VOS CLIMATE PROJECT THIRD PROJECT MEETING

Southampton, United Kingdom, 21 - 23 January 2002

FINAL REPORT

JCOMM Meeting Report No. 9

WORLD METEOROLOGICAL ORGANIZATION

INTERGOVERNMENTAL OCEANOGRAPHIC COMMISSION (OF UNESCO)

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N O T E

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C O N T E N T S

GENERAL SUMMARY OF THE MEETING

1. OPENING

1.1 Opening of the meeting

1.1.1 The Third Project Meeting for the VOSClim Project was opened by the Project Leader, Capt. Gordon Mackie, at 0930 hours on Monday, 21 January 2002, in the conference room of the Southampton Oceanographic Centre (SOC), Southampton, United Kingdom. Capt. Mackie welcomed participants to the meeting, and expressed his appreciation to SOC, and especially to Drs Peter Taylor and Elizabeth Kent, for hosting the meeting and providing such excellent facilities and support. He noted that the purposes of the meeting were to develop a more detailed plan for the implementation phase of the project, to rekindle enthusiasm and to accelerate implementation actions. He stressed that the present meeting was crucial to the future of the project.

1.1.2 The list of participants in the meeting is given in *Annex I*.

1.2 Adoption of the agenda

1.2.1 The meeting adopted its agenda for the session, which is given in *Annex II*.

1.3 Working arrangements

1.3.1 The meeting agreed its working hours and other practical arrangements. The documentation for the meeting was introduced by the Secretariat.

2. REVIEW OF ACTION ITEMS FROM VOSCLIM-II

2.1 Project promotion

2.1.1 The meeting recalled that VOSClim-II (Asheville, November 2000) agreed to prepare project promotion material including a distinctive project name and logo and a small explanatory brochure. The meeting was informed that the logo drafted by Mr Vincent Zegowitz (USA) had been finalized and was available electronically.

2.1.2 The meeting was also informed that the brochure drafted by Dr Peter Taylor (United Kingdom) had been finalized and the English text was translated into French and Spanish. Two thousand copies of the English version and 200 copies of the Spanish version were printed in Canada. The English version was distributed to the project focal points in accordance with the number of potential participating ships. The brochure was also distributed to all VOS operating countries, together with a general VOS brochure, which was prepared on the basis of discussions by the former CMM Subgroup on the VOS. The meeting was also informed that 200 copies of the French version were now ready for distribution. The meeting expressed its sincere appreciation to Canada for its valuable in-kind contribution to the project.

2.1.3 The figures and pictures used for the VOSClim brochure and the VOS brochure are available to the participating countries upon request. The meeting agreed that the brochure was very useful to promote the project and to recruit ships, and expressed its appreciation to Dr Taylor for its preparation. The meeting was informed that Japan was preparing a Japanese version of the VOSClim brochure based on the figures and pictures used for the original brochure. The meeting requested the Secretariat to arrange for the Japanese version to be made available, if possible, to other focal points as required.

2.1.4 The meeting recalled that VOSClim-II had agreed that a wall plaque for distribution to all project ships would also be useful project promotion material, but noted that the

preparation of such a plaque had not occurred, for various reasons. After discussion, the meeting agreed that, as an alternative, a certificate for VOSClim participation should be given to participating ships. The WMO Secretariat agreed to design this certificate. This would then be made available electronically to the project focal points, who would add ship or observer names, frame the certificate and distribute it to participants as necessary.

2.2 Codes and formats

2.2.1 The meeting was informed that the revised IMMT (IMMT-2) and MQCS (MQSC-IV) were submitted to JCOMM-I (Akureyri, Iceland, June 2001), which had adopted recommendations to revise the Guide to Marine Meteorological Services (WMO-No. 471) and the Manual on Marine Meteorological Services (WMO-No. 558) accordingly. The meeting recalled that VOSClim-II had agreed that this new version (IMMT-2) should be implemented immediately within the project.

2.2.2 With regard to the revised IMMT, the meeting expressed its view that vessel types and type of meteorological reporting ship (VOS category/observing programme), as well as abbreviations used, should be further reviewed. Dr Elizabeth Kent (United Kingdom) agreed that she would circulate a revised list of vessel types, based on the Lloyds register data, to focal points for their review. The list would then be finalized for consideration at the next session of the JCOMM Expert Team on Marine Climatology (ET/MC) and for eventual revision of the Guide and Manual on Marine Meteorological Services.

2.3 Ship survey and inspection forms and metadata catalogue

2.3.1 The meeting recalled that VOSClim-II had reviewed the draft paper form to be used for the initial ship survey and for any subsequent changes to the vessel's layout and/or equipment. Since then, a number of focal points had submitted examples of the forms used in their countries and these had been incorporated, as much as possible, into the revised draft. The draft of the paper form was circulated a number of times and, when the resultant comments had generally been accommodated, a Users' Guide was prepared by Mr Sven Bartels of the Australian Bureau of Meteorology (BoM).

2.3.2 The meeting reviewed the paper form and users guide presented by Mr David Evans (Australia). The meeting noted that changes including an additional column for "national use" would be needed and agreed to revise the form accordingly. The meeting then agreed that the same form should be used both for recruitment (i.e. survey) and derecruitement. The form should also be used for inspection, which should be performed every three months. Although the meeting recalled that VOSClim-II had considered that it would be highly advantageous if the ship survey report were to be adopted for use by all VOS operators as a unique WMO standard, it now agreed that for the time being this recruitment/inspection form should be used only for the VOSClim project. Nevertheless, the form should also be submitted to the forthcoming SOT-I meeting (Goa, February 2002) for review and consideration for possible general use with the VOS.

2.3.3 Mr Evans then demonstrated a draft electronic version of the recruitment/inspection form being prepared by Mr Ross McKenzie (Australia). The electronic version works on DOS and can be used by any focal point or PMO. The focal points were expected to update information as necessary and send the whole record to the DAC, as well as to the WMO Secretariat. The DAC would then archive and make available through the web site the complete record for each participating VOSClim ship. The meeting expressed its appreciation to Messieurs Evans and McKenzie for their effort to finalize the forms. The meeting agreed that digital images with IMO number and dates should also be sent to the DAC for archival. JPEG would be the most appropriate format for the digital images. To facilitate the exchange process of digital image information, Ms Sarah North (United Kingdom) agreed to circulate an example of such images to the DAC and the focal points for their feedback.

2.3.4 The meeting requested Mr Evans to finalize the paper recruitment/inspection form and instructions by mid-February 2002, and make these available to participants, the DAC and the Secretariat. This finalized form and instructions are given in *Annex III*. The finalized electronic form should be made available by the end of March 2002.

2.3.5 The meeting was informed that, based on the revised format reviewed at VOSClim-II, an electronic database of WMO-No. 47 had been developed by the WMO Secretariat and that all VOS operating countries would be formally requested to submit metadata in this new format during the first half of 2002. In the meantime, the complete existing ship metadata base, together with the accumulated backlog of updates to the present time, was expected to be entered into the new data base format during the first quarter of 2002.

2.3.6 With regard to on-line access and downloading functions with the ship catalogue, an example of on-line access to the WMO metadata catalogue of land stations (WMO-No. 9, Volume C) was demonstrated at the meeting. After reviewing this facility, the meeting agreed that the following search criteria should be included with a similar on-line facility for the ship catalogue: country of recruitment (a drop-down menu); ship name (to key in); ship call sign (to key in); IMO number (to key in, with a link to eventual digital imagery); ship metadata by date for a specific ship.

2.4 Newsletter

2.4.1 The meeting recalled that VOSClim-II had recognized that a newsletter would be an essential component of the project, to provide a means of informing and communicating with participating ships as well as among meteorological services, data centres, users and other participants. The meeting noted that the newsletter should contain information, reports, results and statistics from participating ships and PMOs, the RTMC and DAC, and users. The meeting thus reviewed possible items to be included in the newsletter proposed by Ms Sarah North and agreed the items as listed in *Annex IV*.

2.4.2 The meeting agreed that the information and articles to be included in the newsletter should be prepared by the focal points (as well as the DAC and RTMC), and then be forwarded to the Secretariat for editing, compilation and finalization of each newsletter. It was agreed that the newsletter should be published every six months and be posted on the VOSClim web site maintained by the DAC. The focal points could then download the newsletter and distribute it in paper form to participating ships and potential participants within their country as appropriate. The first newsletter should be available in September 2002.

3. DATA REQUIREMENTS

3.1 Dr John Gould (Director, International WOCE and CLIVAR Project Offices) made a presentation on CLIVAR and its data requirements. He noted that the purposes of CLIVAR included to obtain a better understanding of natural climate variability and to enhance climate predictability on various time scales. For these purposes, CLIVAR relied on operational observations as well as research oriented observations. He stressed the need for high-quality data for climate research and he also noted the importance of in situ wind as validation for satellite products. He also stressed that although new types of observational technology, such as Argo, were being implemented, they would not replace conventional ship based observations, and the requirement for high-quality VOS observations in support of CLIVAR remained substantial. Brochures on CLIVAR were distributed to the focal points at the meeting. The meeting noted that these brochures could be also informative for participating ships. The focal points were recommended to request additional copies from Dr Gould for such distribution.

3.2 Dr Peter Taylor noted that high-quality VOS observations were also important to the verification of numerical ocean and atmospheric models, to the determination of precise air-sea fluxes, and to the estimation of biases in VOS observations in general. He stressed that, on the basis of experience during the VOSP-NA, a total of at least 200 participating ships for the project was important for its success.

3.3 The meeting expressed its appreciation to Drs Gould and Taylor for their informative presentations. It agreed that this information and feedback from scientists who take advantage of the high-quality VOSClim observations would be useful to encourage the ships participating in the project. The meeting therefore agreed that the revised project document should include information from the paper prepared by Drs Kent and Taylor for the meeting.

3.4 Finally under this item, the meeting noted with interest a presentation by Mr J. Islander (Vaisala) on the Ship Automatic Weather Stations developed by his company. It recommended that this presentation should also be made to the forthcoming SOT session in Goa.

4. DATA MANAGEMENT

4.1 Real Time Monitoring Centre

4.1.1 Mr Colin Parrett (United Kingdom) reported to the meeting on progress made by the RTMC in support of the project, as well as on the development of formats and procedures for transferring observational data and monitoring results to the DAC. The meeting decided to make no change for the moment to the criteria for observational data quality monitoring for the project (see Annex VIII to the final report of VOSClim-II, JCOMM Meeting Report No. 7). It agreed, however, that the RTMC and SOC should keep these criteria under continuous review, for possible future modifications in the light of results. Monthly statistics for December 2001 were shown to the meeting as an example. The meeting agreed that, for the time being, the RTMC should produce and distribute to participants and the DAC monthly ship statistics and monthly suspect ship lists. The RTMC was requested to begin this work on a regular basis as soon as the first list of call signs for participating ships became available on the web site.

4.2 Data Assembly Centre

4.2.1 Mr Dan Manns (USA) reported to the meeting on the progress made by NCDC in developing the DAC and associated web site, as well as future plans. The meeting expressed its appreciation for this work, which included on-line access to WMO-Pub 47 (accessible by IMO number, country name and call sign) as well as to project data in either ASCII (IMMA) or IMMT-2 format. The meeting was further informed that the DAC was planning to implement the following enhancements:

- Enhanced on-line data/metadata access
- Survey/inspection form download and on-line access to the VOSClim metadata base
- Statistical reports
- Multi-language web pages

4.2.2 The meeting agreed that the final version of the VOSClim brochure, in three languages (English, France and Spanish), should be posted on the VOSClim web site at DAC, for downloading by participants as required.

4.2.3 Dr Volker Wagner (Germany) informed the meeting that the Global Collecting Centres, operated by Germany and the United Kingdom, were ready to begin processing VOSClim data as they became available. To date, no IMMT-2 data had been received by the GCCs (Germany and the United Kingdom).

5. SHIP RECRUITMENT

5.1 National reports

5.1.1 National reports from Australia, Canada, Germany, India, Japan, Poland, the United Kingdom and the United States were presented to the meeting. The meeting was pleased to note that a number of ships had already been recruited or were in the process of being recruited, while a number of other potential participants had been identified. Those reports are in *Annex V*.

5.1.2 The meeting requested Australia to consider inviting PMOs from other countries in the Asia-Pacific Region to its triennial PMO workshop, planned for August 2002, as a means to share experience related to VOSClim, as well as to promote VOS/PMO activities in the region. More generally, the meeting requested the WMO Secretariat to consider the possibilities to convene a second international PMO workshop, similar to that which was held at IMO in London in 1993, in view of the substantial developments in VOS/PMO activities over the past decade, including VOSClim.

5.1.3 As a part of his national report, Mr Ron Fordyce (Canada) gave a presentation on the development and implementation of a Canadian Automated Voluntary Observing Ship System (AVOS). The meeting recognized a number of advantages in using such an automated system, including an increase in data return and a decrease in data errors. On the other hand, concerns with regard to the recruitment of only automated vessels into the project were expressed by Drs Taylor and Kent. The meeting recalled that one of the purposes of the VOSClim project was to detect systematic errors throughout the full VOS fleet, including those in observations made manually. The project focal points were therefore urged to recruit non-automated vessels to the project, as well as ships equipped with fully automated observation systems.

5.2 Line selection

5.2.1 Dr Kent presented consolidated line coverage maps of potentially participating ships. The meeting recalled that the target number of the participating ships was 200 and noted that the total number of ships so far recruited or identified was, for the moment, well below this target. The meeting recognized that the initial priority must be to have as many ships as possible participating in the project. It therefore urged participants to provide the call signs to the DAC as soon as possible after agreement to participate had been obtained, in advance of full ship surveys and the submission of metadata. Monitoring, archival and analysis of observational data could then begin, which in turn would allow for the feedback of results and most likely enhanced recruitment.

5.3 Future actions

5.3.1 The meeting agreed that the following actions should be taken by the focal points, the RMTC, the DAC and the GCCs.

- The focal point should submit to the DAC, by the end of February 2002, the names and call signs of ships already recruited or identified as potential participants;
- The DAC will post a list of names and call signs of these ships (by country) on the web site as soon as these lists are received from the focal points;
- The RTMC will begin providing statistical reports, based on the ship list prepared by the DAC from the end of March 2002, and in advance of the availability of the full ship metadata;
- Participating countries should begin submitting observational data from the identified VOSClim ships, in IMMT-2 format, to both GCCs, beginning with data from the first quarter of 2002. Subsequent project data submissions should be made as often as possible, but at least quarterly.

5.3.2 Actions to be taken on the recruitment/inspection form are noted under agenda item 2.3.

6. WORKSHOP FOR PORT METEOROLOGICAL OFFICERS

6.1 VOSClim-II recognized that a proportion of the additional work required in the project would fall on the participating PMOs and that the active participation of PMOs would be crucial for the success of the project. One day of the meeting was dedicated to a workshop designed to share experiences in recruiting a VOSClim participating ship. Ms North (United Kingdom) and Capt. James M. Roe (United Kingdom), the PMO located in Southampton, kindly made arrangements to visit a potential VOSClim participating ship, the container ship P&O Nedlloyd Shackleton. Dr Taylor also kindly arranged a visit to a UK research vessel based at SOC, the RRS Discovery.

6.2 Whilst visiting the ships, Capt. Roe demonstrated the procedures for recruitment and instrument survey, using the form designed for the project.

7. REVISED ACTION PLAN

7.1 Based on decisions taken under preceding agenda items, the meeting reviewed the Project Document (JCOMM Technical Report No. 5, Revision 1), and identified a number of small revisions which would be necessary. In addition to editorial changes, these included the following:

- Dr Taylor would provide a revised article on "Scientific requirements and justification", which should replace Attachment 1;
- The agreed recruitment/inspection form and its instructions should replace "information required on first reconnaissance", Attachment 2; and
- IMMT-2, as included in the recommendation at JCOMM-I, should replace Attachment 3 "extra information with each observation".

The Secretariat was requested to incorporate these revisions into the document and to prepare a fully revised version. The meeting agreed that this Revision 2, as well as any further revised versions should be made available to participants only in electronic form, through the WMO and project web sites.

7.2 The meeting reviewed the action plan adopted by VOSClim-II and noted that most items had been satisfactorily completed. Again based on decisions taken under preceding agenda items, the meeting also prepared an updated action plan for the coming year of project development/implementation. This action plan is given in *Annex VI.*

8. REVIEW OF PROJECT STRUCTURE

8.1 The meeting was pleased to recognize that the project had entered into an implementation phase from its initial preparation phase. It agreed that both a Project Leader and national focal points were still essential and even more important to the operation of the project. At the same time, the meeting also agreed that the activities of the Project Leader were evolving from those relating to guidance in concept development, to ones of a more operational nature, which would best be undertaken by an expert from a participating service directly involved in ship management. The meeting therefore accepted with appreciation the agreement by Ms Sarah North (United Kingdom) to undertake the role of the Project Leader, at least until the next project planning meeting, with support provided by the Secretariat.

8.2 In doing so, the meeting recognized the substantial contribution which had been made to project development by the outgoing Project Leader, Capt. Gordon Mackie, and

expressed its considerable appreciation to Capt. Mackie for his support, guidance and encouragement over the past two years.

9. DATE AND PLACE OF THE NEXT MEETING

9.1 The meeting agreed that a fourth project meeting would be required, to review progress in implementation, consider possible modifications to structure and operations in the light of initial experience, and also to review some preliminary results from users. The meeting further agreed that time and place should be decided later, in the light of developments and achievements over the coming months, but nevertheless suggested that the meeting might possibly take place in conjunction with an WMO international PMO workshop, perhaps in the first half of 2003 (see paragraph 5.1.2 above). The project leader and Secretariat were requested to make the necessary arrangements and to inform participants of these, if possible well in advance.

10. CLOSURE OF THE MEETING

10.1 In closing the meeting the Project Leader, Gordon Mackie, expressed his appreciation once more on behalf of all participants, to SOC and in particular Drs Peter Taylor and Elizabeth Kent, for hosting the meeting and providing such excellent support and facilities. He also thanked participants for their valuable input to what had been a very successful meeting. He wished everyone a successful implementation of the project, which would be led by Ms North, the new Project Leader. He expressed his appreciation to her for taking up the tasks and wished her every success. The meeting once again expressed its sincere appreciation to Capt. Mackie for his leadership on the project.

10.2 The third project planning meeting for the VOSClim Project closed at 1500 hours on Wednesday, 23 January 2002.

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ANNEX I

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ANNEX II

AGENDA

3. OPENING

3.1 Opening of the meeting
3.2 Adoption of the agenda
3.3 Working arrangements

4. REVIEW OF ACTION ITEMS FROM VOSCLIM-II

4.1 Project promotion
4.2 Codes and formats
4.3 Ship survey and inspection forms and metadata catalogue
4.4 Newsletter

5. DATA REQUIREMENTS

6. DATA MANAGEMENT

6.1 Real Time Monitoring Centre
6.2 Data Assembly Centre

7. SHIP RECRUITMENT

7.1 National reports
7.2 Line selection
7.3 Future actions

8. WORKSHOP FOR PORT METEOROLOGICAL OFFICERS

9. REVISED ACTION PLAN

10. REVIEW OF PROJECT STRUCTURE

11. DATE AND PLACE OF THE NEXT MEETING

12. CLOSURE OF THE MEETING

Annex III is separate .pdf file (pp. 11-24).

ANNEX IV

Items to be included in VOSClim Project Newsletter

- Project Fleet lists
- Project status reports/editorials
- Plots of project ships routes/observations *
- Lists of Port Met Officers involved in the project & contact details
- A photo gallery of recently recruited ships
- Monitoring statistics
- Address of project website
- Coding/Transmission tips
- Observational tips
- LES stations accepting Code 41 messages
- Details of how to submit articles for inclusion in Newsletter

The items below will also be included as available

- A ship focus section (i.e. an article on an individual VOSClim ship each issue)
- Photos of plaque/award presentations
- Questions and Answers/Postbag
- Articles submitted by users
- Articles submitted by PMO's
- Articles submitted by observers/participating shipping companies

* DAC will prepare a set of data covering a particular Newsletter period and Dr Kent will make a map

ANNEX V

NATIONAL REPORT – AUSTRALIA

Recruitment

1. At VOSClim-II, Australia undertook to recruit an initial five ships for the VOSClim Project.

2. As at mid-December 2001, four vessels have been recruited. These are:

MZHC8	MV Arafura
VNVJ	MV Australian Pride
9KWH	MV Al Messilah
V2FM	MV Kimberley

3. Copies of the forms have been sent to DAC.

4. A further three vessels will be recruited when they return to their home port.

5. All VOSClim vessels are being supplied with a notebook computer and TurboWin ver 2.12. The machines and the TurboWin software are performing satisfactorily. Funds are being sought to increase the number of notebook computers provided to the VOS, and VOSClim vessels have priority.

6. The VOSClim brochure has been distributed to a number of vessels and has received positive feedback.

Problems

7. The perennial problem of suitable vessels going to routes not serviced by PMOs in Australia and/or being scrapped makes selection of suitable vessels very difficult.

8. It has been noted that replacement vessels are expected to have enclosed bridges, with no bridge wings, and therefore no convenient place to position equipment. This will make it extremely difficult for any form of manual observations to be performed – not only for VOS/VOSClim but also for ASAP and SOOP.

9. A number of the 'better' vessels in the Australian VOS are being fitted with ShipAWS. The ShipAWS does not generate IMMT-2 code, and there are no funds available this financial year for software changes of this magnitude. There were plans to include the VOSClim groups in the FM-13 (SHIP) message, proposed by VOSClim-I, however these plans lapsed when CBS did not approve the code changes.

10. Australian VOS vessels generally perform visual estimates of wind speed by using sea state. Therefore the wind is a 'sea level' wind, not the wind at observer's eye level or at 10m.

Plans

11. It is hoped to have the IMMT-2 code included in the ShipAWS software next financial year. This will permit the recruitment of at least another four vessels to VOSClim.

12. The next triennial Australian PMO conference will be in August 2002 and the profile of VOSClim will be raised.

13. The aim is to have a total of twelve vessels recruited into the Australian VOSClim by December 2002.

NATIONAL REPORT – CANADA

Recruitment:

1. At the VOS Clim II meeting, Canada undertook to recuit and initial 20 vessels for the VOS Clim Project. At our PMO Workshop in Canmore Alberta late last fall, the 20 vessels were selected with highest priority being given to the DFO-CCG Ice Breakers that transit to the Arctic each summer and two commercial ships.
2. As of our PMO Workshop 6 vessels have been recruited. These are
   -Sir Wilfred Laurier CGJK
   -Pierre Radisson CGSB
   -Arctic VCLM
   -John P. Tully CG2958
   -Terry Fox CGTF
   -Newfoundland Otter CFD3658
3. Copies of the recruiting forms have not been processed as you this date but will be sent to the DAC shortly.
4. A further 14 vessels have been selected and will be activated as they return to port and the new AVOS systems are installed on board.
5. All the Canadian VOS Clim ships will be fitted with the new AVOS (Automatic Weather Station for Ship Platforms) and will transmit their observations via INMARSAT C using the AVOS software. The messages will enter the system through the U.S. gateway via COMSAT. The observations will be save to disk in IMMT II format and will have the MQCS II (IV) applied at the source.
6. The VOS Clim brochure has been distributed to the most of the vessels in the fleet to stimuate interest.
7. Vessels recruited into the VOS Clim Project will initially be Government DFO- CCG ships that operated on the east and west coast, our northern coastlines, the Canadian Arctic, Hudson Bay and James Bay. The two commercial vessels will work the Canadian Arctic, the north Atlantic and the Baltic. One of the ships is an ocean research vessel and another is a fishing ship that operates in the north Atlantic towards Greenland and Iceland.
8. The AVOS system that will be placed on these ships perform as a man machine mix. The following elements will be monitored automatically: Air Temperature, Sea Temperature, , Humidity, Sea Level Pressure, Pressure Tendency, Wind Speed, Wind Direction. The ships officers will fill in the other parameters manually. The initial systems are set up to transmit every three hours within the Economic Zone of Canada, every 6 hours beyond this limit and hourly above 51 Degrees North latitude. The instruments on board are all climate quality and calibrated.
9. It is our intention for have 13 vessels in the VOS Clim Project by the end of 2002.

NATIONAL REPORT – GERMANY

Recruitment of German ships:

Until autumn 2002 nine merchant vessels as well as their company committed their participation in the VOSClim Project, provided they were equipped with notebooks to simplify the reporting.

A short time later this engagement was cancelled as they were going to serve a route abroad, never calling at German ports; but end of January 2002 they unexpectedly stopped that charter and returned to the previous service, thus being available for the Project again.

Meanwhile we contacted other ships to participate and their recruitment tentatively could start in the first months of 2002 covering the following routes:

- Caribbean Sea and North America (2 ships)
- South America (2 ships)
- Asia via Panama or Suez (5 ships)

Besides these merchant vessels 2 research vessels are principally available.

Problems:

- Hardware:
  The Turbowin 2.x programme, which will be used, requires special minimum hardware standards to guarantee an acceptable processing rate. This is not covered by he presently used notebooks on board the ships, using the old Turbo on the DOS-level, so that we have to procure adequate hardware, which may take still some time.

- Software:
  The data processing on the research vessels does not provide special project information, requested with each observation, e.g. relative wind. To make this available, the system software has to be adopted by the companies who created the central data processing schemes on the ships. This will not only take some time but also has to be funded.

Actions and further plans:

- All presently active German VOS (780) will be introduced into the latest version of the WMO 47 database and will be made available to WMO shortly. This also includes the VOSClim ships, which are contributed to the DAC at the same time according to the agreed recruitment form.
- Germany expects to add further 10 automated ships to the project. The problem here is, that the PCs are simple DOS PCs and the software to handle the project requirements is being made available only on the Windows level for these stations. It is not planned to do any further work on the old DOS releases. So the presently used PCs have to be replaced, which is a similar problem as for the normal VOS, as explained before.
- Germany is doing any effort to contribute to the project in bringing in reliable ships (observers) according to the availability of the necessary adequate hardware.

NATIONAL REPORT – JAPAN

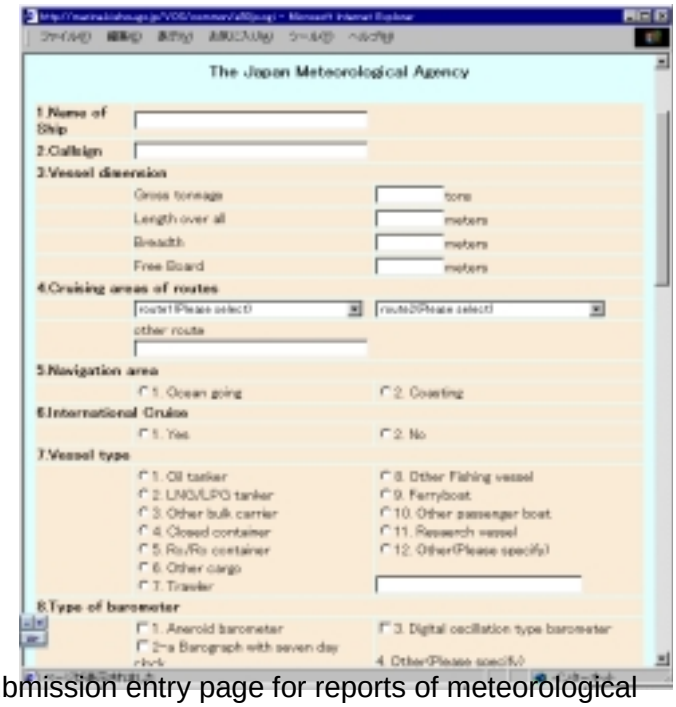
1. Activities of Japanese VOSs

In accordance with the Meteorological Service Law of Japan, Japanese ships are obliged to submit a report on the status of meteorological instruments on board to the Japan Meteorological Agency (JMA), as of 1st January every year. Since January 2002, the JMA established an internet web site for Japanese VOSs (Figure 1). This web site provides shipping companies and VOSs with information on marine meteorological observations/reporting, and they were made available to submit reports about meteorological instruments to the JMA. Based on these reports, the JMA submits the information on ships which register as Japanese VOSs for WMO Publication No. 47 to the WMO Secretariat. In 2001, the Selected, Supplementary and Auxiliary ships are 385, 37 and 10 in number, respectively.

Around 200 Japanese VOSs are regularly sending weather reports to the JMA. In 2000, the total number of weather reports which the JMA received was 55,261 by SHIP messages and 53,292 by logbooks.

Figure 1 Web site for Japanese VOSs

a) Entrance page

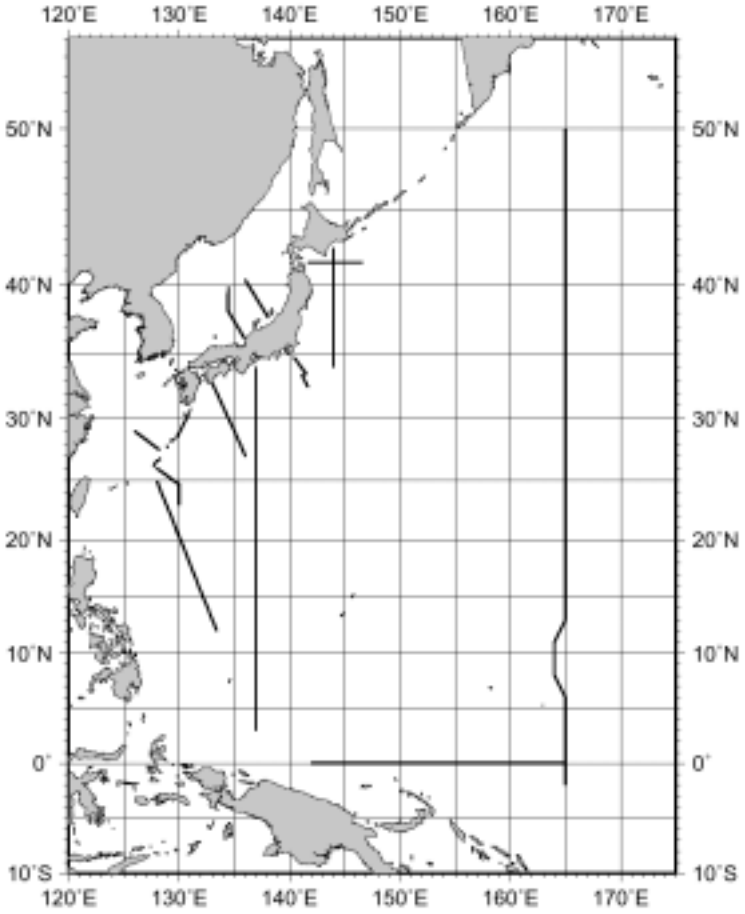


b) Submission entry page for reports of meteorological instruments on board

2. Present status of VOSClim ship recruitment in Japan

At present the JMA is planning to take three steps for the recruitment of VOSClim ships. Firstly five research vessels of the JMA will join the project. Figure 2 shows the typical observation lines of the JMA's research vessels. They routinely make oceanographic and marine meteorological observation along the lines 2 to 4 times a year. Secondly other governmental/university research/training vessels which navigate high seas are considered to have a potential to participate in the VOSClim project. Then the JMA will examine a possibility to recruit merchant ships as a future target.

Figure 2 Typical observation lines of JMA's research vessels



3. Japanese version of VOSClim brochure

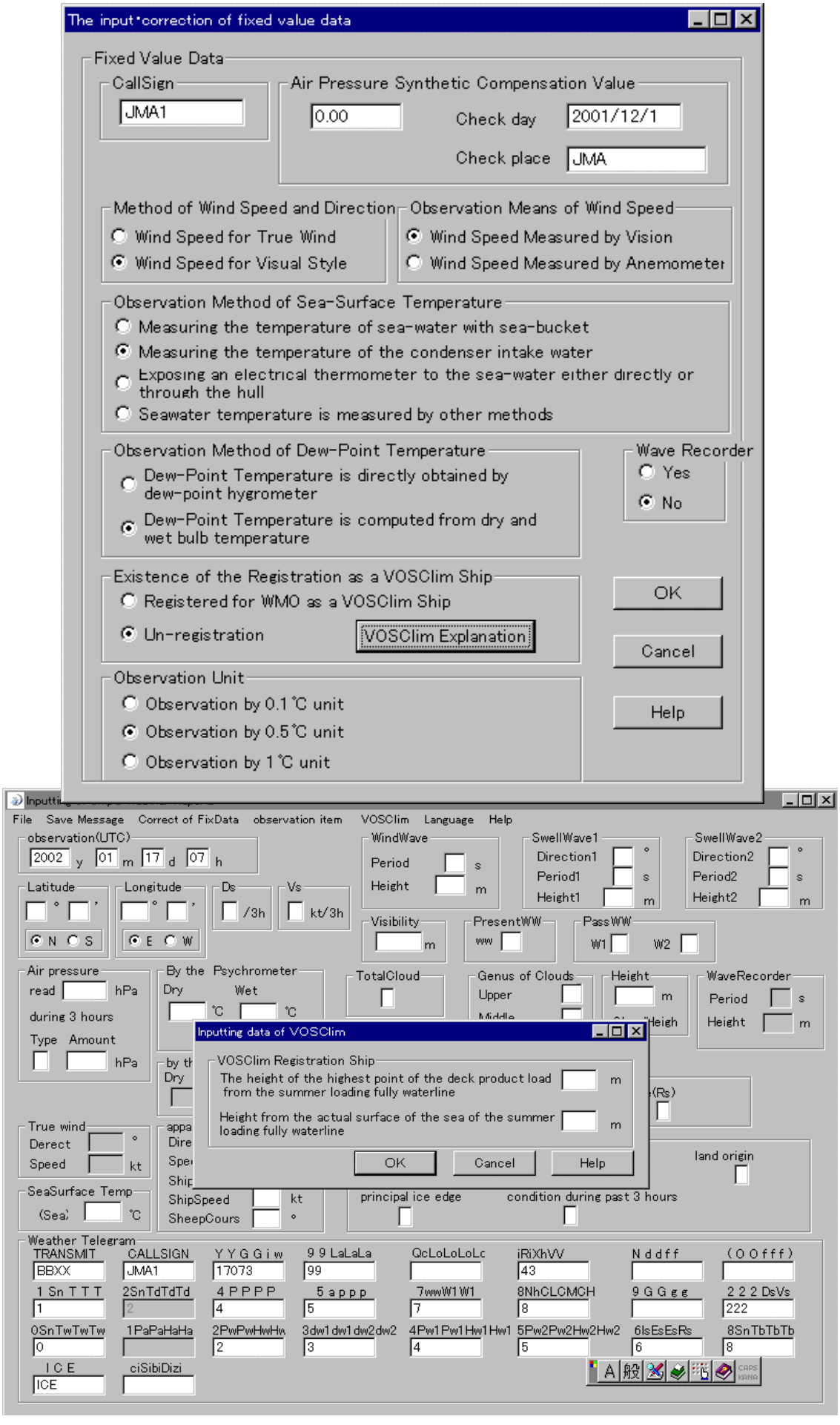
For the purpose of assisting Japanese mariners to understand and of advertising the VOSClim project widely, the JMA is preparing a Japanese version of the VOSClim brochure. The brochure will be issued by March 2002.

4. Upgrading weather report compilation software OBSJMA

The JMA developed a software package on weather report compilation for VOS, "OBSJMA", in 1997 for easy and accurate preparation of ships' weather reports and marine meteorological logbook records. However, since the present OBSJMA operates only on MS-DOS, Windows version of the software has been required.

The JMA has been developing an upgraded Windows version of the OBSJMA, which is more user-friendly designed by employing graphical user interface. The new OBSJMA, which will be available by March 2002, is to be used on VOSClim ships because observation data is stored in the new IMMT-2 format (Figure 3).

Figure 3 VOSClim entry image on the new OBSJMA



NATIONAL REPORT – POLAND

Preliminary group of VOS ships has been selected as a potential candidates for VOSClim Project on base of quality of observations as well as on high regularity in visiting Polish harbors (every 3 or 6 months). Merchant ships working on regular lines between Poland, western European harbors, Mediterranean and Chinese ports composed this group. Two research vessels, working 3-4 months per year between Poland and the Polish polar stations located in Arctic (Spitsbergen) and in Antarctic (King George Island) were included to this group.

Unfortunately in the end of the year 2000 significant amount of the Polish merchant ships has been sold or simply they changed their flags. Several ships have changed their usual area of activity, moved into new regions without possibility to visit Polish harbors. It caused a break in contacts with many ships, disordered existing regularity in collecting logbooks and diskettes with ships reports. Some of the ships informed us on resignation in participating within VOS Program. Due to such decision a total amount of ships participating in the program and recruited by the Polish Meteorological Service decreased to 88.

Many VOS ships informed the Polish Port Meteorological Officer that their further participation within VOS program depends upon the final decisions of new owners. They also argued that continuation of their activity require official contacts between Polish Meteorological Service and owner's offices.

Such procedure has been taken. However due to sudden and danger illness of our PMO correspondence between our service and shipping companies has been temporary stopped. Their continuation is expected in mid-February but their scope depends upon available financial resources.

Simultaneously several other activities has been done during last year in respect to VOS program. It includes

- distribution of WMO booklets concerning VOS and VOSClim
- stronger cooperation between meteorological service and Maritime Academy in Gdynia
- preparation of the Polish version and distribution of several guide materials including TurboWin, SHIP codes etc.

NATIONAL REPORT – UNITED KINGDOM

Ship Recruitment

1. The UK has undertaken to recruit 30 voluntary observing ships to participate in the VOS Climate Project. Recruitment of UK ships began in August 2001 and, by 10 December 2001, a total of 18 ships had been recruited. A list of the UK voluntary observing ships that have been recruited to the project is attached at **Appendix A**.

2. Also attached at **Appendix B** is a list of UK ships that have been targeted for possible future recruitment. The suitability of each ship has been assessed on the basis of their recent observing record, their trading routes, the frequency with which they return to UK ports, etc. It is anticipated that some of the currently recruited UK project ships may be withdrawn from service in the coming year and may, therefore, need to be replaced by ships drawn from this pool of target ships.

3. A hard copy VOSCLIM Recruitment form has been completed by our Port Met Officers for each UK ship recruited (using the Recruitment/Update/Derecruitment Advice form prepared by the Australian Bureau of Meteorology). As these recruitment forms are not presently available in electronic format, copies have not yet been transmitted to the Data Assembly Centre. However the information has been made available in WMO Pub 47 delimited format (para. 9 below refers).

4. Digital photos of each recruited ship, together with photos showing the location of observing instruments on board, have been taken by the visiting UK Port Met Officers. Simple profile arrangement drawings have also been prepared to show the location of instruments.

5. All participating UK ships estimate the wind speed and direction from the sea state and are not presently provided with dedicated anemometers by the Met Office. The majority of the UK recruited ships are however equipped with their own ships anemometers, although these are rarely calibrated and are consequently not used for ship observations.

6. All participating UK ships have been equipped with TurboWin software (version 2.12) loaded onto dedicated notebook computers provided for the purpose. As a consequence UK recruited ships are not required to complete hard copy meteorological logbooks, all delayed mode data being automatically stored in the notebook computers in IMMT-2 formatted log files

7. Downloading the delayed mode IMMT-2 log files from TurboWin will be undertaken by visiting Port Met Officers on a routine basis and, where possible, at approximately three monthly intervals.

8. Using the returned recruitment advice forms each ships metadata has been assembled into the revised WMO Pub 47 format (as given in annex V to the JCOMM/VOSCLIM project meeting report No 7). A copy is attached in delimited text format at **Appendix C.**

Appendix A

List of Recruited UK VOS-Clim ships (December 2001)

Dominica	C6LF9
Berlin Express	GQHC
City of London	MXMM5
Pegasus Bay	GXIC
St Lucia	C6LF8
CanMar Honour	ZCBP5
City of Cape Town	GXUP
James Clark Ross	ZDLP
Scottish Star	C6KU8
Glasgow Maersk	MZGK7
Ernest Shackleton	ZDLS1
Queen Elizabeth 2	GBTT
Mairangi Bay	GXEW
Peninsular Bay	MHCQ7
Providence Bay	MSTM6
Resolution Bay	GXEV
P&O Nedlloyd Southampton	MXBC6
P&O Nedlloyd Genoa	MYMX5

Appendix B

List of target UK ships for future possible recruitment (December 2001)

Canterbury Star	C6KV3
Kintampo	MVXQ8
English Star	C6KU7
Jervis Bay	MQPF2
P&O Nedlloyd Tasman	MZFC6
OOCL Belgium	VRVQ9
Charles Darwin	GDLS
Discovery	GLNE
Kalahari	MVLA7
Marienborg	MSJX8
Singapore Bay	MRGU3
Newport Bay	MQEC7
P&O Nedlloyd Kobe	MYJM3
Shenzhen Bay	MSDM7
Barbet Arrow	C6QF6
Gosport Maersk	MZIM8
St. Helena	MMHE5
Chiquita Schweiz	C6KD9
Maersk Rapier	MZFR9
Tobias Maersk	MSJY8
Torben Maersk	MSJZ8
Berge Atlantic	LAIP5
Auckland Star	C6KV2
CanMar Fortune	ZCBD3
OOCL Canada	VRVB9
Matilde	V7AT5
Greenwich Maersk	MZIF7
Sabina	HBEB
Colombo Bay	MTFH5
Mineral Century	ELUO4

Appendix C

Metadata for recruited UK VOS-Clim ships in revised WMO Pub 47 delimited format (October 2001)

Dominica;C6LF9;9038335;GB;BS;NA;158.1;24.4;5.0;10.0;7.6;136.0;21;5;3;25;;;;;;;;;;DA;;Negretti & Zambra Precision Aneroid Mk 2;;22.6;;WH;;hPa;;11082000;;ELE;MER;;Zeal 2/C - BS 692;S;S;7;7;25.0;25.0;1;1;P;P;S;S;HC;BU ;4.2;;OS7;;34.5$10;;137.5;;0.0;;Malling ;;3;;;23.2;OT;;;;;;T;;C;I;;;;15082001;othI;;;;;;;;;;Dell notebook computer with TurboWin Software version 2.12 ;;;;;;;;;

Berlin Express;GQHC;7218383;GB;CC;AV;251.3;32.1;5.7;11.0;10.0;163.8;21;5;3;2;;;;;;;;;;DA;;Negretti & Zambra Precision Aneroid Mk 2;;24.3;;WH;;hPa;;11082001;;ELE;MER;;Zeal 2/C - BS 692;S;S;3;3;24.3;24.3;1;1;P;P;S;S;HC;BU;3.5;;OS7;;;;;;;;;;;;;;3;;;24.3;OT;OT;;;;;T;;C;I;;;;17082001;othI;othI;;;;;;;;Dell notebook computer with TurboWin Software version 2.12;Ozone monitor - Tei (for Max Planck Institute) ;;;;;;;;

City of London;MXMM5;9137703;GB;CC;AV;188.0;30.0;5.3;11.5;12.4;169.7;21;5;3;25;;;;;;;;;;DA;;Negretti & Zambra Precision Aneroid Mk 2;;25.7;;WH;;hPa;;17021999;;MER;;Zeal 2/C - BS 692;;S;;3;;25.3;;1;;P;;S;;HC;BU;9.0;;OS7;;37.5;;32.2;;10;;173.0;;1.0;;Thomas Walker;;3;;;26.2;OT;;;;;;T;;C;I;;;;28082001;othI;;;;;;;;;;Kerry notebook computer with TurboWin Software version 2.12;;;;;;;;;

Pegasus Bay;GXIC;7510896;GB;CC;AV;258.5;32.3;11.0;13.0;12.4;161.8;21;5;3;2;;;;;;;;;;DA;;Negretti & Zambra Precision Aneroid Mk 2;;28.6;;WH;;hPa;;17021999;;MER;;Zeal 2/C - BS 692;;S;;3;;28.3;;1;;P;;S;;HC;BU;10.8;;OS7;;45.6;;34.4;;12;;166.9;;0.8 stbd;;Munro Mk II SN 1164/1;;3;;;30.0;OT;;;;;;T;;C;I;;;;01092001;othI;;;;;;;;;;Kerry notebook computer with TurboWin Software version 2.12;;;;;;;;;

St Lucia;C6LF8;9038323;GB;BS;AV;158.1;24.4;5.0;10.0;7.6;136.0;21;5;3;25;;;;;;;;;;DA;;Negretti & Zambra Precision Aneroid Mk 2;;22.6;;WH;;hPa;;11082000;;ELE;MER;;Zeal 2/C - BS 692;S;S;7;7;25.0;25.0;1;1;P;P;S;S;HC;BU;4.2;;OS7;;34.5;;27.8;;10;;137.5;;0.0;;Malling;;3;;;23.2;OT;;;;;;T;;C;I;;;;15082001;othI;;;;;;;;;;Dell notebook computer with TurboWin Software version 2.12;;;;;;;;;

CanMar Honour;ZCBP5;9165360;GB;CC;AV;245.0;32.2;8.2;10.8;12.9;194.8;21;5;3;14;;;;;;;;;;DA;;Negretti & Zambra Precision Aneroid Mk 2;;25.7;;CR;;hPa;;19012001;;MER;;Zeal 2/C - BS 692;;S;;3;;26.1;;1;;P;;S;;HC;BU;8.0;;OS7;;35.0;;27.8;;11;;194.8;;2.5 port;;Daeyang;;3;;;27.5;OT;;;;;;T;;C;I;;;;03092001;othI;;;;;;;;;;Dell notebook computer with TurboWin Software version 2.12;;;;;;;;;

City of Capetown;GXUP;7510901;GB;CC;AV;258.5;32.3;11.0;13.0;12.4;161.7;21;5;3;19;;;;;;;;;;DA;;Negretti & Zambra Precision Aneroid Mk 2;;28.6;;WH;;hPa;;31071996;;MER;;Zeal 2/C - BS 692;;S;;3;;28.3;;1;;P;;S;;HC;BU;10.8;;OS7;;;;;;;;;;;;;;3;;;29.4;OT;;;;;;T;;C;I;;;;05092001;othI;;;;;;;;;;Dell notebook computer with TurboWin Software version 2.12;;;;;;;;;

James Clark Ross;ZDLP;8904496;GB;RV;AV;99.0;18.9;3.5;6.3;5.0;41.2;20;5;3;6;;;;;;;;;;DA;;Negretti & Zambra Precision Aneroid Mk 2;;15.5;;WH;;hPa;;08062001;;ELE;MER;Rosemount;Zeal 2/C - BS 692;S;S;7;7;18.0;18.0;1;1;P;P;S;S;HC;BU;4.0;;OS7;;20.5;;13.6;;6;;6.2;;0.5 port;;Gill Ultrasonic;;3;;;15.5;OT;;;;;;T;;C;I;;;;10092001;othI;;;;;;;;;;Kerry notebook computer with TurboWin Software version 2.12;;;;;;;;;

Scottish Star;C6KU8;8315994;GB;BC;AV;150.7;22.0;7.3;8.7;0.0;92.0;21;5;3;27;;;;;;;;;;DA;;Negretti & Zambra Precision Aneroid Mk 2;;16.9;;WH;;hPa;;20102001;;MER;;Zeal 2/C - BS 692;;S;;3;;17.6;;1;;P;;S;;BU;;;;OS7;;;;;;;;;;;;;;3;;;17.6;OT;;;;;;T;;C;I;;;;10092001;othI;;;;;;;;;;Dell notebook computer with TurboWin Software version 2.12;;;;;;;;;

Glasgow Maersk;MZGK7;9193420;GB;CC;AV;292.0;32.3;8.2;13.5;14.7;218.7;21;5;3;14;4;;;;;;;;;;DA;;Negretti & Zambra Precision Aneroid Mk 2;;28.7;;WH;;hPa;;09081999;;MER;;Zeal 2/C - BS 692;;S;;3;;28.2;;1;;P;;S;;BU;;;;OS7;;;;;;;;;;;;;;3;;;29.5;OT;;;;;;T;;C;I;;;;12092001;othI;;;;;;;;;;Toshiba notebook computer with TurboWin Software version 2.12;;;;;;;;;

Ernest Shackleton;ZDLS1;9114256;GB;RV;AV;80.0;17.0;4.1;7.4;7.0;12;20;5;3;6;;;;;;;;;;DA;;Negretti & Zambra Precision Aneroid Mk 2;;13.0;;WH;;hPa;;18061999;;ELE;MER;Rosemount;Zeal 2/C - BS 692;S;S;7;7;16.1;16.1;1;1;P;P;S;S;HC;BU;7.3;;OS7;;22.4;;18.2;;OT;;15.2;;4.3 port;;Dief Malling;;3;;;13.0;OT;;;;;;T;;C;I;;;;19092001;anmL;othI;;;;;;;;;;Anemometer on port side signal mast on monkey island ;Dell notebook computer with TurboWin Software version 2.12;;;;;;;;;

Queen Elizabeth 2;GBTT;6725418;GB;PL;AV;293.5;32.1;7.2;9.9;0.0;72.5;21;5;3;27;;;;;;;;;;DA;;Negretti & Zambra Precision Aneroid Mk 2;;28.9;;WH;;hPa;;22041998;;MER;;Zeal 2/C - BS 692;;S;;3;;28.4;;1;;P;;S;;C;;8.2;;OS7;;35.0;;28;;9;;73.0;;3.5 stbd;;Propeller Vane;;3;;;29.0;OT;;;;;;T;;C;I;Y;;;10102001;othI;;;;;;;;;;notebook computer with TurboWin Software version 2.12;;;;;;;;;

Mairangi Bay;GXEW;7417563;GB;CC;AV;248.6;32.2;9.4;12.0;15.0;156.4;21;5;3;2;;;;;;;;;;DA;;Negretti & Zambra Precision Aneroid Mk 2;;27.8;;WH;;hPa;;12031993;;MER;;Zeal 2/C - BS 692;;S;;3;;27.5;;1;;P;;S;;HC;BU;4.6;;OS7;;;;;;;;;;;;;;3;;;28.6;OT;;;;;;T;;C;I;;;;12102001;othI;;;;;;;;;;Dell notebook computer with TurboWin Software version 2.12;;;;;;;;;

Peninsular Bay;MHCQ7;8808628;GB;CC;AV;292.1;32.2;8.2;13.0;15.0;221.4;21;5;3;4;23;;;;;;;;;DA;;Negretti & Zambra Precision Aneroid Mk 2;;30.5;;WH;;hPa;;13041993;;ELE;MER;;Zeal 2/C - BS 692;S;S;3;3;30.5;30.5;1;1;P;P;S;S;HC;BU;4.1;;OS7;;36.0;;27.8;;10;;226.5;;3.3 port;;Nippon Elec. Instruments;;3;;;30.8;OT;;;;;;T;;C;I;;;;06102001;othI;;;;;;;;;;Dell notebook computer with TurboWin Software version 2.12;;;;;;;;;

Providence Bay;MSTM6;9080613;GB;CC;AV;292.1;32.2;8.2;13.0;15.0;221.4;21;5;3;4;23;;;;;;;;;DA;;Negretti & Zambra Precision Aneroid Mk 2;;30.0;;WH;;hPa;;08091997;;ELE;MER;;Zeal 2/C - BS 692;S;S;3;3;30.5;30.5;1;1;P;P;S;S;HC;BU;1.5;;OS7;;36.0;;27.8;;10;;221.4;;3.3 port;;Nippon Elec. Instruments;;3;;;30.8;OT;;;;;;T;;C;I;;;;20102001;othI;;;;;;;;;;Dell notebook computer with TurboWin Software version 2.12;;;;;;;;;

NATIONAL REPORT – UNITED STATES

1. During the past 15 months the U.S. has experienced a period of transition with the National Weather Service (NWS) Voluntary Observing Ships (VOS) program. The primary focus has been on determining with objectivity the number of U.S. VOS participants and in formulating a direction in which to proceed. Initially, the U.S. VOS program consisted of some 2200 active participants, but through an interactive purge of vessels from our data base that had not reported within the previous three years, the number has been reduced to approximately 900 ships today. Of these 900 vessels, some 744 submitted at least one met. observation within the preceding twelve months. We are comfortable with approximately 900 vessels being a representative number of currently active participants.
2. There exist several VOS programs within the United States. The National Data Buoy Center (NDBC) will be hosting a meeting in February 2002 in which the aim is to improve the working relationships between the various VOS programs.
3. Our recruitment of ships to VOSClim has been deferred due to the transitions which our VOS program has experienced and challenges associated with this transition.
4. Originally, some 47 ships were identified as potential VOSClim participants. Although we have not commenced the active recruitment of these vessels, we will do so in earnest immediately after first ensuring the original candidates have remained well suited to be VOSClim participants.
5. We will commence the collecting and forwarding of the meta data to the DAC immediately, beginning with the forwarding of the candidate call signs.
6. SEAS 2000 has already been modified to support IMMT-2 and is currently being distributed.
7. The entry of these ships in the VOSClim Project is seen to be an interim step in what we hope will ultimately lead to full scale VOS modernization, with the development and deployment of automated systems and continued use of VOS ships for drifting buoy deployments (both ocean and met. packages).

ANNEX VI

VOSCLIM PROJECT ACTION PLAN – THIRD YEAR

ACTION	WHOM	WHEN	STATUS
1. Prepare and distribute a test data set for algorithm analysis	SOC	March 2002	
2. Run test data set through automated system algorithms and return results to SOC	Participants	June 2002	
3. Prepare VOSClim certificate of participation and distribute electronically to participants	WMO	End March 2002	
4. Print and issue certificate to participating ships	Participants	Continuous	
5. Finalize paper recruitment/inspection form and instructions and distribute to participants and DAC	Australia	End Feb 2002	
6. Finalize electronic recruitment/inspection form and distribute to participants and DAC	Australia	April 2002	
7. Prepare paper and electronic recruitment/inspection forms in F, R, S and distribute to participants and DAC	WMO	Late 2002	
8. Submit paper recruitment/inspection form to SOT-I for review and possible recommendation concerning use with all VOS	WMO	Feb. 2002	
9. Prepare updated list of ship types for review by JCOMM ETMC	E. Kent	March 2002	
10. Finalize revised Project Document and publish on DAC and WMO web sites	WMO	July 2002	
11. Submit final meeting report of VOSClim-III to SOT-I	WMO	Feb. 2002	
12. Review real time monitoring limits	Met Office and SOC	Ongoing	
13. Prepare first newsletter and transmit to DAC	WMO and participants	Sept 2002	

ACTION	WHOM	WHEN	STATUS
14. Populate web site and initiate operations	DAC	Ongoing	
15. Update consolidated list of potential ships, plus line map and circulate to participants, DAC, RTMC	E. Kent	End Feb 2002	
16. Begin ship recruitment and submit names and call signs to DAC (D. Manns, with copy to: Alan.Hall@noaa.gov) DAC to place list of call signs on the web	Participants, DAC	Immediate	
17. Begin metadata submission to DAC – immediately using U.K. template, and using electronic recruitment/inspection form as soon as available	Participants	Immediate	
18. Begin production of monitoring reports for participating ships and forward to DAC	RTMC	End March 2002	
19. Send monthly reports of suspect ships to participants	RTMC	Continuous, beginning March 2002	
20. Begin submission of IMMT-2 data reports to GCCs	Participants	First quarter of 2002 and at least quarterly thereafter	
21. Fourth project meeting, perhaps in conjunction with an international PMO workshop	Project Leader, WMO, participants	First quarter of 2003	

ANNEX VII

LIST OF ACRONYMS AND OTHER ABBREVIATIONS

ASAP	Automated Shipboard Aerological Programme
CLIVAR	Climate Variability and Predictability (WCRP)
CMM	Commission for Marine Meteorology (WMO)
DAC	Data Assembly Centre
ETMC	Expert Team on Marine Climatology
GCC	Global Collecting Centre
GCOS	Global Climate Observing System
GOOS	Global Ocean Observing System
GTS	Global Telecommunication System (WMO)
IMMA	International Maritime Meteorological Archive
IMMT	International Maritime Meteorological Tape
IMO	International Maritime Organization
IOC	Intergovernmental Oceanographic Commission (of UNESCO)
JCOMM	Joint WMO/IOC Technical Commission for Oceanography and Marine Meteorology
MQCS	Minimum Quality Control Standard
NCDC	National Climate Data Center
NOAA	National Oceanographic and Atmospheric Administration (USA)
PMO	Port Meteorological Officer
RTMC	Real Time Monitoring Center
SEAS	Shipboard Environmental Data Acquisition System (USA)
SHIP	Report of Surface Observation from Sea Station
SOC	Southampton Oceanographic Centre (U.K.)
SOOP	Ship-of-Opportunity Programme
SOT	Ship Observation Team
TD	Technical Document
TOR	Terms of Reference
VOS	Voluntary Observing Ship
VOSClim	VOS Climate (project)
VSOP-NA	Voluntary Observing Ships Special Observing Project for the North Atlantic
WMO	World Meteorological Organization
WOCE	World Ocean Circulation Experiment

VOSCLIM

RECRUITMENT / UPDATE/ DERECRUITMENT ADVICE

Form 001

February 2002

Vessel Information

Vessel Name		Call sign	IMO Number	Recruiting Country	VOS Type	Auto-mation	Baseline check
1		2	3	4	9	10	11
Flag	**Home Port**	**Year of Construct.**	**Date of Recruitment /Derecruitment**		**Routes**		**3hr/6hr/Irreg**
					12		

Details of Ship's Manager		Details of Ship's Agent	
Name		**Name**	
Address		**Address**	
Email		**Email**	
Phone	**Fax**	**Phone**	**Fax**

Vessel Layout

Vessel Type
5
Gross Tonnage
t
Dist of bridge from bow
8 • m

Dimensions		
7 (a)	Length	• m
7 (b)	Breadth	• m
7 (c)	Freeboard	• m
7 (d)	Draught	• m
7 (e)	Cargo ht.*	• m

Digital Image	6

Location of observation points	
Height of barometer* :	15 . m.
Height of thermometers* :	23 . m.
Height of anemometer* :	30 . m.
Height of anemometer** :	31 . m.
Height of visual wind/wave observation point* :	38 . m.
Dist of anemometer (from bow) :	33 . m.
Dist of anemometer (from centre line) :	34 P/S . m.
Depth of sea surface temperature # :	28 . m.

* above maximum summer load line # below maximum summer load line
** above deck on which it is installed

Communications

Inmarsat	A B C …	
Inmarsat	A B C …	
Inmarsat	A B C …	
Inmarsat	A B C …	
Radio Telephone		
Mobile Telephone		

Email	
Facsimile	
Telex	
SEATEX	
Argos	

Equipment

Vessel Name

Instrument	Make	Owner	Type	Serial no.	Exposure	Location	Date in/last calibrated	Date Removed	National Use
Barometer	14		13			16 / 17-Units	18		
Barograph			29						
Screen						Port/Stbd/Midship			
Air Temperature	20		19		21	22 / 24-Units			
Wet Bulb/Humidity			25		26				
Sea Temperature			27						
Wind Speed			35			32 / 36-Usage	37		
Wind Direction			35						
Weather Radar			39						
Sea and Swell			39						
Sub Surface			39						
Upper Air Winds			39						
Upper Air Temps			39						
Rain Gauge			39						
Data Entry Terminal			39						
Data Entry Software				Version:					
Other									

Publications supplied to ship

- ☐ Marine Observers Handbook
- ☐ Meteorology for Mariners
- ☐ Cloud types for Observers
- ☐ Cloud Chart
- ☐ State of Sea Chart/Booklet
- ☐ NWS H/book No 1
- ☐ Ice Handbook

Footnotes:

Comments/Remedial Action:

Port Meteorological Officer

(Printed): _____ **(Signed):** _____ **Date:** _____ **Port:** _____

42 - dd/mm/yyyy

Instructions for completing the VOSClim recruitment/update/derecruitment advice Form 001

Contents **Page**

Instructions for completing the VOSClim recruitment/update/derecruitment advice Form 001

Introduction

In order to improve the accuracy of, and confidence in, meteorological data collected by Voluntary Observing Ships (VOS), a subset of the voluntary observing fleet has been nominated and is referred to as the VOSClim. Observations from vessels belonging to the VOSClim are regarded to be of the highest quality and will be used in a similar way to those collected by land based Climate Reference Stations. In order for the data to be of the required quality, additional metadata needs to be collected and stored by the recruiting country. The metadata required by WMO is detailed in **WMO publication No. 47, Annex V**, and collected on the VOSClim recruitment/update/derecruitment advice (Form 001). For detailed information about the codes and abbreviations used in Form 001, refer to **WMO publication No. 47, Annex V**. The numbers in parentheses refer to the column numbers in this WMO publication.

Purpose

This document is intended as a short guide to filling out the VOSClim recruitment/update/derecruitment advice (Form 001).

Form 001 features two types of input fields: some that are numbered and others that are not.

The numbered fields are for information required by WMO for every VOSClim vessel and must be completed according to the instructions contained in **WMO publication No. 47, Annex V**.

The fields that are not numbered are for national use and may optionally be used to record information about a country's Voluntary Observing Ship. The information in these fields is not required by WMO for the VOSClim vessels and it is therefore up to each country to decide if and how these fields are populated.

This form is intended to be used as a record of the recruitment of a vessel into the VOSClim programme, a reference to its systems while active in VOSClim and to record and advise its derecruitment from VOSClim (by filling in the appropriate derecruitment details at the top of the form).

A new copy of the form should be used to record whenever an instrument is installed or removed from the vessel, or a calibration is performed on the Barometer or Anemometer. However in this case only details relevant to the instrument in question will be needed.

It is intended that this 'Update' form will be attached to the 'master form' so as to provide a complete record of instruments used aboard. Note that WMO only requires the instrument calibration dates. Installation dates and serial numbers need only be collected by the Port Meteorological Officer for her/his own records.

If there are changes to any details of the vessel, such as to the name, call sign or flag, an update copy of the form should be completed and attached to the original (master) form containing the correct details, with a plain language explanation included in the 'comments' field.

If the vessel is decommissioned by one country and recruited by another, the original country's F 001 should be marked to show the derecruitment, and a new recruitment form be filled in by the new country. This should include a comment explaining the vessel's previous VOSClim service for the initial country.

1. Vessel Information

This information is required to uniquely identify the vessel in the WMO database, and supply some general guidance as to the kind of observations that can be expected from her.

Vessel Name (1)
The registered name of the vessel (e.g. Reflection);

Call sign (2)
The Ship's call sign (e.g. VNSB);

IMO Number (3)
The number issued by the International Maritime Organization (e.g. 8717283) to uniquely identify the vessel. This number stays with the vessel even if the name and call sign are changed;

Recruiting Country (4)
The International Organization for Standardization (ISO) code for the country whose Meteorological Service recruited the vessel (This will be a 2-character code, e.g. AU). As stated above, if the vessel is derecruited by one country and recruited (commissioned) by another, a derecruitment F 001 should be appended to the original country's F 001 containing appropriate annotations in the 'Comments' field, and a new recruitment form be filled in by the new country. This should include a comment explaining the vessel's previous VOSClim service for the initial country;

VOS Type (9)
The 2-digit WMO code (as detailed in WMO publication number 47, Annex V) for the type of reporting ship in question (e.g. selected, supplementary, auxiliary);

Automation (10)
The level of automation of the observations. This is a 1-digit code as defined in WMO publication number 47, Annex V, and indicates if the observation is fully automated, or if there is some manual input, and the degree of the manual input;

Baseline check (11)
A 1-digit code (e.g. 1 for fully automated) as defined in WMO publication number 47, Annex V, to indicate if the automatic observing equipment can produce a periodic baseline check to ensure satisfactory operation;

Flag
The country of registration of the vessel (e.g. Australia). This information is not required by WMO, but is included as it may be of interest to the recruiting country;

Home Port
The home port of the vessel (e.g. Port Adelaide). Again, this information is not required by WMO. However it may be of interest to the recruiting country and may also be used to reflect a commonly visited port if no home port exists;

Year of Construct.
The year of construction of the vessel (e.g. 1978);

Date of Recruitment/Derecruitment
The date the vessel was commissioned/decommissioned into VOSClim (e.g. 26 January 1999). If the vessel was previously, or will subsequently, be operating as a VOS, or as another country's VOSClim, this should be mentioned in the 'Comments' field at the end of the form;

Routes (12)
Code number (e.g. enter 9 for the Australia-Pacific Islands route) for the areas or routes on which the ship usually operates. Each recruiting country has defined its own set of routes which can be found in WMO publication number 47, Annex V. These routes differ from country to country and reflect the routes used by the country defined in **(4)**;

3hr/6hr/irreg
The frequency with which observations are normally performed, either every 3 hours, every 6 hours or at irregular intervals. Depending on operational requirements, observations may occasionally be performed more or less frequently (e.g. enter '3' for three hourly observations);

Details of Ship's Manager
The contact details of the vessel's manager. This may sometimes be the ship's owner. This information is intended for local use only, and is not required by WMO. Therefore these fields can be filled in to suit local needs;

Details of Ship's Agent
The contact details of the vessel's agent, or representative, at the port of recruitment. This information is only intended for the PMO to keep a record of how to contact the local agent, should the need arise, and is not required by WMO.

2. Vessel Layout

This information is required as metadata to attempt to model airflow and temperature fields around the vessel to correct or explain anomalies in the recorded data set.

Vessel Type (5)
A 2-letter code as defined in WMO publication number 47, Annex V, defining the type of the vessel (e.g. GC = General Cargo, BC = Bulk Carrier, RV = Research Vessel);

Gross Tonnage
The gross displacement of the vessel, expressed in metric tonnes (e.g. 4157 t). For local use only;

Dist of Bridge from Bow (8)
The distance from the bridge front extremity to the bow of the vessel in metres, expressed to the nearest $^{1}/_{10}$ m (e.g. 36.6 m) as recorded in the ship's survey documentation;

Dimensions (7)
The dimensions of the vessel expressed in metres to the nearest $^{1}/_{10}$ m. These parameters are defined in WMO publication number 47, Annex V:

a. Length
The length over all (LOA) of the vessel (e.g. 94.9 m),

b. Breadth
The moulded breadth (beam) of the vessel (e.g. 20.3 m),

c. Freeboard
The average freeboard of the vessel as measured from the maximum summer loadline (e.g. 2.6 m),

d. Draught
The average vertical distance between the vessel's keel and the maximum summer loadline (e.g. 7.9 m),

e. Cargo ht.
The average height of the cargo above the maximum summer load line on the particular route where observations are made (e.g. 6.5 m). If the cargo is below the main deck (e.g. the vessel is travelling in ballast or is a bulk tanker), report the height of the main deck itself.

Vessel Digital Image (6)
A two letter code as defined in WMO publication number 47, Annex V, advising the availability of a digital image.

The naming convention for the image file(s) is in the following format: xxxxxxxxxyyyymmddaaa...aaa.jpg where

xxxxxxxxx	IMO number (a nine digit number, include leading zeros if applicable)
yyyymmdd	year, month, day
aaa...aaa	short description of the photo

Example: 00085124520020214balloon_launcher_port_side.jpg

Submit the image(s) on a floppy disk together with Form 001;

Location of Observation Points

The distances of observation points to fixed points on the vessel expressed in metres (to the nearest $^1/_{10}$ m):

a. Height of barometer (15)
The height of the barometer above the maximum summer load line (e.g. 14.2 m),

b. Height of thermometers (23)
The height of the thermometers above the maximum summer load line (e.g. 16.2 m),

c. Height of anemometer* (30)
The height of the anemometer above the maximum summer load line (e.g. 27.2 m),

d. Height of anemometer (31)**
The height of the anemometer above the deck on which it is installed (e.g. 21.8 m),

e. Height of visual wind/wave observation point (38)
The height above the maximum summer load line of the visual wind/wave observation point (usually at bridge level, e.g. 14.2 m) ,

f. Dist of anemometer (from bow) (33)
The distance of the anemometer from the bow of the vessel (e.g. 36.6 m),

g. Dist of anemometer (from centre line) (34)
The horizontal distance of the anemometer from the longitudinal centre line of the vessel. Indicate if the anemometer is located to the port or starboard of the centre line (e.g. 2.2 m to port),

h. Depth of sea surface temperature (28)
The depth of the sea surface temperature sensor below the maximum summer loadline (e.g. 4.5 m).

3. Communications

These details are not required by WMO and are intended for local use only and should include the vessel's contact numbers for voice/data communications (e.g. Inmarsat, Radphone, Email address, Facsimile number). For Inmarsat, indicate the type, e.g. A, B, C, M;

4. Equipment

This page is intended to keep track of the equipment installed on the vessel. For each instance of removal/replacement of a piece of equipment (and calibration of the barometer/ anemometer) it is intended that a new copy of the form is completed with only the relevant details. It should be attached to the original form. Be sure to include the name of the vessel in question on the top of page two, in case the form cannot be printed back to back.

The only information required by WMO is where the fields contain WMO reference numbers as defined in WMO publication number 47, Annex V. The fields without numbers are designed to keep track of information for local use only.

Instrument

The instrument that the related columns refer to (e.g. Barometer);

Make
The make/model/series number of the instrument (e.g. N&Z DA MkII);

Owner
The owner of the instrument (e.g. the Australian Bureau of Meteorology, ABOM). This column is intended for use by the PMO to keep track of her/his equipment;

Type
A code indicating the type of instrument in question (e.g. ALC = alcohol thermometer) These codes are defined in WMO publication number 47, Annex V. Make every attempt to insert a meaningful type, i.e. include a make where the instrument type consists of only letters and numbers;

Serial no.
The serial number of the instrument (e.g. CBM 153). This column is intended to be used by the PMO to keep track of her/his equipment;

Exposure
A code, or plain text indicating the conditions of exposure of the instrument (e.g. A = aspirated, SL = sling, US = unscreened);

Location
The location of the instrument (e.g. chart room, monkey deck, etc.). For some parameters different units can be used and these should be specified here. Also the usage of the anemometer should be specified (see column 36 of WMO publication number 47, Annex V);

Date in / last calibrated
The date when the instrument was installed on the vessel using the following format: dd/mm/yyyy (e.g. 30/05/2001). To be filled in at recruitment of the vessel, when a new instrument is added, or on a new form when an instrument is replaced. Also to be used to record the last date of calibration by attaching a separate form F 001 with the calibration date each time a calibration is performed;

Date Removed
The date when the instrument was removed from the vessel in the above format (dd/mm/yyyy e.g. 30/05/2001). To be filled in when an instrument is removed, or when the vessel is decommissioned.

5. Publications Supplied to Ship

Each publication supplied to the vessel should be recorded here by placing a check in the appropriate box or writing its title in the blank space if it is not listed.

6. Footnotes

Any points of importance that have not been included on this form and should be submitted to WMO should be recorded here, (e.g. ‘Barometer located in pressurised wheelhouse, readings taken only when the external door is open'). This includes information for which there was insufficient room provided on the form.

7. Comments/Remedial Action

Any points of importance that have not been included on this form and need not be submitted to WMO should be recorded here.

8. Recruiter Identification and Date (42)

Before submitting the form, print your name (e.g. Sven Bartels), date (e.g. 30/05/2001)and the port you are in (e.g. Port Adelaide), and sign.

Keep a copy of the completed form for your records, and submit the original to your national VOSClim focal point.

VOSCLIM

RECRUITMENT / ~~UPDATE/ DERECRUITMENT~~ ADVICE

Form 001

February 2002

Vessel Information

Vessel Name	Call sign	IMO Number	Recruiting Country	VOS Type	Auto-mation	Baseline check
1 *Reflection*	2 *VNAA*	3 *000851245*	4 *AU*	9 *RV*	10 *3*	11 *2*

Flag	Home Port	Year of Construct.	Date of Recruitment ~~/Derecruitment~~	Routes	3hr/6hr/Irreg
Australia	*Melbourne*	*1989*	*02/04/2001*	12 *1, 15*	*3 hrly*

Details of Ship's Manager		Details of Ship's Agent	
Name *Flagstaff Shipping Co.*		Name *Williamstown Marine Services*	
Address *5 Salvador St.*		Address *The Strand*	
Flagstaff Hill SA 5159		*Williamstown VIC 3012*	
Australia		*Australia*	
Email *FSC@ship.com.au*		Email *WMS@ship.com.au*	
Phone *+618 8298 7589*	Fax *+618 8298 5843*	Phone *+613 9786 3268*	Fax *+613 9786 3269*

Vessel Layout

Vessel Type	Gross Tonnage	Dist of bridge from bow
5 *RV*	*6574* t	8 *36.6* m

Dimensions		
7 (a)	Length	*94.9* m
7 (b)	Breadth	*20.3* m
7 (c)	Freeboard	*2.6* m
7 (d)	Draught	*7.9* m
7 (e)	Cargo ht.*	*13.5* m

Digital Image	6 *AV*

Location of observation points		
Height of barometer* :	15 *16.2*	m.
Height of thermometers* :	23 *16.2*	m.
Height of anemometer* :	30 *27.6*	m.
Height of anemometer** :	31 *3.8*	m.
Height of visual wind/wave observation point* :	38 *16.8*	m.
Dist of anemometer (from bow) :	33 *36.6*	m.
Dist of anemometer (from centre line) :	34 P/S *2.2*	m.
Depth of sea surface temperature # :	28 *4.5*	m.

* above maximum summer load line # below maximum summer load line
** above deck on which it is installed

Communications

Inmarsat	A B C …	*154 3204*
Inmarsat	A B C …	*350 300 32100*
Inmarsat	A B C … *M*	*7618 2934 200*
Inmarsat	A B C …	
Radio Telephone		
Mobile Telephone		*0402 039 295*

Email	*reflection@telstra.ves.net*
Facsimile	*A 154 3332*
Telex	*A 154 3296*
SEATEX	
Argos	

Equipment

Vessel Name: *Reflection*

Instrument	Make	Owner	Type	Serial no.	Exposure	Location	Date in/last calibrated	Date Removed	National Use
Barometer	14 *N&Z*	*BoM*	13 *DA*	*ABX 1344799*	*Bridge*	16 *WH* 17-Units *hPa*	18 *14/02/2002*		*Mk II*
Barograph	*N&Z*	*BoM*	29 *OS 7*	*ABX 1344799*	*Bridge*	*Wheelhouse*	*14/02/2002*		
Screen	*Stevenson*	*BoM*	*Marine*		*2 units*	Port Stbd ~~Midship~~	*14/02/2002*		
Air Temperature	20 *Dobie*	*BoM*	19 *Mer*		21 *SN*	22 *3* 24-Units *1*	*14/02/2002*		
Wet Bulb/Humidity	*Dobie*	*BoM*	25 *OT*		26 *SN*		*14/02/2002*		
Sea Temperature	*Dobie*	*BoM*	27 *BU*			*Port Bow*	*14/02/2002*		
Wind Speed	*Seiki*	*BoM*	35 *Seiki F235*			32 36-Usage *1*	37 *14/02/2002*		
Wind Direction	*Seiki*	*BoM*	35 *Seiki F235*			*7*	*14/02/2002*		
Weather Radar			39						
Sea and Swell			39						
Sub Surface	*Sippican*	*BoM*	39 *XBT*	*ABX 1344799*		*Wheelhouse*	*14/02/2002*		
Upper Air Winds			39						
Upper Air Temps			39						
Rain Gauge			39						
Data Entry Terminal	*Compaq*	*BoM*	39 *OT*	*CT 12256899*		*Wheelhouse*			
Data Entry Software	*TurboWin*	*BoM*		Version: *2.21*		*Wheelhouse*			
Other									

Publications supplied to ship

- [x] Marine Observers Handbook
- [ ] Meteorology for Mariners
- [ ] Cloud types for Observers
- [x] Cloud Chart
- [x] State of Sea Chart/Booklet
- [ ] NWS H/book No 1
- [ ] Ice Handbook
- [x] *5 promotional caps issued (14/02/2002)*

Footnotes:

25 Wetbulb Thermometer: Mercury in Glass

39 Data Entry Terminal: Compaq Armada Pentium III

Comments/Remedial Action:

5 promotional caps issued (14/02/2002)

Port Meteorological Officer (Printed): *Sven Bartels* (Signed): *S. Bartels* Date: *14/02/2002* 42 - dd/mm/yyyy Port: *Melbourne*