

## VOS Report for 2013

(Canada)

a. Programme description:				
Category	No. of ships at 31 Dec 2013	Recruitments in 2013	De-recruitments In 2013	Comments
<i>Selected</i>				
<i>Selected AWS</i>				
<i>VOSClim</i>				
<i>VOSClim AWS</i>	52	3	2	<ul style="list-style-type: none"> <li>• Anna Desgagnes (VCWS) recruited on 2013-07-15</li> <li>• Sarah Desgagnes (XJAB) recruited on 2013-07-15</li> <li>• Pisurayak Kootook (VC6749) recruited on 2013-07-16</li> <li>• Cabot (VCSZ) decommissioned on 2013-10-25</li> <li>• Aivik (VOPP) decommissioned on 2013-04-23</li> </ul>
<i>Supplementary</i>				
<i>Supplementary AWS</i>				
<i>Auxiliary</i>	1			Jana Desgagnes recruited on 2010-07-20
<i>Auxiliary AWS</i>				
<i>Other</i>				
<b>National VOS Total</b>	53			52 (ship count as of 2013-03-13) + 1 recruitments = 53 ships

<b>National VOS Target</b>	
<b>National VOSClim Target</b>	75 VOSClim AWS

b. Data management:	
<i>Total number of ship observations (BBXX) distributed on the GTS in 2013</i>	<p style="text-align: right;">Total: <b>318,152</b></p> <p>Number of Auto Observation: <b>316,726</b> Number of Automated Observations with included Manual Observation: <b>1427</b></p>
<i>Frequency of VOS data submitted to the GCC in 2013</i>	Data submission once a year (All 2012 (Jan- Dec) FM13 data submission)

<b>c. Shipboard Automatic Weather System</b>				
<b>Type</b>	<b>No. of ships at 31 Dec 2013</b>	<b>Manual Input Yes / No</b>	<b>Method of Comms</b>	<b>2013 Planned installations</b>
AVOS manufactured by AXYS Technologies	52	Both	IRIDIUM	We intend to install 4 to 6 new AVOS this year
	1	Manual	Turbowin (e-mail)	

<b>f. Electronic logbooks: (TurboWin, SEAS, OBSJMA)</b>		
<b>Software &amp; version</b>	<b>No. of ships at 31 Dec 2013</b>	<b>Implementation plans</b>
1.23.0016 Bridge PC 1.25	1	
1.23.0017 Bridge PC 1.25	1	
1.23.0019 Bridge PC 1.25	12	
1.23.0019 Bridge PC 1.27	7	
1.23.0019 Bridge PC 1.28	28	
1.23.0019 Bridge PC 1.30	3	
		All new installs and retrofits will be version 1.23.0019...Bridge PC Software should be updated on next inspection.

TurboWin Version 5.0	1	The MSC may recruit additional VOS Auxiliary ships who will utilize TurboWin software, with delivery of observations via email. Ships traversing Northern waters will be the focus of such recruitments, however TurboWin may also be utilized to improve format of manual observations received from offshore oil and gas platforms, and potentially staffed light stations on the west coast of Canada.
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**g. Major challenges and difficulties:**

- Resource restraints in MSC Informatics Section have delayed our program in submitting the delayed mode IMMT data to the GCCs. We have been working with the FM13-IMMT4 Convert-Software provided by GCC at Hamburg with contacting programmers, for providing the 2013 IMMT data to the GCC this year.
- MSC continues to strategize on how to increase the number and frequency of manual observations from AVOS ships. In coming years MSC plans on revitalizing their Marine Incentive Program and also provide additional training to ship crews on taking manual observations.
- Accurate SST measurements remain an issue due to mounting location of sensor and technique.
- We have faced challenges retrieving AVOS equipment from ships no longer sailing from Canadian ports due to changes in vessel ownership, or changes in trade routes/contracts.
- As early adopters of the AXYS AVOS system, we have had to work through a number of technical problems which continue to cause gaps in data record, as well as increased requirements for system resets and unscheduled maintenance.
- The MSC intends to recruit an additional 15-20 vessels over the next 3-5 years, with at least 15 of these focused on vessels that will operate in Arctic waters. It has proven to be difficult to find suitable vessels, while at the same time replacing vessels that have left the network.

**h. Research / development / testing:**

- In May 2012, MSC started to implement call sign masking scheme. Incoming FM-13 SHIP format messages from Environment Canada AVOS vessels received via Iridium short-burst-data transmission have the TRUE ITU call sign replaced with the generic SHIP call sign prior to dissemination to the Global Telecommunication System (GTS) in order to protect the security and anonymity of AVOS equipped ships. This has been applied to all ships in the Canadian AVOS fleet. Call sign masking is being implemented on an interim basis until it can be replaced with proposed ENCODE scheme which will be implemented together with BUFR message formats.
- The MSC has completed the implementation of Iridium Telemetry on the operation AVOS Network. The use of Iridium continues to be very reliable, with excellent performance in Arctic waters. Due to the significant costs savings, MSC will continue to receive data on an hourly basis from all Iridium equipped AVOS vessels.
- Iridium telemetry also offers opportunity for bi-directional communication with ships, allowing for configuration changes, sensor suppression, as well as system reset (assuming Iridium modem is functioning). The ability to contact the system remotely has proven to be a very cost effective way to ensure data continuity and avoid expensive non scheduled site visits.
- Investigation of alternate means to automatically obtain SST continues, given the challenges of the current system that relies on either engine intake or hull-contact sensors. We have also had some success with a wireless SST sensor, that is able to transmit its signal from a hull contact sensor back to the AVOS system. The wireless system may allow us to avoid running several hundred feet of cable for SST sensors, which is both difficult and expensive on many vessels.
- The MSC will validate/verify the requirement and possibly a different solution for collecting Relative Humidity measurements as the current Rotronics sensor does not operate well, and in many cases lasts less than 12-months in the field.
- The MSC is presently evaluating options to install sonic anemometers on AVOS vessels. It is hoped that the non-mechanical sensors will reduce maintenance costs and extend life of operation. Heating of the sensors may also be possible for ships operating in icing conditions.
- In 2010 the MSC started to receive observations from VOS "Auxiliary" vessels who utilize the TurboWin electronic logbook to create the FM13 message for delivery via email. Note: These VOS "Auxiliary" vessels do not utilize standardized meteorological sensors, and there is no on-going calibration or maintenance performed. We may also receive manual FM13 messages generated by TurboWin from offshore oil/gas platforms and possible coastal light stations.

**i. Other comments:**

- Data from AVOS ships with IRIDIUM communication are available on the GTS under the header "SI/SN/SM VD02 CWAO", however the call signs are masked and replaced with generic "SHIP"
- An alternative feed of FM13 ship observations with "TRUE" call sign can be delivered to National Hydrological Meteorological Agencies, and is already in place with France, the UK, and USA. If other countries would like to receive this data in real-time, please contact EC-MSC VOS focal point.
- Data from VOS auxiliary ships are available on the GTS under the header "SI/SN/SM VD03 CWAO"
- MSC will make required transition to BUFR dissemination when templates are finalized by JCOMM and SOT.