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SHIP OBSERVATIONS TEAM

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**VOSP-V
PROGRAMME IMPLEMENTATION**

VOS Automation and Electronic Logbook Software

(Submitted by Ms Julie Fletcher, Chairperson of the JCOMM VOS Panel and Mr Frits Koek, Royal Netherlands Meteorological Institute (KNMI))

Summary and purpose of document

This document provides up to date information regarding the status of global VOS automation, as well as on recent developments regarding electronic logbook software (e.g., TurboWin, SEAS and ObsJMA).

ACTION PROPOSED

The VOS Panel is invited to:

- (a) Note and comment on the information provided, as appropriate;
 - (b) Comment on the report and suggest new initiatives for enhancing VOS automation;
 - (c) Comment on any problems or challenges regarding the move to using automated systems;
 - (d) Review and correct any data in this document;
 - (e) Provide the VOSP Chairperson with details of any automated VOS systems not included in this report;
 - (f) Discuss on any existing problems or changes sought by electronic logbook operators.
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DISCUSSION

1. Status of Global VOS Automation to December 2006

(Information provided by Ms Julie Fletcher)

1.1 Background

The VOSP-II (London, United Kingdom 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 Chairperson, Ms Julie Fletcher, was tasked with collating information on the global VOS automation for presentation at subsequent VOS Panel sessions.

The first VOS Automation report was compiled in 2003, based on data as of 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 2006.

1.2. Present Status

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

1. Status of the VOS Automated Observing Systems - Table 1
2. Status of the VOS using Electronic Logbook Software - Table 2

Since 2003, there has been a steady increase in the numbers of VOS using electronic logbook software (e.g., TurboWin). The number of fully-automated shipboard weather observing systems is increasing slowly, and Australia, Canada, Denmark, France, New Zealand, Norway and United Kingdom have all indicated plans to expand their ship AWS networks in 2007.

1.3. Challenges

Challenges with respect to installing automated systems on board VOS ships continue to include the following issues:

- Problems in finding 'long term' ships – the length of charter is often insufficient to justify AWS installation;
- Difficulties in siting equipment for best exposure;
- Volatility of ship routes;
- Lack of warning of withdrawal of ships and potential loss of AWS equipment.

Table 1: Status of VOS Automated Observing Systems

Country	Type of AWS (as at 31/12/2006)	Method of Comms	Manual Entry Facility	Number of Ships with AWS at 31/12/2002	Number of Ships with AWS at 31/12/2004	Number of Ships with AWS at 31/12/2005	Number of Ships with AWS at 31/12/2006	Plans for 2007
Australia	Vaisala Milos 500 AWS	Inmarsat C	Yes	9	11	10	8	4 new AWS
Canada	AVOS – AXYS Technologies	Inmarsat C	Yes	13	14	14	39	12 AVOS with VOSclim
Denmark	BATOS	Inmarsat	Yes	-	-	-	2	2 BATOS
France	BATOS	Inmarsat C	Yes	19	30	39	45	8 BATOS
	Mini BATOS	Inmarsat C	No		1	2	3	
	MINOS	Argos	No		6	7	8	
Germany	Vaisala Milos 500 AWS	Meteosat	No	23	21	21	17	Replacements only
Ireland	Vaisala Milos AWS	Meteosat	No	1	1	1	1 **	
Japan	Koshin Denki Kogyo Co., Ltd (9) Ogasawara Keiki Seisakusho Co. Ltd (3) Nippon Electric Instrument Inc. (4) Brookhaven National Laboratory (1)	Inmarsat Inmarsat Inmarsat C Inmarsat C	Some No Some Yes	13	12	13	17	
New Zealand	AWS based on Sutron 9000RTU	MTSAT	Yes	1	1	1	1	2 coastal ship AWS
Norway	AWS	-	some	-	-	17	17	1 new Research ship
Russian Federation	GM6	Inmarsat C	Yes	-	38	38 *	38 *	
South Africa	Vaisala Milos 520	Inmarsat C	Yes	-	-	1	1 **	
Spain	Vaisala Milos	Inmarsat C	Yes	1	1	1 *	1	
United Kingdom	Automet MINOS –GP BATOS AVOS	Inmarsat Argos Inmarsat Inmarsat	No No Yes Yes	1 - - -	1 - - -	1 1 1 -	1 2 2 1	9 MINOS (2 with GPW) & 1 MILOS to be evaluated. 2 more BATOS planned, 1 AVOS installed but not operational.
United States	SEAS-Autolmet	Inmarsat C	Yes	-	3	3 *	0	
TOTALS				81	140	171	204	42 AWS for 2007

* Data from 31/12/2004

** Data from 31/12/2005

Table 2: Status of VOS using Electronic Logbook Software

Country	Electronic Logbook type	Number of Ships at 31/12/2002	Number of Ships at 31/12/2004	Number of Ships at 31/12/2005	Number of Ships at 31/12/2006
Australia	TurboWin	33	41	50	51
Canada	1.23.14 Bridge PC 1.15 AVOS	8	14	14	39
Croatia	TurboWin	3	4	3	7
Denmark	TurboWin	-	-	-	32
France	BATOS TurboWin	- -	30 7	39 6	45 7
Germany	TurboWin	315	412	556	600
Greece	TurboWin	2	0	0	0
Hong Kong	TurboWin	-	-	1	2
India	TurboWin	-	21	28	33
Japan	OBSJMA1.01	-	49	61	70
Netherlands	TurboWin	200	259	198	195
New Zealand	TurboWin	0	12	15	22
Singapore	TurboWin	-	-	2	2*
South Africa	TurboWin	5	5	8	8*
United Kingdom	TurboWin	82	104	147	241
United States	SEAS	353	439	447	622
TOTALS		1001	1397	1575	1976

* Data from 31/12/2005

2. VOS e-LogBook software (TurboWin, SEAS, OBSJMA) development

(Information provided by Mr Frits Koek)

2.1 Background information

Members operating under the VOS have been encouraged to use electronic logbook software such as TurboWin, OBSJMA or SEAS (in the following text referred to as e-Logbooks). During recent years, development of these types of software has come under great pressure with respect to the demands of the JCOMM (i.e., codes, TDCF), PMO's (integration and usability), managements (financially), observers (simplicity, user-friendliness), changing computer environments (e.g., Windows Vista) and changing communication techniques.

The development from one version to the next release of these e-Logbooks takes time. The implementation of a new release, replacing the previous one onto the VOS-fleet (for those ships that use e-Logbooks) also takes a considerable amount of time. Although request for changes and/or amendments to e-Logbooks come from different directions, it is essential to coordinate these and try to approach a common release strategy.

Presently the following releases are available:

- OBSJMA for Win (2004);
- AMVER/SEAS 5.22 (January 2006);
- TurboWin 4.0 (January 2007).

2.2 Developments

Important issues for the e-Logbooks that will become necessary to consider in the near future are as follows:

- Reduction of the transmission costs;
- Migration to BUFR;
- Encoding the ship's call sign into a VOS ID;
- Meta data collection.

It is essential that amendments on codes and formats be carefully coordinated and accommodated in timely fashion in the e-Logbooks.

2.3 Training and education

As always, the documentation and manuals of software lacks behind the software products. This is not different for the e-Logbooks. Although some e-Logbook websites offer information regarding the software itself, it is not often clear whether or not the offered downloadable software is the latest version. Further, not all e-Logbook websites present online user- and installation manuals and/or help in addition to the software.

In some occasions, the Port Meteorological Officer(s) offer additional information on how to install and use the software on a few sheets of paper. Some countries have made their own installation and users manuals and furnish them together with the e-Logbook software. Since most of the VOS ships will, once equipped with an e-Logbook, stick to the same type (depending mostly on the recruiting country) the officers are used to a certain approach. However, many ships download the software from a website and install it on their ship's computer and often begin to use it without additional help or directions. This may lead to unwanted results (e.g., ships being tagged as VOSclim while not being recruited as one).

Since the e-Logbook software is becoming more complex with each new release, it would be useful for both the observers and the PMO's to have a training tool that guides them through the installation procedures and provides background information on how to use said software. These kinds of tools may be offered online on the websites, but more important, they should be available offline on board either via electronic or paper formats.

2.4 Present status of the e-Logbooks

2.4.1 OBSJMA

Latest release is OBSJMA for Win (2004). A revised version of the manual was published in December 2005, and distributed amongst the user fleet until the end of 2006. In 2006, a total of forty VOS used the OBSJMA, of which twenty used a dummy call sign. The Japan Meteorological Agency (JMA) currently has no plan to modify the OBSJMA.

2.4.2 AMVER/SEAS

It is unclear what the most recent version of the AMVER/SEAS software is to date. On the NOAA-VOS website (www.vos.noaa.gov/amver_seas.shtml), release of Version 5.22 is mentioned, while on the AMVER/SEAS homepage (seas.amverseas.noaa.gov/seas/) it mentions release of Version 4.54 to be the most recent version.

Strong points of the AMVER/SEAS program are as follows:

- The combination with AMVER (Automated Manual-Assistance Vessel Reporting System);
- The option to use the program with Expendable Bathythermographs (XBT's).

2.4.3 TurboWin

In January 2007, TurboWin 4.0 was released. This latest version of TurboWin can be downloaded from the following website: www.knmi.nl/turbowin. To extend the service to the mariners, TurboWin incorporates, next to the data entry module, a variety of other modules. Add-ons like MeteoClassify give the observer the possibility to increase their knowledge in the field of cloud and sea-ice determination, as well as learning the various sea states and their accompanying wind forces. The add-on MetPub47 is used to collect meta data from the ship and to store that in the correct format. The PMO can collect this information when visiting the ship. Further, wave and climatic atlases are appended, as well as pilot charts for several oceans.

The most important new parts in this version are:

- Redesign air pressure input page(s); new method computing height of barometer above sea level, introduced by the BoM Australia;
- Option to compile observation as semi-compressed message (semi-compression module supplied by Météo-France). Availability depending on recruiting country;
- Metpub47 (ship metadata collecting program) add-on;
- Copyrights assignment phenomena observations (all recruiting countries);
- Copyright assignment meteorological observations (United Kingdom only);
- DEP (Data Execution Prevention) Windows XP aware (also on processors with DEP hardware support);
- AVRI Inmarsat-C LES advice only if in India's coastal waters; skipped Jeddah Inmarsat-C LES for obs;
- New Zealand, Australia and UK '*does the reading indicate pressure at MSL*' preset to 'no';
- Added option to print E-mail settings;
- Added option to print station data settings;
- Extra warning message before downloading log files;
- Extra pop-up message after changing call sign;
- Extra pop-up messages after changing 'special projects participant';
- More combination checks on ship maintenance data;
- IMMT-3 storage;
- AMOS MAIL new line aware;
- Option to zip and attach log files.

- Option to insert VOS ID for security reasons;
- Added support downloading log files by e-mail;
- Added log files backup (logs automatically backed up after download);
- Status bar displays the progress of the (FM 13-X) coded observation.

Due to several constraints, the promised manual on installation and use of TurboWin has not yet been published. As soon as this manual becomes available, it will be announced through the several mailing lists and will be available for download from the web.

Considering the BUFR developments, experimenting with these developments has already started. TurboWin 4.0 is in principal capable of compiling BUFR messages. Nevertheless, guidance is needed from the steering bodies to indicate the following issues:

1. Whether the BUFR is going to be assembled on board or at the local receiving NMSs before being inserted into the GTS?
2. If on board, which BUFR template should be used?
3. If on board, which NMSs are ready for receiving ship BUFR observations?
4. If not on board, which NMSs are ready to convert alphanumeric ship observations to BUFR observations?

Regarding the development of new transmission systems, the TurboWin 4.0 is capable to compile half-compressed messages, which reduces the transmission costs. The use of broadband Internet is relatively new and in use by only a few (mainly passenger) ship companies. The possibility to send observations by email was already implemented in TurboWin. A web-based online entry of an observation may be the next logical step. Although the transmission costs are still very high and (web entry) security risks are not clear, a feasibility study is currently under consideration.

With respect to ships' security, the TurboWin 4.0 has implemented an option to use the proposed VOS ID. Nevertheless, a uniform guidance has not yet been given.
