SADIS COST RECOVERY ADMINISTRATIVE GROUP (SCRAG)

EIGHTH MEETING

(Paris, 13 and 14 November 2007)

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/12 MEETING

(Presented by the Chairman of the SADIS Operations Group)

1. Introduction

1.1 This paper includes in **Attachments 1 to 3** the Executive Summary of the twelfth meeting of the SADIS Operations Group (SADISOPSG/12, Bangkok, 4-6 June 2007), as well as two specific Reports from the Chairman of the SADISOPSG Group on SADIS operational efficacy and inventory.

2. Action by the Group

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

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TWELFTH MEETING

SADIS OPERATIONS GROUP
(Bangkok, Thailand, 4 to 6 June 2007)

EXECUTIVE SUMMARY[1]

1. INTRODUCTION

1.1 The twelfth meeting of the SADIS Operations Group (SADISOPSG/12) was held in the Asia/Pacific (ASIA/PAC) Regional Office, Bangkok, 4 to 6 June 2007. The meeting was attended by twenty-one experts from seven States, the representative of the focal point of the EUR OPMET Bulletin Management Group (BMG) and two international organizations (the International Air Transport Association (IATA) and the World Meteorological Organization (WMO)).

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

2. FOLLOW-UP OF SADISOPSG/11 CONCLUSIONS

2.1 With regard to the follow-up of the SADISOPSG/11 conclusions, the group noted that action had been completed on all the issues except for Conclusions 11/12, 11/13 b), 11/18, 11/19 b), 11/21 and 11/24 c). These conclusions have either been reinstated, expected to be completed by August 2007 or not pursued due to the reasons stated in the report (Decision 12/1).

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 2007 (Conclusion 12/2).

3.2 The group reviewed the operation of SADIS during 2006/2007 based on the annual management report from the SADIS Provider State and on responses from forty-two 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 12/3). 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 12/4).

3.3 The group reviewed the SADIS inventory for 2006/2007. 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 changes in the proportions of resource usage. The updated inventory would be forwarded to the Chairman of SCRAG (Conclusion 12/5).

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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 data

4.1.1 The group considered the content of Annex 1 to the *SADIS User Guide* (SUG) which lists the requirements of OPMET data to be broadcast on the SADIS. The group was pleased to note that the currency of information related to the aerodrome forecast (in meteorological code form) (TAF) in Annex 1 was expected to improve in the future with the introduction of the global database encompassing information pertaining to all FASID Tables MET 1A. Regarding the recurrent requests for the inclusion of additional MET data in the SADIS broadcasts or SADIS FTP Service, the group agreed that, in principle, no additional data to that listed in Annexes 1 and 4 would be included therein (Decision 12/6). To improve the availability of OPMET data, the Secretariat was requested to invite States to fully implement the dissemination of OPMET data from all the aerodromes included in the aerodrome operational planning (AOP) tables to the SADIS gateway, in accordance with the SADIS *User Guide*, Annex 1 (Conclusion 12/7).

4.1.2 The group endorsed the draft amendment to Annex 1 to the SUG proposed by users with the understanding that a) the requirements for TAF would have to be in accordance with FASID Tables MET 1A and that b) all the requirements for 9-hour TAF for VOLMET be eliminated (Conclusion 12/8).

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 changes to the description of SWH and SWM bulletins in the BUFR code form (Decision 12/9). With regard to the issuance of overlapping BUFR bulletins with WAFC London and WAFC Washington headers, respectively, the group concluded that the dissemination of these bulletins on the SADIS should continue since the elimination of one header would lead to the need to upgrade the software of all end-user systems (Decision 12/10).

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 pleased to note that the verification of the insertion of a flight information region (FIR) indicator before the FIR name in SIGMET had been integrated into the SIGMET analysis tool. However, in view of the poor level of implementation, the SADIS Provider State had not been in a position to implement this tool; therefore, the group agreed that the Secretariat should remind States of the importance of implementing the correct SIGMET format (Conclusion 12/11). With regard to the identification of missing sequence numbers in SIGMET, the group decided that a dummy number “9” be used (Decision 12/12). The group noted that the *SADIS Gateway Operations Handbook*, had been updated to render it compatible with Annex 3 and requested the Secretariat to include the updated version on the SADISOPSG website (Conclusion 12/13).

5.1.2 Concerning the harmonization of the OPMET content between the SADIS and the international satellite communications system (ISCS) broadcasts, the group noted that the SADISOPSG Gateway Development Team had undertaken a feasibility study and requested the SADISOPSG Gateway Development Team to prepare a report on the work being carried out in time for the next meeting (Conclusion 12/14).

5.1.3 In view of the work to be undertaken by the new WMO Expert Team (ET) on the use of extensible mark-up language (XML) for aeronautical meteorological messages, the group agreed that the work of the SADISOPSG Gateway Development Team on the impact of the introduction of the BUFR code form on SADIS should be suspended until the results of this ET were known (Decision 12/15).

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 12/16).

5.3 Report of the SADISOPSG Technical Development Team

5.3.1 The group noted that the SADIS 2G could now be considered well established, fully operational and compliant with the operational user requirements. With regard to the activities related to the expected improvements to SADIS FTP Service, the group noted that work in this area would be undertaken during 2007/2008 and that a report would be presented at the next meeting of the group.

5.4 Report of the SADISOPSG Workstation Software Team

5.4.1 The group noted that the Fifty-eighth Session of the WMO Executive Council (June 2006) had requested the WMO Secretary General to establish a trust fund to ensure that the least developed countries had access to WAFS products. In view of the work being undertaken by WMO in this area, the group concurred that there was no need for the SADISOPSG Workstation Software Team to continue its activities (Decision 12/17).

5.5 Alternative SADIS 2G hardware

5.5.1 The group reviewed the developments related to new hardware that could be used as an alternative to the standard SADIS 2G hardware. Concerning this alternative SADIS 2G hardware, the SADIS Provider State was requested to clarify the certification standards, complete the final evaluations of its operational capability and assess the desirability of recommending that this hardware be brought into the commercial workplace (Conclusion 12/18).

5.6 SADIS Internet-based FTP Service

5.6.1 The group was pleased to note that the implementation of the Public Key Infrastructure (PKI) had begun, that the initial installation of the Network Intrusion Prevention System (NIPS) had been completed and that the Host Intrusion Prevention System (HIPS) and Dual Server Operation would be implemented by 2008 and 2009, respectively. The SADISOPSG Technical Developments Team was requested to review updated material prepared by the SADIS Provider State in between SADISOPSG meetings and to include its findings in the annual report to the SADISOPSG (Conclusion 12/19).

5.7 Changes to the back-up configuration

5.7.1 With regard to the back-up configuration, the group was pleased to note that the SADIS Provider State would implement a connection to ISCS/2 in August 2007. The group requested that the SADIS Provider State, upon completion of the installation and testing of the backup 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/13 Meeting (Conclusion 12/20).

5.8 Long-term planning of SADIS

5.8.1 The group endorsed the five-year long-term plan developed by the SADIS Provider State (Decision 12/21) and requested that the SADIS Provider State include an estimate of the scope (i.e. major *versus* minor) and nature (i.e. hardware and/or software impacted) of the future changes on SADIS users as part of the long-term plan, in time for the SADISOPSG/13 Meeting (Conclusion 12/22).

6. SADIS USER GUIDE (SUG)

6.1 The group noted that amendments to the SUG would be necessary to take into account the phasing out of the SADIS 1G broadcast, Amendment 74 to Annex 3 and the use of PNG chart form instead of T4 charts for volcanic ash advisories in graphical format. The group requested that the SADIS Provider State, in coordination with the Secretariat, prepare the draft amendment for review by the SADISOPSG/13 Meeting (Conclusion 12/23).

7. FUTURE WORK PROGRAMME

7.1 The group reviewed and updated its work programme and executive summaries for the tasks in the work programme (Decision 12/24).

8. ANY OTHER BUSINESS

8.1 Data losses occurring with the SADIS 2 G

8.1.1 The group took note of the data losses at recently installed SADIS 2G VSAT stations in the EUR Region and considered that such problems could be detrimental to the success of the SADIS 2G programme. It requested that the SADIS Provider State should address this issue as a matter of urgency and report back to the SADISOPSG/13 Meeting (Conclusion 12/25).

— END —

Ref.: SWG 5/1.4.1 17 July 2007

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 12/4, instructed me to advise you that the operational efficacy of the SADIS had continued to be satisfactory, meeting all operational requirements since the SADISOPSG/11 Meeting (23 to 25 May 2006).

Th. L. van Stijn

Ref.: SWG 5/1.4.1

17 July 2007

To: Chairman, SCRAG

From: Chairman, SADISOPSG

Subject: **SADIS inventory 2006/2007**

I wish to inform you that the SADISOPSG, in Conclusion 12/5, instructed me to forward to you the attached updated SADIS inventory.

Th. L. van Stijn

Enclosure:
Updated SADIS inventory

SADIS INVENTORY

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. ~~(Note: it is expected that this single link will be upgraded to dual contingent links within the next 12 months.)~~

iii) Not procured principally for SADIS

a) Message switch (FROST): Total investment, £1.2M[1] of which ~~3.15~~ 2.47 per cent is attributable to SADIS usage: switching data to operational (1G) broadcast service and to 1G monitoring system — Corobor Comparitor.

~~*Note. — The percentage attributable to the SADIS 1G service has increased as a result of increased costs incurred to support the legacy X25 protocol.*~~

b) Message switch (FROST): Total investment, £1.2M[1] of which ~~0.91~~ 0.77 per cent is attributable to SADIS FTP service usage: switching data to operational FTP service;

c) Message switch (FROST): Total investment, £1.2M[1] of which ~~1.82~~ 0.8 per cent is attributable to SADIS usage: switching data to operational (2G) broadcast service and to 2G monitoring system (Corobor Comparitor);

Note:— The percentages attributable to the SADIS 1G, SADIS FTP and SADIS 2G services have fallen as a result of increased FROST traffic to other users, particularly traffic to web-based services.

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).

[1] budgeted cost for providing FROST service during the fiscal year 20067/20078.

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

B. ISCS data back-up system

ISCS VSAT system, including TCP/IP receiver, and cables.

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

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) *Note. — Communication links in support of SADIS 1G service are included in section 1.1 of Inventory.*	1
3.	**Whitehill earth station (SADIS 1G uplink equipment)**	
3.1	Telecoms controller Megapac V rack assembly	2
3.2	Station interface unit (SIU)	2
3.3	8360 Modulator	2
3.4	8471 Receive Demodulators	12
3.5	8550 Modem Switch	1
3.6	140 - L band upconverter	2
3.7	X Term NMS simulator	1
3.8	Equipment Rack Assembly (Chain 1)	1
3.9	Equipment Rack Assembly (Chain 2)	1
3.10	Communications rack floor space for two communications 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)	~~4~~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~~	~~Comtech EF Data CR100 redundancy switch~~	~~1~~
9.~~9~~8	XIO Modules	~~8~~12**
9.~~10~~9	SIO Modules	~~2~~3*
9.~~11~~10	8Mb RAM Modules	~~2~~3*
9.~~12~~11	Communications rack floor space at Exeter in IT hall 1 and IT hall 2, and at Whitehill	3
9.~~13~~12	Space in stores at Exeter to locate spare hardware	1
9.~~14~~13	VadEGDE 4202 – 1U	~~2~~*
9.~~15~~14	WAN module	2
9.1615	Comtech EF Data SMS 301 – redundancy switch	~~1~~2*
9.~~17~~16	~~Misc.~~ Interface cablesing	~~5~~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: 1.2MHz wide frequency band dedicated to SADIS 1G and 2G with minimum data rates at 38.4 Kbps for both services;

B. Annual maintenance of Met Office and Whitehill site equipment (SADIS 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) ~~Help~~Service Desk

Note.— The ~~Help~~ 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. ~~Help~~ Service Desk (first point of contact)	Scientific supervisor

Note.— Outside normal working hours, the ~~helpdesk~~ 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)	Computer engineer
3. Networks and systems supervisor (NSS)	Technical supervisor
4. Nowcasting and Service Continuity Manager (NSCM)	Scientist

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

Note.— The total support for SADIS is considered as 1 per cent of the total support provided by the ~~help desk~~ 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) ~~help desk~~ 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 officer
3. International aviation management	15 per cent of manager
4. Data traffic	5 per cent communications engineer
5. Contract Procurement and Management~~, and invoicing~~	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 (Civil aviation communications centre) (OPMET Gateway function)

Note.— The CACC provides the OPMET Gateway function, which is provided from ~~one~~ 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), ~~and~~ 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~~C T & SC~~
4. Engineering (~~one~~ including on-call)	~~75~~ 7.5 per cent of ATCE4 ~~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 —