SADIS COST RECOVERY ADMINISTRATIVE GROUP
(SCRAG)

NINTH MEETING

(London, 30 October 2008)

**Agenda Item 2:   Consideration of issues relevant to the SCRAG's work addressed by the
SADIS Operations Group (SADISOPSG)**

REPORTS ON CONCLUSIONS OF THE SADISOPSG/13 MEETING

(Presented by the Chairman of the SADIS Operations Group)

1.   Introduction

1.1   This paper includes in **Attachments 1 to 4** the Executive Summary of the thirteenth meeting
of the SADIS Operations Group (SADISOPSG/13, Dakar, 27-29 May 2008), as well as three specific
Reports from the Chairman of the SADISOPSG Group on SADIS operational efficacy, inventory and costs
arising from the development of SADIS.

2.   **Action by the Group**

2.1   The Group is invited to review the information presented in this paper.

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THIRTEENTH MEETING

SADIS OPERATIONS GROUP
(Dakar, Senegal, 27 to 29 May 2008)

EXECUTIVE SUMMARY[1]

1.   **INTRODUCTION**

1.1   The thirteenth meeting of the SADIS Operations Group (SADISOPSG/13) was held in the Western and Central African Office (WACAF) Regional Office, Dakar, 27 to 29 May 2008. The meeting was attended by twenty-three experts from nine States, the representative of the focal point of the EUR OPMET Bulletin Management Group (BMG) and one international organization (the International Air Transport Association (IATA)).

1.2   The Chairman, Dr. Th. L. van Stijn, presided over the meeting throughout its duration.

2.   **FOLLOW-UP OF SADISOPSG/12 CONCLUSIONS**

2.1   With regard to the follow-up of the SADISOPSG/12 conclusions, the group noted that action had been completed on all the issues (Decision 13/1).

3.   **OPERATION OF THE SADIS**

3.1   With regard 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 to resolve operational issues, and agreed that ICAO should update the list in time for the dispatch of the SADIS efficacy questionnaire in December 2008 (Conclusion 13/2).

3.2   The group reviewed the operation of SADIS during 2007/2008 based on the annual management report from the SADIS Provider State and on responses from fifty States to the annual questionnaire on the operational efficacy of the SADIS broadcast. Concerning the annual questionnaire, the group was pleased to note the positive developments that had taken place in the increased percentage of States using BUFR-coded significant weather (SIGWX) forecasts and in the installation of SADIS 2G reception. The group agreed that the same format should continue to be used in future consultations (Decision 13/3). The group also agreed that the SADIS broadcast continued to meet the operational requirements during the period under review and that the SADIS Cost Recovery Administrative Group (SCRAG) be informed accordingly (Conclusion 13/4).

3.3   The group reviewed the SADIS inventory for 2008/2009. In order to ensure that SADIS continued to meet the approved operational requirements, amendments to the inventory were made based on proposals by the SADIS Provider State to take account of minor editorial changes. The updated inventory would be forwarded to the Chairman of SCRAG (Conclusion 13/5).

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

4.   **CONTENT OF THE SADIS BROADCAST**

4.1   **OPMET information**

4.1.1   The group was pleased to note that the currency of information related to OPMET information had substantially improved with the introduction of the global OPMET database encompassing information pertaining to all FASID Tables MET 1A and Tables MET 2A. With regard to the format of Annex 1 to the *SADIS User Guide* (SUG) which lists the requirements of OPMET data to be broadcast on the SADIS, the group agreed that the format should be modified to indicate the frequency of issuance of OPMET data using three categories and the aerodromes for which 30-hour TAF are issued (Conclusion 13/6). The group concurred with IATA that the availability of OPMET data from the aerodromes listed in Annex 1 to the SUG should be improved and the States concerned reminded of their obligations (Conclusion 13/7).

4.1.2   Regarding the recurrent requests for the modifications of TAF from the AOP aerodromes, it was agreed that such requests should be addressed to the ICAO regional office concerned, not to the SADISOPSG since the provision of TAF was subject to formal RAN agreement (Decision 13/8). Meanwhile, the group reviewed and endorsed the proposals made by IATA concerning OPMET information from non-AOP aerodromes and tasked the Secretariat to modify the requirements based on States' concurrence (Conclusion 13/9).

4.1.3   The group endorsed the harmonization of the SADIS and ISCS broadcasts based on Annex 1 to the SUG, as far as the content of OPMET information is concerned (Conclusion 13/10).

4.2   **WAFS forecasts**

4.2.1   With regard to Annex 4 to the SUG, listing the WAFS forecasts included in the SADIS broadcast, the group endorsed amendments thereto related, inter alia, to the use of the PNG chart form for graphical volcanic ash (VA) advisories and to the elimination of repeated headers (Decision 13/11).

5.   **DEVELOPMENT OF THE SADIS**

5.1   **Report of the SADISOPSG Gateway Development Team**

5.1.1   Concerning changes to the real-time monitoring related to SIGMET by the SADIS Provider State, the group was noted with disappointment that the name of a flight information region (FIR) indicator before the FIR name in SIGMET was still missing in a majority of SIGMET which had rendered the implementation of SIGMET monitoring impracticable; the group felt that the Secretariat should remind only those States which issue SIGMET bulletins not complying with Annex 3 provisions of the importance to take corrective action (Conclusion 13/12). With regard to the impact of the new TAF code form on the SADIS gateway, the group was pleased to note that TAF, irrespective of the code form used would be broadcast on SADIS. With regard to the validation, both the old and new code forms would be validated initially; as soon as a level of compliance of 80 per cent has been achieved, the validation of old TAF code form would be discontinued (Decision 13/13). Moreover, the *SADIS Gateway Operations Handbook* would be updated to reflect the new validation procedures (Conclusion 13/14).

5.2   **Report of the SADISOPSG Strategic Assessment Team**

5.2.1   Based on a report provided by the Rapporteur of the SADISOPSG Strategic Assessment Team, the group reviewed the content of the strategic assessment tables and requested that ICAO forward

copies of the tables to the PIRGs concerned so that they may form the basis for the next regional update in respect of future SADIS requirements (Conclusion 13/15).

5.3 Report of the SADISOPSG Technical Developments Team

5.3.1   The group noted that the issues dealt with by the SADISOPSG Technical Developments Team were related the data losses experienced with some SADIS 2G users. The group felt that information on data losses on the SADIS broadcast and their mitigation should be improved (Conclusion 13/16).

5.3.2   The team had also addressed the transition from the GRIB 1-coded WAFS forecasts to those coded in the GRIB 2 code form. To assess the impact, the group agreed that a trial of compressed GRIB 2-coded WAFS forecasts on SADIS 2G should be undertaken involving a limited number of users, minimizing the impact on other SADIS users (Conclusion 13/17).

5.4 Alternative SADIS 2G hardware

5.4.1   The group reviewed the results of the assessment of new hardware that could be used as an alternative to the standard SADIS 2G hardware. The group was pleased to note that this alternative SADIS 2G hardware could be brought into the commercial marketplace (Conclusion 13/18).

5.5 SADIS Internet-based FTP Service

5.5.1   The group noted that the progress towards the enhancements of the SADIS Internet-based FTP service had been slower than expected. In order to accelerate their implementation, the group agreed that the enhancements should be implemented in two phases; Phase 1 would be of little impact to SADIS users and would consist of the completion of the implementation of a SADIS FTP Enhanced service by 31 January 2009 while further information on Phase 2 – consisting of a SADIS FTP Secure service – would be required by the SADISOPSG/14 Meeting (Conclusion 13/19).

5.6 Changes to the back-up configuration

5.6.1   With regard to the back-up configuration, the group invited the SADIS Provider State to complete the installation of the back-up service to SADIS, prove resilience of the service with the real-time environment by way of back-up tests and report the outcome to the SADISOPSG/14 Meeting (Conclusion 13/20).

5.7 Long-term planning of SADIS

5.7.1   The group endorsed the five-year long-term plan updated by the SADIS Provider State (Decision 13/21) and noted that it would be forwarded to the SCRAG for information.

6.   THE SADIS USER GUIDE

6.1   The group noted that the preparation of a new, fourth edition of the *SADIS User Guide* (SUG) had been necessary to take into account extensive changes related to the phasing out of the SADIS 1G broadcast, Amendment 74 to Annex 3 and the use of PNG chart form for volcanic ash advisories in graphical format. The group endorsed the new edition (Decision 13/22).

7.   FUTURE WORK PROGRAMME

7.1   The group reviewed and updated its work programme for the years 2008 to 2012, and executive summaries for the tasks in its work programme (Decision 13/23).

8.   ANY OTHER BUSINESS

8.1   Cessation of the SADIS 1 G service

8.1.1   The group took note of the constant progress by States to migrate to the SADIS 2G broadcast and agreed that the SADIS Provider State should terminate the SADIS 1G service during January 2009 with the understanding that the associated costs of £ 4510 would be recovered using SCR (Conclusions 13/24 and 13/25). However, in view of future operational needs, the SADIS Provider State would maintain the existing SADIS satellite bandwidth allocation into years 2009 and 2010 (Decision 13/26) and would review the SADIS satellite bandwidth allocation taking into account the expected dissemination of GRIB 2 –coded WAFS forecasts (Conclusion 13/27).

8.2   Workstation software evaluation criteria

8.2.1   The group endorsed minor modifications to the SADISOPSG software criteria to take into account Amendment 74 to Annex 3 (Decision 13/28) and agreed that the SADIS Provider State should evaluate the workstation software available from software vendors using the modified evaluation criteria (Conclusion 13/29).

— END —

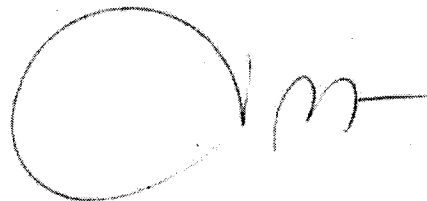Ref.: SWG 5/1.4.1   6 June 2008

To: Chairman, SCRAG

From: Chairman, SADISOPSG

Subject: **Annual statement of operational efficacy of SADIS 2007/2008**

            I wish to inform you that the SADISOPSG, in Conclusion 13/4, instructed me to advise you that the operational efficacy of the SADIS had continued to be satisfactory, meeting all operational requirements since the SADISOPSG/12 Meeting (4 to 6 June 2007).

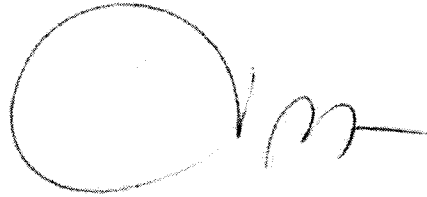   Th. L. van Stijn

Ref.: SWG 5/1.4.1

6 June 2008

To: Chairman, SCRAG

From: Chairman, SADISOPSG

Subject: **SADIS inventory 2008/2009**

        I wish to inform you that the SADISOPSG, in Conclusion 13/5, instructed me to forward to you the attached updated SADIS inventory.

Th. L. van Stijn

Enclosure:
  Updated SADIS inventory

ATTACHMENT

SADIS INVENTORY 2008
Changes highlighted

The inventory items identified below cover the equipment and staffing required to provide, operate and maintain the SADIS. The inventory includes: hub infrastructure (including all additions following the completion of the hub enhancement project) and communications circuits, ISCS data back up system, procured services, and staff. It should be noted that some equipment items are under lease and form part of a wider infrastructure. Costs of individual items cannot be separated from the required infrastructure that includes a significant part of the development of the software and technical configuration. The inventory is in accordance with the SADIS User Guide.

1. EQUIPMENT

A. Key Components of Hub Infrastructure and Communications Circuits

The SADIS 1G hub infrastructure connection to the Met Office message switch (Frost) consists of a number of units developed in conjunction with EADS Astrium and other suppliers. These are installed either at Exeter or at the uplink site at Whitehill, Oxfordshire, UK.

Additional hub infrastructure has been installed at Exeter and Whitehill to provide resilient SADIS 2G service. This hardware is physically separate from the SADIS 1G infrastructure.

i) Solely procured for SADIS (major components)

SADIS Gateway function software (developed specifically for the gateway as part of the NATS CoreMet system; see items under "Not procured principally for SADIS").

Hewlett Packard L-Class servers to provide SADIS FTP Service (see section 1C)

ii) Principally procured for SADIS

    a) At the Met Office

        See section 1C for itemised components

    b) communications between Whitehill and Met Office

        1) 2 Fibre Optic 64 Kbps circuits in support of SADIS 1G service

        2) 2 Fibre Optic 64 Kbps circuits in support of SADIS 2G service

    c) the uplink site (Whitehill)

        1) units forming part of a totally integrated rack structure to provide SADIS 1G service, with back-up, referred to as Chain A and Chain B (see the list under sections 1C);

        2) units and services leased from Cable and Wireless Communications Ltd. to support SADIS 1G and 2G services:

i)   1 (70 to 140 MHz) convertor

ii)   use of 1 (140 to C band) convertor

iii) use of satellite hub ~~C~~ (lease represents only a very small part of this large aperture) for SADIS 1G and 2G services; and

3)   units forming part of a totally integrated rack structure to provide SADIS 2G service, with back-up, (see the list under sections 1C)

d)   communication link (SVC) between SADIS Gateway and Met Office in support of SADIS 1G service; and

e)   dual contingent communication links (utilising WMO TCP/IP sockets protocol) between SADIS Gateway and Met Office in support of SADIS 2G service.

iii) Not procured principally for SADIS

a)   Message switch (FROST): Total investment, £~~1.2~~1.34M[1] of which ~~2.47~~2.40 per cent is attributable to SADIS usage: switching data to operational (1G) broadcast service and to 1G monitoring system — Corobor Comparitor.

b)   Message switch (FROST): Total investment, £~~1.2~~1.34M[2] of which ~~0.77~~1.25 per cent is attributable to SADIS FTP service usage: switching data to operational FTP service;

c)   Message switch (FROST): Total investment, £~~1.2~~1.34M[2] of which ~~0.80~~0.60 per cent is attributable to SADIS usage: switching data to operational (2G) broadcast service and to 2G monitoring system (Corobor Comparitor);

Note. — The percentage attributable to the SADIS FTP service has increased, in part, due to the provision of the gridded icing/turbulence/CB data on SADIS FTP, and the provision of a contingent FTP feed to supply GRIB and BUFR data during a SADIS FTP service interruption in October 2007

d)   Allocated bandwidth (2 Mbps bursting to 4 Mbps) between server and Internet Service Provider (ISP) in support of the SADIS FTP service; and

e)   Message switch (CoreMet System).

Note.— Some elements of the CoreMet System are exclusively for the support of the SADIS gateway function.

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[1] budgeted cost for providing FROST service during the fiscal year 200~~7~~8/200~~8~~9.

B. ~~ISCS~~ SADIS data back-up system

ISCS VSAT receiving system, including TCP/IP receiver and cables, on SADIS Provider (UK Met Office) premises.

Note 1. — This hardware is not currently used in an operational environment

Note 2. —: The SADIS Gateway (UK NATS) continues to procure an ISCS VSAT receiving system, including ISDN connection to Whitehill, to provide SADIS data backup.

C. Hub equipment and services located at Exeter and Whitehill

Item	Description	Quantity
1.	**Exeter Equipment to support SADIS 1G**	
1.1	Network Management System (NMS Computer)	1
1.2	MemoTech PAD (for NMS)	1
1.3	Telecoms interface units Megabox	2
1.4	CX1000 Frame Relay Switch (for NMS)	1
1.5	Product display console including software (COROBOR)	1
1.6	Communications rack floor space in IT hall 1 and space in stores to locate spare equipment	1
2.	**Exeter Equipment (Spares) to support SADIS 1G**	
2.1	Telecoms interface units Megabox	2
2.2	NMS Spare CPU	1
2.3	MemoTech PAD (for NMS)	1
2.4	CX1000 Frame Relay Switch (for NMS)	1
	Note. — Communication links in support of SADIS 1G service are included in section 1.1 of Inventory.	
3.	**Whitehill earth station (SADIS 1G uplink equipment)**	
	Telecoms controller Megapac V rack assembly	
3.1	Station interface unit (SIU)	2
3.2	8360 Modulator	2
3.3	8471 Receive Demodulators	2
3.4	8550 Modem Switch	12
3.5	140 - L band upconverter	1
3.6	X Term NMS simulator	2
3.7	Equipment Rack Assembly (Chain 1)	1
3.8	Equipment Rack Assembly (Chain 2)	1
3.9	Communications rack floor space for two communications	1
3.10	racks	2

4. Whitehill earth station SADIS 1G (spares)

4.1	8471 Receive Demodulators	1
4.2	Station interface unit (SIU)	1
4.3	MegaPAC V rack assembly	2
4.4	MegaPAC V Frad units	2
4.5	140 - L band upconverter	1
4.6	8360 Modulator	1
4.7	8550 Modem Switch	1

5. Whitehill services (leased from Cable & Wireless)

5.1	70 MHz to 140 MHz converters	2
5.2	140 MHz to C band converter	2
5.3	Satellite Hub leased bandwidth	1 slot

6. Test Rig at Poynton

6.1	Enhanced (SADIS 1G) Simulator	1

7. ISDN back-up service to Washington (NWSTG)

7.1	MegaPAC 2003 router (MP-2003)	1
7.2	MegaPAC 2003 router plus expansion (MP-2003-3-B)	1
7.3	ISDN 2e circuit	1
7.4	A/B switch	1
7.5	Interface cables	1

Note.— Hardware listed items under Section 7 are located at Whitehill.

8. SADIS FTP Service

8.1	HP L2000 servers with 2Gb RAM	2
8.2	18Gb internal disk drives	2
8.3	DVD-ROM	2
8.4	Processors	2
8.5	Licenses, misc. support and maintenance costs	1

9.   **Operational SADIS 2G Infrastructure**

9.1	FROST port	1
9.2	MegaPAC V System Dual PSU	3*
9.3	MegaPAC 2003 (Exeter)	3*
9.4	Uplink modem (Comtech EF Data SDM-300a)	3*
9.5	Communications cabinet and lease	1
9.6	MegaWatch including Enterprise Reports, and PC	1
9.7	Corobor comparator software and PC	1
9.8	XIO Modules	12**
9.9	SIO Modules	3*
9.10	8Mb RAM Modules	3*
9.11	Communications rack floor space at Exeter in IT hall 1 and IT hall 2, and at Whitehill	3
9.12	Space in stores at Exeter to locate spare hardware	1
9.13	VadEGDE 4202 – 1U	2
9.14	WAN module	2
9.15	Comtech EF Data SMS 301 – redundancy switch	2*
9.16	Interface cabling	15

Note 1.— Includes one unit/module stored as a cold spare.
**Note 2. — Includes four modules stored as cold spares.*

2. PROCURED SERVICES

A. Space segment annual lease: ~~1.2~~1.5MHz wide frequency band of which 57% is utilised ~~dedicated~~ to support SADIS 1G and 2G, with minimum data rates at 38.4 Kbps for both services;

B. Annual maintenance of Met Office Exeter and Whitehill uplink site equipment (1G, 2G and SADIS FTP server); and

C. Gateway function:

i) communication circuits between Met Office and NATS infrastructure site; and

ii) system maintenance.

3. ANNUAL STAFF REQUIREMENTS

A. United Kingdom Met Office

i) **Service Desk**

Note.— The Service Desk acts as a first point of contact for all inquiries, including those concerning the OPMET Gateway function. Complex inquiries will be passed to a relevant expert. Experts are available either on a 24-hour rota basis, or as a daytime support with limited on-call capability.

Normal working hours	*Skill*
1. Service Desk (first point of contact)	Scientific supervisor

> *Note.— Outside normal working hours, the Service Desk facility is provided by the 24-hour positions below.*

24-hour support	*Skill*
1. Operations Systems Analyst (OSA)	Systems analyst
2. ~~Networks and services engineer (NSE)~~ Technical Team Leader (TTL)	Computer engineer
3. Networks and Systems Supervisor (NSS)	Technical supervisor
4. ~~Nowcasting and Service Continuity Manager(NSCM)~~ Operations Service Delivery (OSD) Service Assurance	Scientist

Normal working hours support	*Skill*
1. Change and problem manager (CPM)	Systems analyst
2. Additional Service Desk operator	Systems analyst

> *Note.— The total support for SADIS is considered as 1 percent of the total support provided by the Service Desk and operational support function. These functions comprise 4 ± 24-hour rosters of six staff each, an additional three-man team (CPM), and one further 5-roster team providing further (normal-working-hours) Service Desk support.*

ii) Additional support

Additional support	*Skill*
1. Systems integration team	30 per cent of network computer engineer
2. Administrator	75 per cent of executive office
3. International aviation management	15 per cent of manager
4. Data traffic	5 per cent communications engineer
5. Contract Procurement and Management	5 per cent of senior procurement officer
6. UNIX support	10 per cent of computer engineer
7. Web team support	10 per cent of web site designer

> *Note.— Support by the UNIX Team of the SADIS FTP Service will incur some additional costs in excess of simple human resources. These costs are applied to all internet facing services and primarily relate to costs associated with ensuring high levels of IT security.*

B. NATS infrastructure site – CACC (OPMET Gateway function)

> *Note.— The CACC provides the OPMET Gateway function, which is provided from a single operational site, but with full capability at an alternative site. Staff are available either on a 24-hour basis, or as a daytime support with on-call capability. The staff is made up of 6 watches of 1 ATSA4(air traffic*

services assistant) and 1 ATSA3 each (operations), 1 ATCE4 (air traffic control engineer) (engineering watchkeeping) and 3 ATCE4 (engineering day support).

24 hour support	*Skill*
1. Operational staff support	10 per cent of ATSA4
	10 per cent of ATSA3
2. Engineering staff support	10 per cent of systems engineer

Day Support

3. SADIS administration support	40 per cent of ~~ATSA~~ ATSC T & SC
4. Engineering (including on-call)	~~7.5~~ 10 per cent of 75 per cent of ATCE4

C. Bought-in Services

Additional support and maintenance agreements with third parties are in-place to provide third line support of the SADIS 1G and 2G services.

— END —

Ref.: SWG 5/1.4.1   6 June 2008

To: Chairman, SCRAG

From: Chairman, SADISOPSG

Subject: **Follow-up of SADISOPSG/13 Conclusions 13/17 b), 13/19 b) and 13/25 b)**

I wish to inform you that the SADISOPSG/13 Meeting instructed me to advise you of the following costs arising from the development of SADIS:

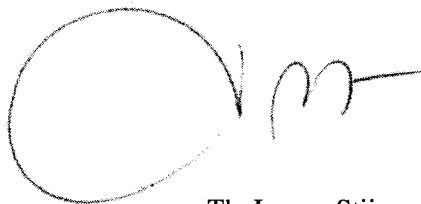a) **Conclusion 13/17 b) — Trial of compressed GRIB 2 WAFS data on SADIS 2G**

That, a trial of compressed GRIB 2-coded WAFS forecasts on SADIS 2G should be undertaken at the estimated cost of £30 000.

b) **Conclusion 13/19 b) — SADIS FTP enhancements**

That, the SADIS FTP enhancements should be implemented in two phases; Phase 1 would be of little impact to SADIS users and would consist of the completion of the implementation of a SADIS FTP Enhanced service by 31 January 2009 at the estimated cost of less than £5 000.

c) **Conclusion 13/25 b) — Estimated decommissioning costs of SADIS 1G hub equipment**

That, the decommissioning of SADIS 1G hub equipment at Exeter and Whitehill should be undertaken at the estimated cost of £4 510.

Th. L. van Stijn

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