WORLD METEOROLOGICAL ORGANIZATION

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

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FOURTH SESSION

ITEM IV-2.4

GENEVA, SWITZERLAND, 16 TO 21 APRIL 2007

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**VOSP-V
PROGRAMME IMPLEMENTATION**

Ship Monitoring

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

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Summary and purpose of document

This document summarises the tools available for the VOS Programme Managers
and Port Meteorological Officers (PMOs) to use to monitor VOS data.

The document also describes the Dirkzwager Vessel tracking tool that is
momentarily being developed for KNMI, DWD and the Met Office. This tool is
intended to give the cooperating PMO's from the Netherlands, Germany and the
United Kingdom more accurate information about e.g. the whereabouts of their
respective, but also each other's VOS fleet.

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ACTION PROPOSED

VOS Programme Mangers and PMOs are urged:

A. To make use of the available tools to monitor the quality of the VOS data and to provide
    feedback to ships on how to improve bad data;
B. To use the monthly VOS status maps to identify data sparse areas where more ship
    observations are required.

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1.   VOS Quality Monitoring Tools

(Input provided by Ms Julie Fletcher)

1.1.   Background

There is now a good set of web-based tools to monitor the quality, quantity and timeliness of VOS data. The tools, which were developed by Météo-France, provide near real-time monitoring, whilst the output from the United Kingdom Regional Specialised Meteorological Centre (RSMC) provides monthly and bi-annual monitoring statistics. The JCOMMOPs monthly VOS status map displays the quantity and global coverage of all ship observations. The Quality Information Relay mechanism based at the JCOMMOPs enables monitoring centres and NMSs to send VOS Focal Points advisory messages about suspect ship data so corrective action can be taken if necessary.

1.2.   Location of the Monitoring Tools

The JCOMM VOS Scheme website has a 'VOS Monitoring' section and can be located at the following web address: http://www.bom.gov.au/jcomm/vos/resources.html#operational6.

Select from the list:

a. Surface Marine Data Monitoring by Met Office, United Kingdom:
http://www.metoffice.gov.uk/research/nwp/observations/monitoring/marine/index.html

This site provides:
- VOS Monthly Monitoring Reports
    - For all VOS based on WMO Publication No. 47 list
    - List of SUSPECT ships with time series plots

- VOS Time of Receipt Statistics
    - Time of Receipt (TOR) graph for all VOS
    - TOR graph showing national VOS fleets
    - TOR statistics for individual callsigns
    - TOR statistics by Country by month

- Bi-annual Report on the Quality of Marine Surface Observations

b. VOSClim Monthly Statistics:
http://www.ncdc.noaa.gov/oa/climate/vosclim/vosclim-stats.html

c. VOS Quality Monitoring tools from Météo-France:
http://www.meteo.shom.fr/vos-monitoring/

This site provides:
- VOS Information
- VOS QC Statistics
- Data & QC Plots
- List of ships reporting dubious AP values
- Obs counters

d. Search for Multiple Recruitments from Météo-France:
http://www.meteo.shom.fr/vos-monitoring/

Select a country from the pull-down menu and a list will show any VOS ships that appear as 'recruited' on more than one National VOS list. The VOS operators should liaise together to determine which country should be assigned future responsibility for ships on the 'Multiple Recruitment' list. A VOS Ship should be the responsibility of only one country. This prevents duplicate quality monitoring and ensures that only one set of metadata is prepared for WMO Pub. 47 per vessel.

1.3   VOS Status Maps

The JCOMMOPs monthly map series contains a VOS status map:
http://wo.jcommops.org/cgi-bin/WebObjects/JCOMMOPS.woa/wa/map?type=GTSM_VOS

This monthly map displays the number of ships that reported in the month, and the total number of BBXX messages disseminated on the GTS. The positions of all ships are displayed on a global map with different colours denoting the GTS originating centres. The VOS operators are encouraged to use this map to identify the data sparse areas and prioritise the recruitment of any ships that sail in these waters.

1.4.   Quality Information Relay Mechanism

The JCOMMOPS Quality Information Relay Mechanism address is:
http://wo.jcommops.org/cgi-bin/WebObjects/QCRelay

Select the VOS programme option and enter your username and password to access the site. Monitoring Centres and National Meteorological Centres can then use the QCRelay form to enter the callsign and details of a ship that is sending suspect data. Using WMO Pub. 47, the QCRelay software links the callsign to the country of recruitment and sends the VOS Focal Point an email detailing the problem. The VOS Operators are requested to take appropriate action, such as replacing an instrument or providing observer training.

1.5.   VOSClim Suspect List Feedback

Operators are encouraged to advise the RTMC (email to obsmon@metoffice.gov.uk) of investigations undertaken into the causes of bad data identified on the VOSClim Suspect List and to report on the corrective actions taken.

An example of feedback to the RTMC is provided below.
G'day Colin (Sarah for info)

Re: SEAKAP (VNNM) cited for RH.
I inspected this vessel on 09/01/07, and I noted that the clip supporting the reservoir in the screen had corroded and broken off. It's possible that the reservoir may have toppled over and readings taken when the wick was dry. A new clip was fitted during the inspection including a fresh wick on the wet thermometer. RH should be OK now.
Cheers
Taffy (PMA Sydney)

1.6.   Onboard Quality Monitoring TurboWin Tool

One of the advantages of the electronic logbook software (e.g., TurboWin), is that it contains many error checking routines to recognise an incorrect value and prompt the observer to amend the entry. However, prior to TurboWin Version 3.6, the PMOs visiting a ship could not easily review the recent observations because they were only stored in IMMT format. Beginning with Version 3.6, the PMO can view the Obs on the screen in the traditional logbook coded format.

From the TurboWin *Maintenance* Menu, select *Move ship coded log (internal use).* A list of the latest observations can then be moved to the PC desktop or a USB memory stick for viewing.

This is a useful feature as it allows the PMO(s) to discuss the coding of the most recent observations with the duty officers and provide training on any elements that they are having difficulty with.

1.7.   Quality Monitoring Feedback to Ships

It is important that the NMS provide feedback on observation quality and quantity to its national VOF. Real-time feedback via a PMO visit, email, or phone call is the most effective as these targets the current observer(s). Feedback on problems should be given in a manner that encourages and assists the observer. Most ships view feedback, whether good or bad, as positive as it demonstrates their observations are being used and are valued. When providing corrective feedback on the coding of a particular element, always include some thanks and encouragement in the message.

1.8   Summary

Routine use of the Monitoring Tools and timely feedback to ships to correct problems will improve the quality and quantity of observations provided by VOS ships.

2.   Dirkzwager Vessel tracking tool

(Input provided by Mr Frits Koek)

2.1   Background

Rotterdam, Netherlands is one of the busiest ports in the world. Amsterdam and Antwerp are the main ports that are covered by only two Port Meteorological Offices. Further, it should be noted that the Netherlands are positioned between other countries with a high density of major ports. Searching for efficient ways to avoid double visits by the PMO's in different neighbouring countries and to be sure at what time the vessels are where, the KNMI came across a web-based tool that might solve the problem.

2.2   Dirkzwager's ShipReporting and ShipMovements Tools

Royal Dirkzwager, a Dutch company is maritime information and service provider which has developed several tools to furnish a variety of information regarding any ship that is available in their database (presently over 125,000 vessels). **ShipReporting** combines a European network of pre-selected information providers with communication technologies. The comprehensive content enhanced with additional information like vessel characteristics enables **ShipReporting** to communicate validated information on a tailor-made basis. As a result, the Royal Dirkzwager's database is used by many users in the Rotterdam Port Community.

ShipMovements is an AIS application that can be used to display a variety of position poll information on a map. Position polls from either the AIS transponders, GPS/GSM, GPS/Inmarsat C/D or others can be read, logged and displayed. This results in a real-time, graphical overview of a certain area.

KNMI, in collaboration with the DWD and United Kingdom Met Office, inquired about possible extensions to the existing Dirkzwager tools. They investigated the possibilities of adding PMO visit reports to the database. Eventually, this led to a new application named **Ship2Report**. The additional VOS database will contain all respective IMO numbers of the Dutch, German and British VOS ships. Combining the existing tools and databases, this application gives access to all known characteristics of these ships, including date/time of arrival and departure, as well as berthing information. Additionally, the PMO can add comments to the database for each vessel, as appropriate and/or when needed.

The tool is still under development, but recently a contract has been signed to continue with its development. Together with Germany and the United Kingdom, the KNMI has compiled a set of requirements that are being built at present.

2.3   Ship2Report

Ships2Report is a combination of three modules: **ShipReporting**, **ShipMovements** and a Database module. **Ship2Report** can be used to display a variety of position poll information on the map. To display VOS vessels only, the tool combines the ship movements with a specific database. The IMO number of each vessel is the key for this tool. The connection results in an automatic filter on each vessel (displayed in a different colour in the overview and the AIS application). The specific database of

the test application contains the following fields:
- Ship's Name
- Recruiting country
- Last visit
- Port of visit
- Remarks

By working together, the PMO's from the Netherlands, United Kingdom and Germany can see which ships have recently been visited and which are scheduled to be visited. With the remarks field, the PMO's can exchange their recent findings by making a note of it. The other PMO's can read this information, and if applicable, take appropriate measures.

2.4   Costs

Of course, there are costs involved for development of this tool. Nevertheless, through cooperation with the neighbouring countries, the KNMI managed to keep the costs at a reasonable level. Next to the development are the subscription costs, but these have been noted to have been priced reasonably acceptable as well.

2.5   Demonstration

A short demonstration of the current trial version of the *Ship2Report* will be shown during the meeting. In the new version, more fields will be available in the VOS database, such as:
1. IMO number
2. Ship name
3. Call sign
4. Inmarsat nr
5. Email
6. VOS country
7. Assistance required
8. Input date
9. Reason for assistance
10. Action required
11. PMO requested

Numbers 1 through 5 will be fixed, and are derived from the Dirkzwager database. Fields 8 through11 are free format fields, and appear when Field 7 is checked.

In the visualization tool ships come appear in different colours. They indicate whether the ship is stopped or moving and highlight the VOS fleet (i.e., Dutch, German and British ships).

The following screen dumps are taken from the demonstration version of the *ShipReporting* and *ShipMovements* tools. Unfortunately, to date, there is no available material available *Ship2Report, as is it still under development*.

Fig. 1. Opening screen ShipReporting tool

Fig. 2. List of expected vessels

Fig. 3. Vessel's characteristics
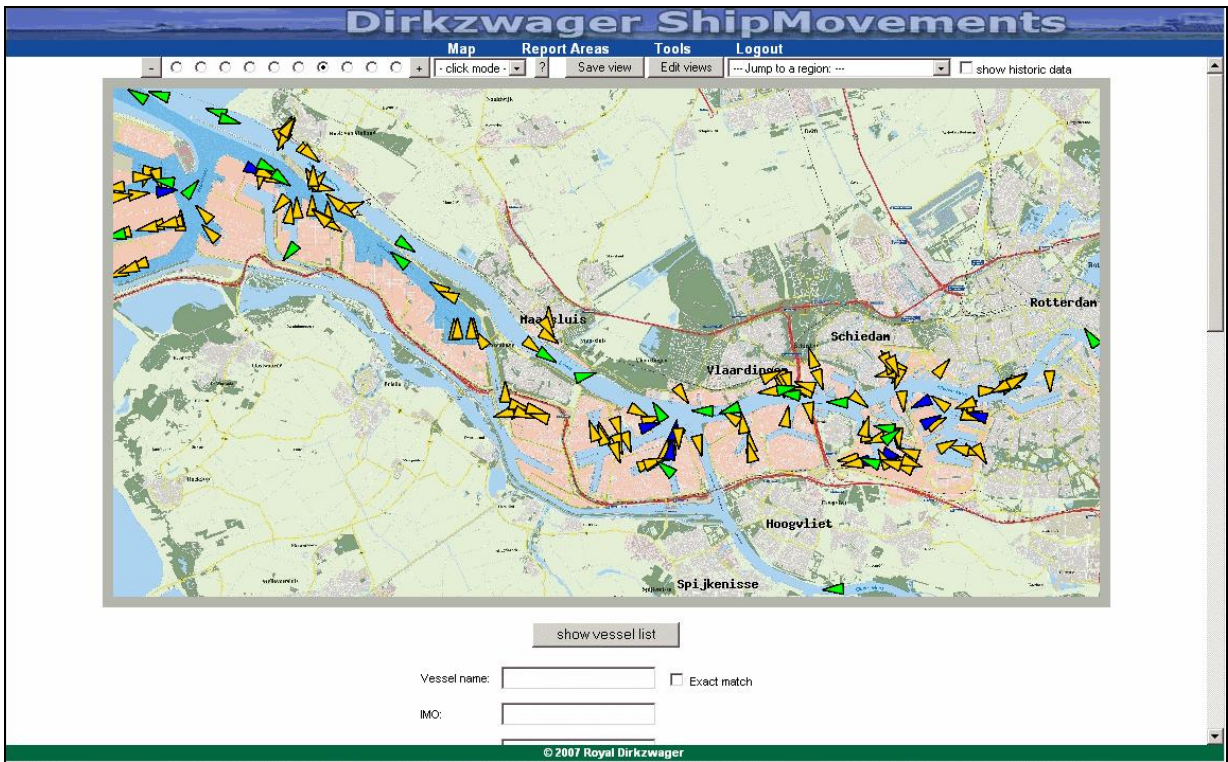

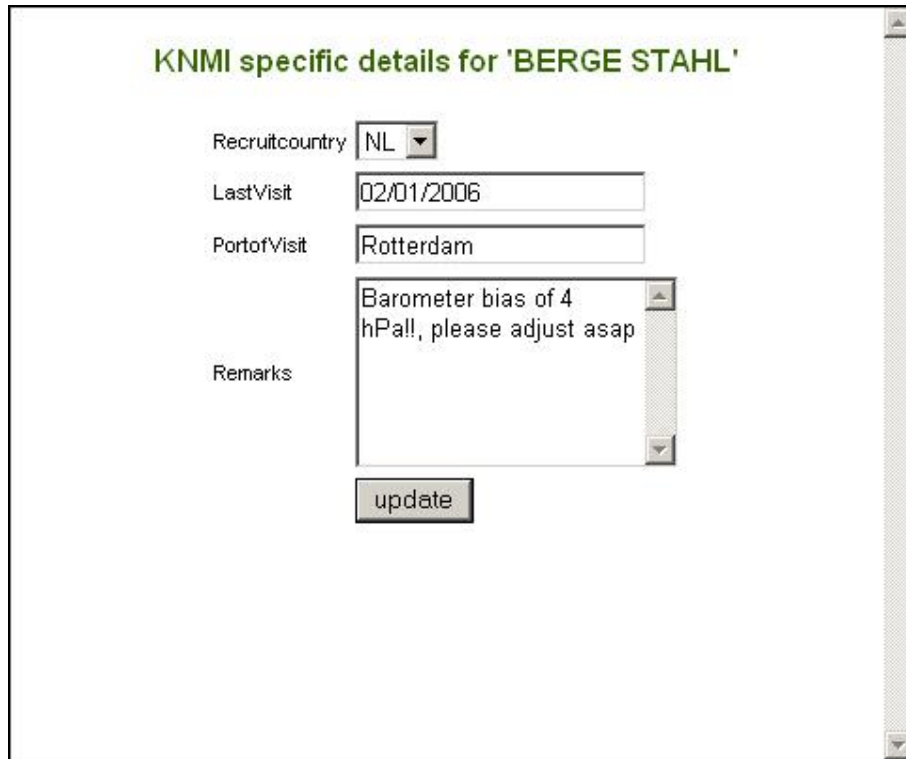Fig. 4. Opening screen ShipMovements tool

Fig. 5. Detail of the Rotterdam area

Fig. 6. Example of VOS details

Fig. 7. One of the Dutch VOSs

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