

WORLD METEOROLOGICAL ORGANIZATION

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INTERGOVERNMENTAL OCEANOGRAPHIC  
COMMISSION (OF UNESCO)

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JOINT WMO/IOC TECHNICAL COMMISSION FOR  
OCEANOGRAPHY AND MARINE METEOROLOGY  
(JCOMM)

SHIP OBSERVATIONS TEAM (SOT)

SEVENTH SESSION

VICTORIA, CANADA, 22-26 APRIL 2013

SOT-7/ Doc. 2 Rev. 3  
(15.04.2013)

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ITEM: 2

Original: ENGLISH

## PROGRAMME, SCIENTIFIC AND TECHNICAL WORKSHOP

*(Submitted by Paula Rychtar (USA))*

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### Summary and purpose of the document

This document includes the programme for the scientific and technical workshop to be held during the first half day of the SOT Session.

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### ACTION PROPOSED

The Team will review the information contained in this report, and comment and make decisions or recommendations as appropriate.

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**Appendices:** A. Programme for the workshop  
B. Abstracts of presentations

## DRAFT TEXT FOR INCLUSION IN THE FINAL REPORT

2.1 Ms Paula Rychtar (USA), Chairperson of the Scientific and Technical Workshop, opened the Scientific and Technical Workshop. The workshop introduced and reviewed new initiatives and / or new developments in shipboard meteorological or oceanographic instrumentation, observing practices, data management procedures, and quality control and ocean products. Members of the Team were invited to report on systems and related technical developments relevant to SOT, either within their own services and operations or with which they have otherwise been directly involved.

2.2 The following presentations were made during the workshop:

- (1) Overview of Canada's AVOS Network; presentation made by Chris Marshall (Canada);
- (2) Stage of Higher Level Quality Control Software for Marine Met Data; presentation made by Gudrun Rosenhagen (Germany);
- (3) Wireless XBT System developed by CSIRO; presentation made by Ann Thresher (Australia);
- (4) Turbowin E-logbook demo and update; presentation made by Sarah North (United Kingdom) and Jan Rozema (the Netherlands);
- (5) SEAS E-logbook demo and update; presentation made by Francis Bringas (United States);
- (6) Data Acquisition Measurement Monitoring Meteorology HRDCP; presentation made by Nicholas Coyne (Germany);
- (7) Assessing the health of the Marine Climate Observing System; presentation made by David Berry (United Kingdom);
- (8) The use of ship observations in the creation of the marine forecast; presentation made by Mike Gismonde (Canada);
- (9) Oleander and OceanScope; presentation made by Thomas Rossby (United States); and
- (10) The E-SURFMAR metadata database: recent enhancements; presentation made by Pierre Blouch (France).

2.3 Based on these presentation and resulting discussions, the Team agreed on the following recommendations:

- *[List of recommendations to be included in the session final report per actual discussion]*

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Appendix: 2

**APPENDIX A****JCOMM SHIP OBSERVATIONS TEAM (SOT) SCIENTIFIC AND TECHNICAL WORKSHOP  
Victoria, Canada, 22 April 2013**

The SOT-7 Scientific and Technical Workshop will start on Monday 22 April 2013 at 9h40 in the conference room of the Harbour Towers Hotel & Suites in Victoria, Canada shortly after the formal opening of the seventh SOT Session (SOT-7). The workshop will end at 12h45 the same day.

The workshop will be chaired by Ms Paula Rychtar (USA), and will introduce and review new initiatives and / or new developments in shipboard meteorological or oceanographic instrumentation, observing practices, data management procedures, and quality control and ocean products.

Members of the Team will be invited to report on systems and related technical developments relevant to SOT, either within their own services and operations or with which they have otherwise been directly involved. 15 minutes will be allocated to each presentation including for the discussion.

The workshop may propose a number of recommendations to the SOT Meeting.

The following presentations will be made at the workshop:

<b>No.</b>	<b>Title</b>	<b>Speaker</b>
1	Overview of Canada's AVOS Network	Chris Marshall (Canada)
2	Stage of Higher Level Quality Control Software for Marine Met Data	Gudrun Rosenhagen (Germany)
3	Wireless XBT System developed by CSIRO	Ann Thresher (Australia)
4	Turbowin E-logbook demo and update	Sarah North (United Kingdom) & Jan Rozema (the Netherlands)
5	SEAS E-logbook demo and update	Francis Bringas (United States)
6	Data Acquisition Measurement Monitoring Meteorology HRDCP	Nicholas Coyne (Germany)
7	Assessing the health of the Marine Climate Observing System	David Berry (United Kingdom)
8	The use of ship observations in the creation of the marine forecast	Mike Gismonde (Canada)
9	Oleander and OceanScope	Thomas Rossby (United States)
10	The E-SURFMAR metadata database: recent enhancements	Pierre Blouch (France)

Speakers are invited to provide abstracts of their presentations no later than 30 March 2013, and copies of the PowerPoint presentations no later than 20 April 2013. These shall be provided to Paula Rychtar ([Paula.Rychtar@noaa.gov](mailto:Paula.Rychtar@noaa.gov)) and the Secretariat ([echarpentier@wmo.int](mailto:echarpentier@wmo.int)).

## APPENDIX B

### ABSTRACTS OF PRESENTATIONS

#### **(1) Overview of Canada's AVOS Network; presentation made by Chris Marshall (Canada)**

Environment Canada's Meteorological Service of Canada (EC-MS) continues to operate a network of over 50 automatic weather stations installed on ships, which contribute to the global network of VOS observations. The system deployed by EC is furnished by AXYS Technologies, and provides a mechanism for a human-machine mix of observations, with a bridge PC interface allowing observations of present weather and sea state to be combined with the routine, and hourly data derived from the automatic sensors. During 2012, Canada's automated ship network contributed over 300,000 observations to the GTS, with all ships now transmitting hourly via Iridium short burst data. Iridium communications are very reliable, especially in the Arctic region, with the network contributing a significant number of observations in Arctic waters over the past number of years. Future technological developments for the network will include examination of options to improve SST measurements, and may also consider use of additional sensors such as present weather, visibility, and web-cameras for certain vessels, especially ice breakers sailing in Arctic waters.

#### **(2) Stage of Higher Level Quality Control Software for Marine Met Data; presentation made by Gudrun Rosenhagen (Germany)**

The ongoing development of a detailed higher level quality control (Higher-Level-Control) is an essential task in all operational data archives. Changes to system software, new techniques and/or development of data types and methods call for new HQC-software. Similarly, the continued development of HQC-Systems is a commitment of the Global Collecting Centres (GCC). At Deutscher Wetterdienst (DWD) in Hamburg, the host of one of two GCCs, the development of a new HQC-software is currently under way. It aims at standardized checks for different data types and formats, an easy handling of data checking, reproducibility (traceability) of QC stage and graphical display of erroneous values. A special focus is put on the selection of the limits for the climatology checks as well as on the results of near neighborhood tests. The presentation gives an overview of the concept, changes and new techniques of the HQCS and results of first tests in operational mode.

#### **(3) Wireless XBT System developed by CSIRO; presentation made by Ann Thresher (Australia)**

CSIRO has had a strong SOOP program for more than 30 years. In that time, we have maintained a strong technical team and have often assessed technology in order to improve performance, even developing an XBT data acquisition recorder in-house. This recorder, formerly the Devil and now named the Quoll and manufactured under license by Turo Technologies, now forms the basis of a wireless XBT system designed and built by our Argo/SOOP head technician. Alan Poole's design is compact (based on a tablet windows computer), fitting in a carry-on suitcase with room to spare. It is reliable, and relatively inexpensive to build. It increases the range of ships we can recruit because moving it from one ship to another is so easy and even ships with sealed bridges are now accessible. It has also massively decreased our excess baggage costs. Finally, it minimizes bad data due to launcher faults. There is no down-side. We now use this system on our high density XBT runs and have made significant progress in turning this into an auto launcher. I will demonstrate this system and answer any questions (to the best of my ability!).

#### **(4) Turbowin E-logbook demo and update; presentation made by Sarah North (United Kingdom) and Jan Rozema (the Netherlands)**

*[Abstract of the presentation not available at the time of preparing this report]*

**(5) SEAS E-logbook demo and update; presentation made by Francis Bringas (United States)**

SEAS (Shipboard Environmental Acquisition System) is a software developed for the acquisition and transmission of oceanographic (XBT and TSG) and meteorological observations from commercial and research vessels. SEAS is installed in more than 1,000 ships of the VOS program to transmit over one million meteorological messages and in over 50 ships of the SOOP collecting and transmitting more than 10,000 XBT profiles per year. The SEAS MET, one of its modules, comprises the SEAS Met Observations Logger and SEAS AutoIMET Data Logger. The ongoing development of SEAS MET is collaboration between NOAA/NWS and NOAA/AOML, conducted according to the recommendations and requirements of the NOAA/NWS VOS program. The current version includes the generation of IMMT-IV formatted messages as required by VOSCLIM and the generation and transmission of meta-data reports in binary format. This presentation intends to demonstrate the operation of SEAS MET. During this presentation the main features of SEAS MET will be discussed. In order to facilitate understanding of the features of SEAS to users of other e-logbooks, the similarities and differences between SEAS MET and KNMI's TurboWin will be highlighted.

**(6) Data Acquisition Measurement Monitoring Meteorology HRDCP; presentation made by Nicholas Coyne (Germany)**

The Meteosat Data Collection and retransmission Service (DCS) enables Data Collection Platform (DCP) Operators to use the Meteosat Meteorological Satellite System to retransmit DCP data collected from remotely located platforms to their own EUMETCast reception stations and to the Global Telecommunication System (GTS) community of the World Meteorological Organisations (WMO).

Standard Rate DCPs (SRDCP) transmit at 100 bps, however High Rate DCPs (HRDCP) transmit data at 1200 bps. Given the same transmission time this allows for increased data volume. With the same data volume this allows for more frequent messages. The HRDCP characteristics allow for a much higher level of error correction increasing their performance especially in harsh environments, thereby improving the effectiveness of the overall system. One area that could benefit from this is meteorological observations from ships.

**(7) Assessing the health of the Marine Climate Observing System; presentation made by David Berry (United Kingdom)**

The first adequacy assessment on the Global Observing System for Climate was made in 1998, with a qualitative plan developed and a number of goals set out. Subsequent assessments of the adequacy, the most recent in 2010, have been relatively simple, measuring the completeness of the observing system against a set number of target observations and / or platforms by programme area. In this presentation a more detailed quantitative approach is taken, integrating across the marine in-situ observing system and comparing the completeness of the system to the GOOS and GCOS requirements.

**(8) The use of ship observations in the creation of the marine forecast; presentation made by Mike Gismondi (Canada)**

A brief look at how ship observations affect the creation of the marine forecast. Starting with the assimilation of the information into computer models at the Canadian Meteorological Centre (CMC) and ending with the finished marine forecast, we will examine the role that ship observations play.

Along the way, some tools used by the marine forecasters at the Pacific Storm Prediction Centre (PSPC) will be presented.

**(9) Oleander and OceanScope; presentation made by Thomas Rossby (United States)**

Our group has been measuring currents between the U. S. east coast and Bermuda continuously since November 1992. We do this with an acoustic Doppler current profiler installed on the container vessel CMV Oleander, which operates on a weekly schedule between Hamilton, Bermuda and Port Elizabeth, NJ crossing the Gulf Stream near 70°W. A major feature of a scanning ADCP (from a vessel underway) means that we can resolve oceanic motion over a very wide range of horizontal and vertical scales: the typical bin size being 16 m x 2.5 km. Repeating these scans regularly adds degrees of freedom that greatly improves the averaging process. Focusing on the Gulf Stream we highlight in this talk some of the major findings from the project such as the striking stiffness of the current, and its velocity and vorticity structure. We find long-term Gulf Stream transport to be quite stable. Upper ocean transport =  $0.132 \times 10^6 \text{ m}^2 \text{ s}^{-1}$  (at 55 m depth), which assuming geostrophy corresponds to a dynamic height difference of 1.18 m. Using an empirical scale factor of 600 layer transport equals  $79 \times 10^6 \text{ m}^3 \text{ s}^{-1}$  between the surface and 2000 m. We are presently updating these numbers and they will be reported at the meeting.

**(10) The E-SURFMAR metadata database: recent enhancements; presentation made by Pierre Blouch (France)**

E-SURFMAR Metadata Database was primarily developed for European VOS. Available online on the Web, it was later extended to all VOS operating in the world. European VOS operators maintain their metadata up-to-date on the E-SURFMAR server whilst Pub47 metadata sent by non-European VOS operators to WMO are uploaded as soon as they are available. This makes the database the most up-to-date for Pub47 metadata. In addition to VOS metadata, the database also contains those of many fixed platforms.

On a daily basis, VOS metadata are extracted and made available on a FTP site for all active VOS as well as for inactive and active VOSclim (CSV and XML files). In addition to Pub47 metadata (including digital images), the database handles mask identifiers, inspection reports and ship's contact details and it gives access to several internal or external monitoring tools (e.g. quality controls and ship's tracking). A MASK-REAL cross-reference list is also extracted every day and made available to JCOMMOPS through a secured FTP link.

Since its creation the database has been regularly improved. Among recent developments, one may mention: the management of Pub47 version 4 and of the VOS ancillary fleet, the possibility to query the database with pre-selected criteria and to tag the VOS with a coloured post-it, the links to Marinetraffic.com and Fleetmon.com to get more metadata and to allow ship's tracking,.

The presentation will include an online demonstration of the database features.

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