

## VOS Report for 2014

(Canada)

a. Programme description:				
Category	No. of ships at 31 Dec 2014	Recruitments in 2014	De-recruitments In 2014	Comments
<i>Selected</i>				
<i>Selected AWS</i>				
<i>VOSClim</i>				
<i>VOSClim AWS</i>	53	2	1	<ul style="list-style-type: none"> <li>• CCGS Cape Roger (VCBT) recruited Jan 28, 2014</li> <li>• Bella Desgagnes (CZJG) recruited April 10, 2014</li> <li>• The Skaubryn (3FZK3) ship was beached and will be removed from the Canadian AVOS fleet (process of being scrapped in Bangladesh...EC to write-off asset).</li> </ul>
<i>Supplementary</i>				
<i>Supplementary AWS</i>				
<i>Auxiliary</i>	1			
<i>Auxiliary AWS</i>				
<i>Other</i>				
<b>National VOS Total</b>	54			54 (ship count as of 2014-12-31) plus 1 Auxiliary

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

<b>b. Data management:</b>	
<i>Total number of ship observations (BBXX) distributed on the GTS in 2014</i>	<b>Total Observations: 354,139</b> <b>Number of Manual Observations: 1,595</b> <b>Number of Automated Observation: 352,544</b>
<i>Frequency of VOS data submitted to the GCC in 2014</i>	Data submission once a year (All 2014 (Jan- Dec) FM13 data submission)

<b>c. Shipboard Automatic Weather System</b>				
<b>Type</b>	<b>No. of ships at 31 Dec 2014</b>	<b>Manual Input Yes / No</b>	<b>Method of Comms</b>	<b>2014 Planned installations</b>
AVOS manufactured by AXYS Technologies	54	Both	IRIDIUM	We intend to install 2 to 4 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 2014</b>	<b>Implementation plans</b>
1.23.0017 Bridge PC 1.25	1	
1.23.0019 Bridge PC 1.25	14	
1.23.0019 Bridge PC 1.27	1	
1.23.0019 Bridge PC 1.28	27	
1.23.0019 Bridge PC 1.30	11	
		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.

**g. Major challenges and difficulties:**

- Resource restraints have delayed our program in submitting AVOS BUFR message format: MSC will make required transition to BUFR dissemination when resources are available for creating the AVOS BUFR messages, likely in 2015
- 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.
- 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:**

- GCC at Hamburg provided the FM13-IMMT4 Convert-Software to MSC Marine Networks. The software has been converted into an on-line tool accessed with a password. At current IMMT data is converted from FM13 data and sent from MSC Marine Networks to GCC at Hamburg yearly.
- 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.
- MSC is receiving 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 also receive manual FM13 messages generated by TurboWin from offshore oil/gas platforms and might eventually receive FM13 messages generated by TurboWin from 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-MSV VOS focal point.
- Data from VOS auxiliary ships are available on the GTS under the header "SI/SN/SM VD03 CWAO"