

STATUS OF GLOBAL VOS AUTOMATION AS AT DECEMBER 2008

(Report submitted by Julie Fletcher, VOSP Chairperson)

1. Background

1.1 The VOSP-III meeting in London in 2003, noted the importance of enhancing the automation of all aspects of shipboard procedures, from observation to message transmission, using readily available software and hardware. The VOS Panel Chair was assigned the task of collating information on global VOS automation for presentation at subsequent VOS Panel sessions.

1.2 The first VOS Automation report was compiled in 2003 based on data as at 31 December 2002. The report has been updated annually since 2004, with details of national VOS automation being extracted from national SOT Annual Reports. This report is based on input from national SOT Annual Reports for 2008.

2. Present Status

2.1 Information on the status of automation by country is presented in two categories:

- Status of VOS Automated Observing Systems (AWS) - Table 1
- Status of VOS using (non-AWS) Electronic Logbook Software - Table 2

2.2 The number and type of fully automated shipboard weather observing systems is increasing, with 270 systems operational at the end of 2008. Seven countries indicated plans to expand their ship AWS networks in 2009.

2.3 Since 2003, most of the sixteen countries using Electronic Logbook Software, reported an increase in the numbers of VOS using the software. The total number of global VOS using electronic logbooks dipped in 2007 when Denmark withdrew from VOS, and the USA changed their reporting methodology to count only the ships which use SEAS for VOS. Prior to 2007, the USA numbers had included the ships which used SEAS for XBT. At the end of 2008, almost 1800 ships were using Electronic Logbook Software.

3. Challenges

3.1 Challenges with respect to installing automated systems on board VOS ships continue to include:

- (i) Funding restraints
- (ii) Problems in finding 'long term' ships – the length of charter is often insufficient to justify AWS installation
- (iii) Difficulties in siting equipment for best exposure
- (iv) Volatility of ship routes
- (v) Lack of warning of withdrawal of ships and potential loss of AWS equipment

4. Ship AWS data on GTS

4.1 There are now many types of VOS AWS installations in operation. These vary from basic AWS e.g. a SVPB buoy transmitting from the deck of a ship; to complex systems with many sensors, which log data and transmit it in real time. Some AWS transmit at intervals of one minute, some hourly and some three hourly, and the communications method varies from coastal cellular communications to satellite communications. Many AWS are proprietary systems which report raw data back to the NMS for processing and insertion on to the GTS for global consumption. In the past, NMS set up routines to generate GTS bulletins containing ship observations at three hourly intervals, because these captured reports made at the main and intermediate synoptic times. Today, many AWS are reporting hourly and because the global models can ingest hourly data, it is important to make arrangements to insert the hourly AWS data onto

GTS in 'non-synoptic' hour bulletins. E.g. NZKL SNVE01

5. Recommendation

- That NMS operating VOS AWS arranges to ensure that all observations, including hourly observations are inserted onto the GTS for global dissemination.

Appendices: A. Table 1: Status of VOS Automated Observing Systems (AWS)
B. Table 2: Status of VOS using (non-AWS) Electronic Logbook Software

APPENDIX A

TABLE 1: STATUS OF VOS AUTOMATED OBSERVING SYSTEMS (AWS)

Country	Type of AWS (at 31/12/2008)	Method of Comms	Manual Entry Facility	Number of Ship equipped with AWS as at 31 December						Plans
				2002	2004	2005	2006	2007	2008	
Australia	Vaisala Milos 500	Inmarsat C (Data Mode)	Yes	9	11	10	8	9	9	3 new AWS
Canada	AVOS – AXYS Technologies	Inmarsat C Iridium	Yes	13	14	14	39	41 1	45 1	8 AVOS, 4 with Iridium
Denmark	BATOS	Inmarsat C (Data Mode)	Yes	-	-	-	2	See EUMETNET		
EUMETNET	BATOS	Inmarsat C (Data Mode)	Yes					5	5	3 BATOS
	BAROS	Iridium SBD	No					0	4	10 BAROS
France	BATOS	Inmarsat C (Data Mode)	Yes	19	30	39	45	48	54	7 BATOS
	Mini BATOS	Inmarsat C (Data Mode)	No		1	2	3	3	1	
	MINOS	Argos	No		6	7	8	8	7	
	BAROS	Iridium	No					1	-	
Germany	Vaisala Milos 500	Meteosat	No	23	21	21	17	18	17	
Ireland	Vaisala Milos	Meteosat	No	1	1	1	1 **	1**	1	
Japan	Koshin Denki Kogyo Co., Ltd (Japan) Ogasawara Keiki Seisakusho Co (Japan) Nippon Electric Instrument Inc.	Inmarsat	Some	13	12	13	9	9	9	
		Inmarsat	No				3	1	1	
		Inmarsat C	Some				4	5	5	
		Inmarsat C	Yes				1	1	1	
		Inmarsat F	No					1	1	

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	(Japan) Brookhaven National Laboratory (USA) JRCS MFG. Co. Ltd (Japan)									
New Zealand	Sutron 9000RTU mSTAR-SHIP	MTSAT GPRS Cell	Yes No	1	1	1	1	1 1	1 1	1 mSTAR-SHIP
Norway	AWS	-	Some	-	-	17	17	18	16	
Russia	GM6	Inmarsat C	Yes	-	38	38 *	38 *	38*	38*	
South Africa	Vaisala Milos 520	Inmarsat C	Yes	-	-	1	1 **	1	1	2 planned
Spain	Vaisala Milos	Inmarsat C	Yes	1	1	1 *	1	1	1	
United Kingdom	Automet	Inmarsat	No	1	1	1	1	1	0	Redeploy in 09 3 MINOS-GP 1 MINOS-GPW 1 BATOS 1 MILOS/MAWS 1 Metpod 2 Buoys on deck
	MINOS –GP	Argos	No	-	-	1	2	6	5	
	MINOS-GPW	Argos	No	-	-	1	2		1	
	BATOS	Inmarsat C (Data Mode)	Yes	-	-	-	1	3	3	
	AVOS	Inmarsat	Yes					1	1	
	MILOS/MAWS	Iridium	Yes						-	
	Metpod	Iridium	No						1	
MetOcean Deck Buoy	Iridium	No						2		
United States	SEAS-Autolmet	SEAS	Some	-	3	3 *	0	3	41	
TOTALS				81	140	171	204	226	270	48 AWS planned for 09

* Data from 31/12/2004

** Data from 31/12/2005

APPENDIX B

TABLE 2: STATUS OF VOS USING (NON-AWS) ELECTRONIC LOGBOOK SOFTWARE

Country	E-Logbook type	Number of Ships as at 31 December					
		2002	2004	2005	2006	2007	2008
Australia	TurboWin	33	41	50	51	64	61
Croatia	TurboWin	3	4	3	7	7**	7**
Denmark	TurboWin	-	-	-	32	0	Finished
France	TurboWin	-	7	6	7	10	4
Germany	TurboWin	315	412	556	600	709	730
Greece	TurboWin	2	0	0	0	1	3
Hong Kong	TurboWin	-	-	1	2	2	2
India	TurboWin	-	21	28	33	33**	33**
Japan	OBSJMA1.01	-	49	61	70	74	95
Netherlands	TurboWin	200	259	198	195	193	195
New Zealand	TurboWin	0	12	15	22	20	19
Singapore	TurboWin	-	-	2	3	1	1
South Africa	TurboWin	5	5	8	8*	8	14
Sweden	TurboWin	-	-	-	-	-	1
United Kingdom	TurboWin	82	104	147	241	261	286
United States	SEAS	353	439	447	622	129	344
TOTALS		993	1353	1522	1893	1512	1795

* Data from 31/12/2005 ** Data from 31/12/2006