW	Baiersdorf	X
35.	Ghana	49	National Meteorological Service	Accra Airport	XX
36.	Greece	50	National Meteorological Service	Piraeus Airport	X
	Greece	51	National Meteorological Service and Civil Aviation Authority	New Athens Intl. Airport	XX
37.	Guinea	52	National Meteorological Service	Conakry Airport	X
	Guinea-Bissau		Administration Météorologique		
38.	Hungary	53	National Meteorological Service	Budapest	X
	Hungary	54	Hungaro Control	Ferihegi Airport	X

ICAO Contracting State		User		Location	Operational
39.	Iceland	55	CAA	Reykjavik	F
	Iceland	56	IMO	Reykjavik	F
40.	India	57	National Meteorological Service	New Delhi	X
	India	58	SDS Ltd.	Mumbai	F
	<i>Iran (Islamic Republic of)</i>		<i>National Meteorological Service</i>		
41.	Ireland	59	MET Eireann	Dublin	F
42.	Italy	60	Air traffic services	Milan Malpensa Airport	XX
	Italy	61	Ingegneria Software Industriale	Latina	X
	Italy	62	Air traffic services	Rome Fiumicino Airport	XX
	<i>Italy</i>		<i>Tecno Engineering</i>	<i>Comiso Airport</i>	
43.	Jordan	63	National Meteorological Service	Queen Alia Airport	X
	<i>Kazakhstan</i>		<i>Kazaviamet</i>		
44.	Kuwait	64	National Meteorological Service	Kuwait	XX
45.	Lao People's Democratic Republic	65	Hydromet Unit	Laos Airport	X
46	Latvia	66	Air Space Utilization and Air Traffic Organization	Riga	XX
47.	Lebanon	67	National Meteorological Service	Beirut Airport	X
48.	Libyan Arab Jamahiriya	68	National Meteorological Service	Tripoli	XX
49.	Lithuania	69	Air Traffic Services (Oro Navigacija)	Vilnius Airport	XX
50.	Madagascar	70	National Meteorological Service	Antananarivo/Ivato Airport	X
51	Malawi	71	National Meteorological Service	Lilongwe	F
52.	Malaysia	72	National Meteorological Service	Kuala Lumpur Airport	X
53.	Maldives	73	National Meteorological Service	Male Airport	X
54.	Mali	74	National Meteorological Service	Bamako Airport	XX
55.	Malta	75	National Meteorological Service	Luqa Airport	XX
56.	Mauritania	76	National Meteorological Service	Nouakchott Airport	F
	<i>Mongolia</i>		<i>Civil Aviation Authority</i>	<i>Ulan Bator Airport</i>	
57.	Mozambique	77	National Meteorological Service	Maputo	X
58.	Myanmar	78	DMH	Yangon	F
59.	Nepal	79	National Meteorological Service	Kathmandu Airport	XX
60.	Netherlands	80	National Meteorological Service	De Bilt	XX
	Netherlands	81	Televent Almos *	Culemborg	X
	Netherlands	82	Casses Ltd.	Amsterdam	F
61.	Niger	83	National Meteorological Service	Niamey Airport	X
	Niger	84	National Meteorological Service	EAMAC Training School	X
62.	Nigeria	85	National Meteorological Service	Lagos Airport	XX



ICAO Contracting State		User		Location	Operational
63.	Oman	86	National Meteorological Service	Salalah Airport	XX
	Oman	87	National Meteorological Service	Seeb Airport	XX
64.	Pakistan	88	NMS	Karachi	XX
65.	Poland	89	Lufthansa	Gdansk	XX
66.	Portugal	90	Air Force	Alfragide	X
	Portugal	91	National Meteorological Service	Lisbon Airport	X
67.	Qatar	92	Civil Aviation Authority	Doha Airport	X
68.	Republic of Korea	93	National Meteorological Service	Incheon Airport	XX
69.	Republic of Moldova	94	Air traffic services	Chisinau Airport	XX
70.	Romania	95	Air traffic services (ROMATSA)	Bucharest	XX
71.	Russian Federation	96	Institute of Radar Meteorology (IRAM) *	St. Petersburg	F
	Russian Federation	97	Map Makers Group *	Moscow	XX
72.	Rwanda	98	National Meteorological Service	Kigali	X
	<i>Sao Tome and Principe</i>		<i>Instituto Nacional de Meteorologia</i>		
73.	Saudi Arabia	99	Saudi Airlines	Jeddah Airport	X
	Saudi Arabia	100	Presidency of Meteorology and Environment (PME)	Jeddah	XX
	Saudi Arabia	101	Presidency of Meteorology and Environment (PME)	Jeddah Airport	XX
74.	Senegal	102	National Meteorological Service	Dakar Airport	XX
	Senegal	103	ASECNA	Headquarters, Dakar	X
75.	Serbia	104	National Meteorological Service	Belgrade	X
	Serbia	105	Air traffic services	Belgrade Airport	X
	<i>Sierra Leone</i>		<i>National Meteorological Service</i>		
76.	Slovakia	106	IBL Software Engineering *	Bratislava	XX
77.	South Africa	107	Weather Bureau	Pretoria	XX
	South Africa	108	Netsys *	Pretoria	XX
78.	Sri Lanka	109	GHP Dharamaratna	Colombo	XX
79.	Swaziland	110	National Meteorological Service	Mbabane	X
80.	Sweden	111	LFV Group – Airports and AN Services	Arlanda Airport	X
	Sweden	112	LFV Group – Airports and AN Services	Sundsvall Airport	X
	Sweden	113	Flygprestanda	Malmö	XX
	Sweden	114	European Aeronautical Group	Stockholm	X
	Sweden	115	Carmenta	Göteborg	F
81.	Switzerland	116	National Meteorological Service	Zurich	XX
	Switzerland	117	National Meteorological Service	Zurich	XX
82.	Syrian Arab Republic	118	National Meteorological Service	Damascus Airport	XX

ICAO Contracting State		User		Location	Operational
	Syrian Arab Republic	119	National Meteorological Service	Aleppo Airport	XX
83.	Thailand	120	Thai Intl. Airways	Suvarnabhumi Airport	XX
	Thailand	121	National Meteorological Service	Don Mueang Airport	X
84.	The former Yugoslav Republic of Macedonia	122	National Meteorological Service	Skopje	X
85.	Togo	123	National Meteorological Service – ASECNA	Lomé	X
	<i>Tunisia</i>		<i>National Meteorological Service</i>	<i>Tunis Airport</i>	
86.	Turkey	124	National Meteorological Service	Ankara Airport	XX
87.	Uganda	125	National Meteorological Service	Entebbe Airport	XX
88.	Ukraine	126	Air traffic services (UKSATSE)	Kyiv	XX
	Ukraine	127	Aeronautical MET Centre (UAMC)	Boryspil Airport, Kyiv	F
89.	United Arab Emirates	128	National Meteorological Service	Abu Dhabi (Al-Dhafra Air Base)	XX
	United Arab Emirates	129	Civil Aviation Authority	Abu Dhabi Airport	XX
	United Arab Emirates	130	Civil Aviation Authority	Abu Dhabi Airport	XX
	United Arab Emirates	131	Civil Aviation Authority	Dubai Airport	XX
	United Arab Emirates	132	Civil Aviation Authority	Headquarters, Abu Dhabi	X
90.	United Kingdom	133	UKMO	Exeter	XX
	United Kingdom	134	Aviation Briefing	Bristol	XX
	United Kingdom	135	Bytron	Kirmington	XX
	United Kingdom	136	WSI	Castle Donington	X
	United Kingdom	137	WSI	Defford	X
	United Kingdom	138	UKMO	RAF Scampton	XX
	United Kingdom	139	Bradford University	Bradford	X
	United Kingdom	140	Averist	Manchester	F
	United Kingdom	141	Paradigm Communications *	Alton, Hampshire	X
	United Kingdom	142	Weathernews International	Aberdeen	X
	United Kingdom	143	Jeppesen	Crawley	F
	United Kingdom	144	Air Data	Crawley	F
91.	United Republic of Tanzania	145	National Meteorological Service	Dar Es Salaam	X
	<i>Uzbekistan</i>		<i>Uzaeronavigation</i>	<i>Tashkent</i>	
92.	Viet Nam	146	Civil Aviation Authority	Hanoi	X
	Viet Nam	147	National Meteorological Service	Ho Chi Min City	XX
93.	Yemen	148	Civil Aviation Authority	Sanaa Airport	X
94.	Zambia	149	National Meteorological Service	Lusaka	X
95.	Zimbabwe	150	National Meteorological Service	Harare International Airport	X