

WORLD METEOROLOGICAL ORGANIZATION

INTERGOVERNMENTAL OCEANOGRAPHIC
COMMISSION (OF UNESCO)

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

SOT-IV/Doc. IV-2.2
(8.III.2007)

FOURTH SESSION

ITEM IV-2.2

GENEVA, SWITZERLAND, 16 TO 21 APRIL 2007

Original: ENGLISH

**VOSP-V
PROGRAMME IMPLEMENTATION**

Report on the E-SURFMAR VOS component

(Submitted by Mr Pierre Blouch, E-SURFMAR Programme Manager)

Summary and purpose of document

This document contains the report on E-SURMAR Voluntary Observing Ship (VOS) activities.

ACTION PROPOSED

The VOS Panel is invited to:

- (a) Note the information given in the document;
 - (b) Make comments and suggestions regarding relevant items, as appropriate.
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DISCUSSION

I. Background

The E-SURFMAR is an optional programme of the ground-based EUMETNET Composite Observing System (EUCOS). It concerns the surface marine observations, including the VOS and data buoys. The EUMETNET is the Conference of European Meteorological Services. Sixteen countries out of the twenty-one EUMETNET Members are currently participating in E-SURFMAR Programme.

The E-SURFMAR objectives are to coordinate, optimize and progressively integrate the surface marine observations within the operational EUCOS framework. The EUCOS present goal is to optimize the ground observing system to improve short-range forecasts throughout Europe. However, it should be noted that the E-SURFMAR is also supporting VOS activities outside the EUCOS area of interest, as well as for other applications such as nowcasting and climatology.

The E-SURFMAR Programme is funded through participant contributions and the share of the contributions is based on the respective Global National Incomes (GNI). The Programme was a subject of a comprehensive study, carried out in 2004, which defines its broad outlines. The study is soon to be revised in 2008.

II. Data availability

The E-SURFMAR is currently coordinating the activities of approximately 47% of the VOS in the world. The EUMETNET ships report more than 50% of the whole observations. In 2006, the number of manned observations reported by the VOS ships continued to decrease – as well as the number of active ships – while the number of automated measurements increased. Although the balance is positive for the Numerical Weather Prediction (NWP)¹, it is negative for many other applications. The decrease of Port Meteorological Officer (PMO) activities is probably partly responsible for the situation.

By the beginning of 2007, 325 manned and 620 automated observations were received on average per day from EUMETNET ships operating into the EUCOS area of interest (North Atlantic and in the Mediterranean Sea). These figures may be compared to those of year 2002: 400 and 320 per day, respectively.

III. Automation

Presently, the E-SURFMAR participants are operating different ship-borne Automated Weather Stations (AWS):

- France is operating about 50 Batos stations (complete AWS reporting through Inmarsat-C) and 8 Minos (simple AWS reporting through Argos);
- Germany is operating about 20 Milos stations (complete AWS reporting through Meteosat);
- United Kingdom is evaluating a few different types: Automet, Avos, Batos and Minos. Seven stations were operating by the end of February 2007;
- Ireland and Spain are operating one Milos station each;
- Norway is using 3 AWS stations based on a QLC-50 system; and
- Denmark is operating one Batos station.

Three German ships also report measurements gathered by their own dataloggers. In addition, four Batos stations funded by the E-SURFMAR were installed aboard ships in 2006, thanks to volunteer National Meteorological Services (NMS) or partners: United Kingdom, Ireland and Denmark. Four other Batos funded by the E-SURFMAR are ready to be installed, and four others will be purchased in 2007.

¹ For instance, more and more sea level pressure measurements are carried out.

In 2006, the main achievement in the AWS activities was the upgrade of the Batos software on many vessels. The new version permits to report compressed data through the Inmarsat-C. The cost of communications was divided by six, allowing the transmission of hourly observations instead of 3-hourly ones at no additional cost. The increase of the number of observations is mainly due to this new capability.

Météo-France is currently developing a new simple ship borne AWS, called Baros, which would report hourly air pressure observations only. The principle is the same as for the Minos, but with a more inexpensive means of communication: The Iridium SBD will be the first prototype, and should be tested in April 2007.

IV. Data communication

The KNMI and Météo-France are working together to develop a cost effective means to report observations from the conventional VOS. Data may be compressed by using the most recent version of TurboWin aboard the ships, sent ashore through Inmarsat-C and processed for GTS distribution. The unit cost per report is 2.5 times lower than if one paid for a report using the Code 41 procedure. Two Dutch and four French VOS have been participating in such a trial since October 2006 (see the report from the Task Team on Satellite Communication Systems for further information regarding this issue).

Ship owners and masters expressed their concerns regarding the availability of VOS ship's positions on public websites due to the risk of piracy acts and for commercial competitiveness reasons. Following a recommendation from the Fifty-eighth WMO Executive Council (Resolution 7 – EC-LVIII), the E-SURFMAR has been carrying out a trial, which consists in masking the ITU call signs of the ships with unique identifiers managed by the VOS operators. By the beginning of 2007, fifty European VOS, including forty-four AWS participating in the trial. Since they use this technique, their names no longer appear on the Web.

The use of normalized identifiers in the FM13-SHIP reports instead of ITU call signs may also help to efficiently manage the VOS fleets. Three characters of the E-SURFMAR masks are used for the type of VOS, and two characters are used for the country (i.e., ISO or non-ISO code). The quality information feedbacks are so easier to manage in this regard. For instance, they no longer need the use of any metadata table to identify the data responsible. Statistics may also be easily carried out by categories of the VOS or by the respective countries.

V. Compensations

Since its inception in 2003, the E-SURFMAR compensations have been paid each year to the VOS operators for the observations carried out by their ships. In 2007, 0.27 € should be paid for each manned observation and 0.08 € for each automated measurement. A bonus could be applied to the AWS observations carried out in a sensitive area: north of 30°N in the North Atlantic and Mediterranean Sea.

Compensations are also paid to the respective National Meteorological Services (NMSs) who bear the communication costs. In 2007, about 0.18 € should be paid for each report sent by a conventional VOS and 0.06 € for each report sent by an AWS. The share of compensations between the operators and NMSs are based on the observations carried out the year before.

VI. Data monitoring and data quality

Since the E-SURFMAR design study was carried out, air pressure data reported by the EUMETNET ships have been monitored as a matter of priority. It appears that the quality of measurements reported by the conventional VOS is in fact worse on average than the AWS reports. Human readings tend to have non-systematic errors on sea-level pressure observations. A double correction or an absence of correction for the height of the barometer above the waterline of the ship occurs too often. Although the TurboWin interface automatically notifies the observers about such problems, these issues must be carefully instructed by the Port Meteorological Officers (PMOs).

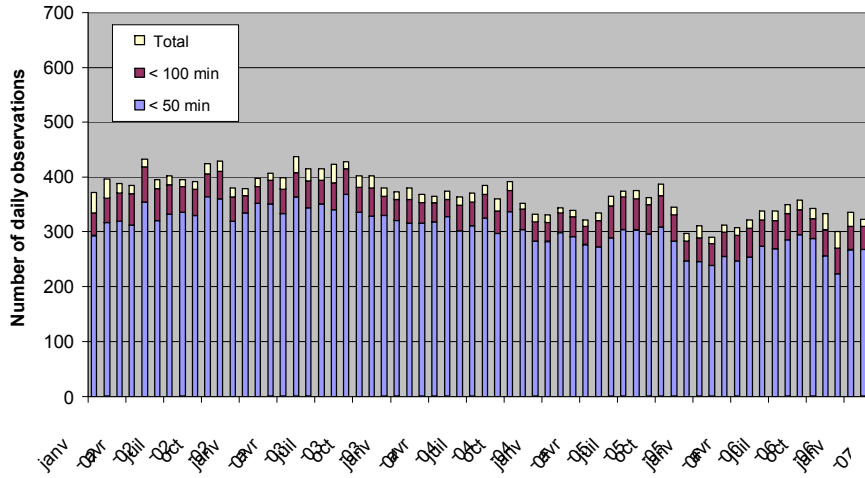
Monitoring tools for the VOS are available at the following web address: <http://www.meteo.shom.fr/vos-monitoring/>. It should be noted that these tools are not restricted to EUMETNET ships.

VII. Meetings and websites

The Fourth Session of the VOS-TAG meeting will be held at the WMO Headquarters in Geneva, Switzerland, from 12 to 13 April 2007. The Session will be followed by the Fourth Session of the JCOMM Ship Observations Team, Geneva, Switzerland, from 16 to 21 April 2007 with the same venue.

Further information regarding the E-SURFMAR can be located at the following website: <http://esurfmar.meteo.fr/wikisurf/>. The Working area (password protected) can be found at the following extension: <http://esurfmar.meteo.fr/wikisurf-wa/>.

EUMETNET manned VOS - Data availability in the EUCOS area
Average number of observations per day



EUMETNET automated VOS - Data availability in the EUCOS area
Average number of observations per day

