

ASDAR STATUS REPORT

(Submitted by WMO)

Summary and purpose of document

The purpose of this document is to inform CGMS Members of the current status of the ASDAR Programme

ACTION PROPOSED

CGMS Members are invited to note the report.

1. Introduction

Although the operational Aircraft to Satellite Data Relay (ASDAR) programme continues to decline, a small number of aircraft still provide valuable data in data sparse areas. Two more aircraft were decommissioned in the past 12 months but another aircraft that was due for decommissioning is still reporting routinely. Two installed units have not reported during the past year although they may become operational again in the future and one other unit has reported for a short period only. Of the eight installed units, only five have reported during the past 6 months. Substantial changes to ASDAR maintenance and technical support have been implemented and the responsibility for data quality monitoring has moved from the UK to the Netherlands. Data quality on one aircraft shows large biases in temperature data and large scatter in wind observations.

2. Coverage

ASDAR aircraft are still reporting over Africa, the central and southern (as well as the northern) Atlantic Ocean, the western, northern and southern Indian Ocean, Asia and Eastern Europe. Much of this area is either infrequently covered by in-situ upper air observations or not at all, but the volume of data has declined from around 710 observations per day in June 2002 to 370 in July 2003. Likewise, the average number of active aircraft reporting daily has declined from 4.5 in September 2002 to 3 in July 2003. This trend is likely to continue but the good news is that at least two of the ASDAR airlines are actively working to replace older ASDAR equipped aircraft with much larger fleets of AMDAR equipped aircraft. It is expected that coverage of the data sparse areas will be improved significantly over the next two years as more AMDAR aircraft become operational.

3. Aircraft Status

As has been mentioned in previous reports to CGMS, the ASDAR programme peaked early in 1998 with 21 operational systems. However, the decline since then has occurred in two stepped stages in 1998-1999 and 2000 followed by a more gradual change during the past 3 years. All airlines that have decommissioned ASDAR units (BA, KLM, SAA and Lufthansa) have replaced them with fleets of AMDAR aircraft so data coverage has been improved significantly. Two ASDAR units were decommissioned during the past 12 months leaving only 8 installed units.

The attached table summarises the operational status of all remaining ASDAR units and includes information on the associated IDCS ID, address and reporting time slot. It is not entirely clear whether further units will be decommissioned during the next 12 months but there is a possibility that one will be. Therefore, 8 channels will be required for the next 12 months.

Although South Africa announced early in 2002 that two units would be decommissioned by November of that year, one is still operating normally. Unfortunately, the unit operated by Germany failed in April 2003. For a variety of reasons, the two units operated by Saudi Arabia have not reported since 2001 except for a two-month period early in 2003 when one unit was made operational. However it has not reported since March. Saudi Arabia is developing an AMDAR program with the potential for 23 equipped aircraft. One unit operated by Argentina has not reported since 2001 because the aircraft has been mothballed indefinitely due to the downturn in the aviation industry, but a second unit now reports routinely following a long period when the aircraft was taken out of service. Data from this unit has a high temperature bias and scatter that also impacts on wind data quality producing large scatter in the observations. Data from this aircraft are rejected by most NWP assimilation systems so consideration is being given to decommission the unit. Argentina is also developing plans for an AMDAR programme. The unit operated by KLM continues to provide high quality data. Air Mauritius operates two units both of which produce good operational data. One unit reports routinely and a second reports occasionally.

4. Technical Support

Substantial changes have been made to the ASDAR maintenance system as a result of the small number of operational aircraft. The engineering and technical maintenance support contract with ASTRIUM was terminated at the end of 2002 thus ending a long association with the company and its predecessors. This was replaced by a store and forward contract with KLM that holds all available operational spare components and issues them as required to participating airlines. It is no longer possible to provide technical advice to airlines or to repair any units.

The ASDAR Centre maintained by the UK Met Office ceased operation on 31 March 2003 ending a long period of substantial direct involvement with ASDAR. While engineering assistance was terminated in 2001, the centre maintained a very helpful data quality monitoring programme and an alert and reporting programme. Responsibility for quality monitoring has been kindly taken up by KNMI through the development of a helpful automated information system that runs in parallel to the main E-AMDAR quality evaluation programme. Monitoring of aircraft transmission times by the Met Office also has ceased but this has been taken up by EUMETSAT.

5. Data Quality

As previously mentioned, one ASDAR unit is producing temperature data with a large bias (+2.9 deg. C and large scatter) that also reflects in the calculation of wind data causing corresponding biases and scatter. It is noted that all global data monitoring centres reject these data from the NWP assimilation process so it is likely that the unit will be decommissioned in the near future. Two other units are indicating high temperature biases (2.2 and 1.9 deg. C.) and occasionally produce data with much larger biases. These units are being monitored closely for any further deterioration in data quality. Three other aircraft are producing high quality data, but as noted earlier, the daily average number of observations has dropped to around 370. With the termination of technical support, it is no longer possible to repair these units.

6. The Future

Of the 8 units installed, only 5 have reported in the past 6 months. One unit is producing data of unacceptable quality and another is producing borderline quality data leaving only 3 units producing good quality data. Noting the significantly reduced maintenance support for ASDAR and changes to the data monitoring and reporting programme, the ASDAR Sub-Group of the AMDAR Panel will consider the future of the programme at the annual meeting of the AMDAR Panel in October 2003. The CGMS will be advised if there are any substantial changes to the programme.

STATUS OF ASDAR UNITS AS AT AUGUST 2003

Inst. No.	Tail No.	IDCS Ident	IDCS address	Time Slot	GTS Address	First Operat'nl	End Owner	Operator	Airline	Aircraft Type	Remarks
	G-MULL		A020142A	02-03	BA001LLZ	29 Nov. 1990	UK	UK	BA	DC10 - 30	Decommissioned 23 Oct.1998
	G-BEBM		A02071CC	18-19	BA009BMZ	11 Feb. 1992	UK	UK	BA	DC10 - 30	Decommissioned 28 Mar.1999
	G-BHDJ		A02062BA	16-17	BA008DJZ	19 Dec. 1991	Switzerland	UK	BA	DC10 - 30	Decommissioned 28 Mar.1999
24	G-BBPU		A0208148	20-21	BA010PUZ	15 June 1991	UK	UK	BA	B747-136	Decommissioned 4 Sept. 1999
30	G-AWNE		A020075C	00-01	BA000NEZ	12 June 1992	Australia	UK	BA	B747-136	Decommissioned 14 Aug.1999
33	G-BNLF		A02116D0	50-51	BA025LFZ	11 Mar. 1994	UK	UK	BA	B747-436	Decommissioned 21 Apr. 2000
34	G-BNLG		A021234A	52-53	BA026LGZ	10 Mar. 1994	UK	UK	BA	B747-436	Decommissioned 15 May 2000
35	G-BNLJ		A021303C	54-55	BA027LJZ	24 Mar. 1994	UK	UK	BA	B747-436	Decommissioned 29 Apr. 2000
36	G-BNLL		A02146AC	56-57	BA028LLZ	10 Apr. 1994	Switzerland	UK	BA	B747-436	Decommissioned 24 May 2000
37	G-BNLY		A02155DA	58-59	BA029LYZ	7 July 1994	Switzerland	UK	BA	B747-436	Decommissioned 7 June 2000
27	HZ-AIM	ASDAR/SV003	A02021BO	06-07	SV003IMZ	12 Oct. 1995	Saudi Arabia	Saudi Arabia	Saudia	B747-368	Not Operational
45	HZ-AIK	ASDAR/SV023	A02105A6	46-47	SV023IKZ	18 Mar. 1999	OCAP	Saudi Arabia	Saudia	B747-368	Operational – large temp. bias
31	D-ABVN		A02032C6	10-11	LH005VNZ	23 Jun. 1993	Germany	Germany	Lufthansa	B747-430	Decommissioned 4 April 2003
32	PH-BUM	ASDAR/KL012	A020923E	24-25	KL012UMZ	23 Apr. 1992	Netherlands	Netherlands	KLM	B747-206B	Operational - good quality obs.
40	PH-BUP		A0223732	26-27	KL013UPZ	19 Dec. 1994	USA	Netherlands	KLM	B747-206B	Decommissioned 5 April 2001
41	PH-BUR		A02241A2	28-29	KL014URZ	2 Mar. 1995	OCAP	Netherlands	KLM	B747-206B	Decommissioned 23 Nov 2001
38	ZS-SAT		A020D134	32-33	SA016ATZ	23 Oct. 1995	UK	UK	S. African	B747-344	Decommissioned 8 June 2002
39	ZS-SAU	ASDAR/SA015	A020C242	30-31	SA015AUZ	14 Dec. 1995	Netherlands	Netherlands	S. African	B747-344	Operational – high temp. bias
42	3B-NAK	ASDAR/MK021	A020E4AE	42-43	MK021AKZ	16 Jul. 1996	Mauritius	UK	Air Mauritius	B767-200ER	Operational – good quality obs.
43	3B-NAL	ASDAR/MK022	A020F7D8	44-45	MK022ALZ	17 Jul. 1996	Mauritius	UK	Air Mauritius	B767-200ER	Operational – good quality obs.
44	LV-MLO	ASDAR/AR006	A0204456	12-13	AR006LOZ	19 Dec. 1997	Spain	Spain	Aerolineas	B747-287B	Not Operational – on hold
46	LV-OEP	ASDAR/AR007	A0205720	14-15	AR007EPZ	27 Mar. 1999	UK	UK	Aerolineas	B747	Operational – large temp. bias