

# SOT ANNUAL REPORT FOR 2006

## REPORT BY THE TASK TEAM ON VOSCLIM

*(submitted by Sarah North, Chairperson, VOSCLim Task Team)*

### 1. VOSCLim Project Status

Although further progress has been made since SOT-III in March 2005 the levels of participation, and the volume of project data collected, continue to be slightly disappointing. Nevertheless it is considered that the project has achieved many of its initial objectives and the procedures established for the project should gradually help to improve the quality of all VOS data and increase the contribution of the VOS/VOSCLim to the Global Climate Observing System (GCOS).

At SOT-III it was agreed that the project should progress from an 'implementation phase' into an 'evaluation phase' aimed at determining the added value of the VOSCLim datasets. It was further decided that the VOSCLim project should in future operate as a Task Team under the VOS Panel (VOSP) of SOT. An overview of the project status is at **Annex A** while developments since SOT-III are detailed in the following paragraphs, together with issues that remain to be addressed

#### 1.1 VOSCLim Project Participation

At SOT-III (March 2005) the number of ships recruited to participate in the project stood at 113, whilst at the close of 2004 the number of ships recorded on the project website stood at 169 which is still short of the target figure of a minimum of 200 ships established at the start of the project. Details of participating ships are available on the project website at <http://lwf.ncdc.noaa.gov/oa/documentlibrary/vosclim/vosclimshiplist.xls>.

However, there have been delays between the notification of recruited ships to the Data Assembly Centre (DAC, based at the NCDC, Asheville NC, USA) and their listing on the project website (which at the time of writing this report was last updated six months ago, in September 2006). In recent months there has been some additional recruitment of ships equipped with Automatic Weather Stations (AWS). France, in particular, has increased its level of participation to 21 ships, all equipped with BATOS AWS systems capable of collecting delayed mode project data in the required IMMT-3 format. Similarly it is understood that that number of Canadian project ships equipped with AVOS AWS systems has been increased. Levels of manually reporting VOSCLim ships have also increased since SOT III with the UK, Germany, the Netherlands and Australia having contributed additional ships. Details of the Netherlands recruits, including ship photos, are also now available on the KNMI website at <http://www.knmi.nl/vos/vosclim/>

Accordingly it is anticipated that, by the time of the SOT-IV meeting, the target of 200 ships should be almost achieved. The levels of national participation drawn from the project website, together with details of the actual numbers anticipated by the time of SOT-IV and details of the number of ships that are actually reporting, are given in Table 1. An update on the current status will be given at SOT-IV

Country	Number of VOSClm ships at end 2004 (reported to SOT-III)	Number of VOSClm ships recorded on project website (updated 28 Sep. 2006)	Anticipated number of VOSClm ships by SOT IV (to be updated at meeting)	Number of VOSClm ships reporting (number of reports) Feb. 2007	Target number of ships to participate (notified at previous VOSClm meetings)
Australia	10	12	12	8 (140)	20+
Canada	14	14	[26]	20 (2469)	75
France	6	6	21	2 (257)	8
Germany	11	20	[22]	17 (446)	14
India	21	221	22	4 (113)	-
Japan	5	5	5	5 (1761)	5
Netherlands	1	18	23	14 (383)	-
UK	33	60	63	31 (862)	30+
USA	12	12	12	9 (221)	[~ 50 ]
<b>TOTALS</b>	<b>113</b>	<b>169</b>	<b>~200</b>		

**Table 1: Contribution of ships to VOSClm by country**

One of the reasons for the slow rate of recruitment to the project has been the increasing resource limitations faced by VOS operators, which in some cases has led to reduced PMO numbers (as noted at JCOMM-II) and less frequent ship inspections. It is however encouraging to see that despite these resource limitations the level of participation continues to increase.

**Issue 1:** *To ensure that the project data can be correctly monitored, and the datasets maintained up to date, it is essential that new recruitments and withdrawals are notified promptly to the DAC and that the ship list is maintained up to date on the project website. It is also important that full details of any call sign changes are notified to the DAC at the earliest opportunity. The VOS Quick Reference Guide for VOS Programme Managers (<http://www.bom.gov.au/jcomm/vos/information.html#info1>) indicates that both the DAC and the RTMC should be informed of any changes. However, it is apparent that this procedure is not operating efficiently. The meeting is therefore invited to consider how this procedure could be improved.*

**Issue 2:** *Although the number of ships is now reaching the target level, the volume of project data being collected is less than had originally been expected. The inclusion of a Pub 47 metadata module in the latest version of TurboWin should make recruitment of project ships a simpler process and therefore offers the opportunity to widen the current participation. The meeting is invited to consider strategies for increasing participation, whilst at the same time ensuring that data quality is not diluted.*

**Issue 3:** *Whilst the majority of manually reporting VOSClm ships are equipped with TurboWin electronic logbooks, a significant number are equipped with SEAS or OBSJMA software. Similarly there are a growing number of different AWS software systems in use on both VOS and VOSClm ships nowadays. As yet no comparison of the algorithms associated with these different software systems has been undertaken (although this issue has been raised at previous VOSClm project meetings). Bearing in mind changes made to the 10 metre reference height for wind speeds in TurboWin software the meeting is invited to consider whether there is a need to initiate an analysis of the different software systems now in use, and to document their different capabilities*

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1 Indian VOSClm ships do not report the additional parameters

**Issue 4;** *It has been noted since SOT-III that there are a growing number of ships 'self-recruiting' to the project i.e. some ships are ticking the VOSCLim check box in the TurboWin program to participate in the project despite the fact that they have not been formally recruited by a Port Met. Officer. One way in which this might be avoided could be through incorporating a PMO password protected area in the TurboWin software. However participation in VOSCLim is actually triggered by the National VOSCLim focal point advising of recruitment to the DAC & RTMC. Consequently it could be argued that all ships using suitable electronic logbooks should be allowed to report the additional delayed mode IMMT-3 parameters, as this additional data from all ships would be extremely useful for quality assurance and bias correction. To some extent this is already being done with some AWS systems, which automatically store the additional IMMT-3 data. This subset of data with the additional parameters would not be confused with the higher quality data from VOSCLim ships (which are reported separately to the DAC and the RTMC). The meeting is therefore invited to consider;*

- a) whether all ships using appropriate electronic logbooks or AWS logging software should record the additional 'VOSCLim parameter's whether or not they formally participate in the project, and consequently,*
- b) whether any changes are needed to electronic logbooks, such as TurboWin*

## 1.2 Real Time Data

The transmission of VOSCLim ship observations from the RTMC to the project DAC continues to operate in accordance with the project requirements. Reports are transmitted by the project ships (normally via Inmarsat C) in WMO Ship Code, in the same manner as for normal VOS. The RTMC thereafter appends the six prime model parameters from the forecast model – pressure, relative humidity, air temperature, sea temperature, wind speed and wind direction – to the ship report. These data have been transferred to the DAC since July 2002, and data up to and including August 2006 are available from the project website. Although these data are transferred via the GTS to the DAC in BUFR Code, it is now planned to also make back-up copies of the data available via the Met Office's external FTP server. A more detailed RTMC report will be submitted under agenda item IV-3.4.

## 1.3 Delayed Mode Data

The delayed mode observations from VOSCLim ships (including the additional project code groups) are recorded on the electronic logbooks used by project ships and are subsequently downloaded by visiting Port Meteorological Officers, on a recommended three monthly basis. Minimum quality control procedures are applied to the collected delayed mode datasets before they are sent to the two Global Collecting Centres (located in Hamburg and Edinburgh). Having checked the data quality flags, and clarified any problems bilaterally, the GCC's then send the delayed mode data to the DAC for insertion on the project website. This has been done on a quarterly basis since March 2003. Unfortunately it is not currently possible to access the delayed mode data from the DAC website

In September 2006 the IMMT-3 format formally came into use and permits QC flags to applied to the additional project elements. It replaced the previous IMMT-2 format that allowed the collection of the additional project elements and which was introduced in 2003. Unfortunately not all participating countries are submitting the necessary delayed mode data and the quantity of data submitted has been disappointing with only a quarter of the observations from project ships containing the additional delayed mode elements in 2005. A separate GCC report including information on the processing of delayed mode VOSCLim data will be submitted under VOSP agenda item IV-3.3.

**Issue 5:** *There is a pressing need to encourage all project participants to collect and to submit their ships delayed mode IMMT data to the GCC's on a regular quarterly basis. It has become apparent that some countries were not fully aware of the procedures for IMMT submissions, while others were not able to apply the required MQCS procedures prior to submission to the GCC's, or had insufficient resources to do so (including possible resource contention with existing national QC procedures). Although this situation is gradually improving, the meeting is requested to encourage all project countries to review their procedures and to make arrangements for the routine submission of quality controlled delayed mode data in the current IMMT-3 format—with the highest priority on submission of the IMMT-3 data, even if MQCS is not yet practical. Although not currently*

*within their remit, it is further suggested that the GCC's should be requested to take a more proactive stance with respect to the collection of delayed mode data from both VOSlim (and VOS) ships.*

**Issue 6:** *One of the key features of the VOSlim project was the concept that all relevant datasets (i.e. real time data and associated model data, delayed mode data, and metadata) should be available via a single location on the project website and readily available to climate researchers. Failure by the DAC to make the delayed mode data readily accessible via the project website, along with discrepancies between data streams and the often delayed availability of metadata, has therefore hindered the evaluation of the data by the scientific advisers to the project. The meeting is invited to discuss this issue and to provide guidance how this issue can best be resolved.*

#### **1.4 Metadata**

VOSlim metadata is now collected in the same WMO Publication No. 47 format as used for normal VOS, although PMO's are expected to take additional digital images showing the location and exposure of instruments and to make schematic drawings of the ships arrangements. At the last session it was agreed that these should be submitted to the DAC for archive only, as it was considered that inclusion of such digital imagery on the website could require considerable manual intervention.

The collected metadata is supposed to be made available quarterly via the WMO website [<http://www.wmo.int/web/www/ois/pub47/pub47-home.htm>] which is linked from the VOSlim website. Unfortunately, at the time of writing the most recent metadata available is for June 2006 (i.e. 2 quarters behind schedule). A new format for the WMO Pub. 47 metadata will be implemented in July 2007 and will be addressed under agenda item I-4.3. This new format includes recruitment/withdrawal dates for VOSlim ships and may therefore, in due course, simplify the process of listing VOSlim participating ships on the project website. VOSlim participants are therefore requested to start collecting metadata in the new format at the earliest opportunity

**Issue 7:** *The storage and availability of Pub 47 metadata has been an ongoing problem throughout the life of the project. This issue will be considered under agenda items I-5.1.2 and IV3.6.*

**Issue 8:** *Although some photographic metadata for project ships has been inserted on the project website this information is limited. As digital imagery is now also a requirement for standard VOS, the meeting is invited consider whether a more appropriate method of storing digital information is needed.*

**Issue 9;** *For those countries using TurboWin electronic logbooks the inclusion of a new metadata module in the latest version of the software (V 4.0) should, with time, simplify the collection of metadata by PMO's. As this metadata is maintained in electronic format at source it would be relatively simple for this data to be transmitted back to VOS operators on a regular, say monthly, basis. It may also be possible to program the TurboWin software, which is linked to computer time, to request observers to make submissions at the required intervals. Monthly submissions would also assist the RTMC in preparing its monthly monitoring statistics. The meeting is invited to discuss this proposal and advise as necessary. The value of inclusion of similar features in other electronic logbook software should also be considered.*

**Issue 10;** *Because the new metadata module in TurboWin V4.0 is not password protected it is possible for ships observing officers to amend the recorded metadata themselves on board ship. Although some observers can be trusted with this responsibility it nevertheless introduces the possibility of increased metadata errors. Whilst the responsibility for the collection of metadata from ships should primarily rest with the PMO it could perhaps be helpful for observers to help with this task in certain cases e.g. when ships don't return to a homeport and inspections can be years apart. It would also help with keeping track of call sign changes for monitoring purposes. In such cases it would however still be the responsibility of the recruiting NMS to vet the metadata before entering it into their databases and before making submissions to WMO Pub 47. The meeting is invited to consider whether metadata in electronic logbooks should be password protected*

**Issue 11:** *The collection of metadata in electronic format at source also brings into question the need for VOSlim-specific hardcopy recruitment/update forms to be completed for participating ships. One of the reasons why some PMO's may have been reluctant to recruit new ships is the complexity of the hardcopy form, which, together with the associated instructions, was originally intended to be a means to collect the required metadata. The meeting is therefore invited to consider whether the requirement to complete a hardcopy VOSlim recruitment form should be discontinued for ships equipped with the latest version of TurboWin. National practices for recording inspection would be unaffected.*

## 1.5 Monitoring Statistics

Monthly monitoring statistics for the real time observed data continue to be produced by the RTMC on a monthly basis together with monthly listings of ships whose observations have been flagged as 'suspect'. These statistics are now made available to the DAC via the Met Office external FTP server. VOSClim focal points and PMO's are encouraged to take early remedial action to resolve any monitoring problems.

**Issue 12:** *Unfortunately there have been ongoing problems with the availability of the monitoring statistics on the Project website [<http://www.ncdc.noaa.gov/oa/climate/vosclim/vosclim-stats.html>]. Although statistics are available up to and including November 2005, error messages are received when trying to access more recent statistics. This issue had been raised with the DAC but at the time of writing this report the problem has not been resolved. (It is understood that additional resources may be made available at the NCDC to resolve such issues in the not too distant future).*

## 1.6 Project Website

The project website [<http://www.ncdc.noaa.gov/oa/climate/vosclim/vosclim.html>] is maintained by the DAC, and is intended to act as the main focal point for the project, providing users with easy access to the necessary data. In liaison with members of the Task Team significant improvements were made by NCDC to the website design and layout in 2006. Although these improvements will help to promote the project, it is regretted that the problems of access to the underlying data, referred to in other sections of this report, have still to be resolved. A separate report by the DAC will be submitted under VOSP agenda item IV-3.4.

## 1.7 Project promotion – Project Brochure

Copies of the project brochure were published at the outset of the project and can also be downloaded for printing from the website. The brochure is also available in pdf format within the TurboWin program.

**Issue 13;** *It is understood that printed copies of the VOSClim brochure are now in short supply amongst VOS operators. Printed copies of the brochure have been useful in encouraging new ships and masters to participate in the project, and look more professional than printing of hardcopies locally from electronic pdf files. The meeting is invited to consider whether the content of the brochure needs revision and whether electronic availability is sufficient. If a reprint is considered necessary the meeting is invited to consider how it should be funded.*

## 1.8 Project promotion – Project Newsletter

The first issue of the VOSClim project newsletter was issued in October 2003 and was made available for download via the project website. The newsletter was originally intended as a means for exchanging information and for keeping all those involved in the project – both ashore and at sea – aware of the latest developments. Although resource limitations have prevented further copies of the newsletter from being issued, articles on the progress of the project have been included in publications such as the Mariners Weather Log, the Ocean Views, and the KMNI Marine Information Bulletin

## 1.9 Project promotion – Certification

The formats of the VOSClim Certificate of Appreciation (for presentation, unsigned, to ships observers) and the Certificate of Participation (for presentation, signed, to participating ships) were finalised in made available to participants in 2002, with copies are available for pdf download from the project website. Several participants are issuing framed Certificates of Participation to ships although it is unclear whether Certificates of Appreciation are being issued to observers

**Issue 14:** *There are now a variety of different types of certificate being issued to observing ships (e.g. SOT participation certificates, AMVER certificates, national award certificates etc). The meeting is therefore invited to consider whether the certificate of appreciation should be discontinued*

## 1.10 Masked Call signs

The masking of ship call signs in response to security concerns will be addressed separately

under agenda item IV-4.1.2 and its implications for observation monitoring will also be considered in the RSMC report under agenda item IV-3.1. This issue clearly has implications for the success of the VOSClim Project, especially if national met services adopt non-unique masked 'SHIP' solutions. Although Japan has already adopted such a scheme for its ships that send observations via Yamaguchi LES, it is understood that this will not apply to the Japanese research ships, which have been recruited to the project. Unique masked call signs such as those proposed by the E-SURFMAR programme will also have implications for the project as a secure look up table, accessible by FTP server, will be needed to correctly identify the masked ships that have submitted data

**Issue 15:** *Details of the masked project ships will need to be made known to the RTMC to enable observation monitoring to continue, and to enable project ship data to be correctly identified by the DAC. This will inevitably require changes to the data traffic systems in the RTMC, which will incur costs and may take some time to implement. A uniform international approach to this problem is therefore needed to avoid the RTMC having to develop different systems for individual national met service requirements. This will be discussed under agenda item IV4.1.2.*

## **2. VOSClim Project Datasets**

### **2.1 Dataset Construction**

Because there have been a variety of issues with the availability of VOSClim data in recent years, attempts have had to be made to construct a version of the data from the following alternative sources;

- All surface marine observations (VOS, moored buoys and drifting buoys) from the Global Telecommunications System (GTS), along with co-located Numerical Weather Prediction (NWP) model output have had to be provided to the National Oceanography Centre, Southampton by the Met Office. The data are being updated in near real time (typically with a 2 day delay).
- The International Comprehensive Ocean-Atmosphere Dataset (ICOADS, <http://icoads.noaa.gov/>).

These data, along with Pub. 47 metadata (as available), and are now being used to construct a dataset of VOS reports, with associated model output and metadata. It is hoped to extend this using the delayed mode VOSClim parameters from the DAC when made available (or the GCCs if necessary) but it has not proved possible to do this yet. VOSClim data within the dataset are identified using a flag. Some results of the VOSClim analysis will be reported in the SOT-IV Technical Workshop.

**Issue 16:** *Several differences between the contents of the different data streams have been identified. Around 10% of reports are available from only one stream and there are differences between the content of the records due to the different procedures and adjustments applied at the different data centres. The JCOMM Expert Team on Marine Climatology will consider these differences at their 2nd Session in March 2007.*

### **2.1 GTS data exchange and BUFR format**

From 2012 all GTS international data exchange between National Met Services will be required to use either BUFR or CREX table driven formats. However, the use of existing BUFR templates for data exchange has its drawbacks and their use for VOSClim data exchange has implications for the consistency of the data

**Issue 17:** *Although amendments to the VOS BUFR templates to include the additional VOSClim parameters have been developed for consideration by CBS working groups, the suitability and necessity of BUFR for VOSClim data exchange remains in question. The meeting is invited to consider this question and to consider the current status of the VOS BUFR template (which includes the VOSClim parameters), which will be discussed under agenda item I6.2.2.*

**Issue 18:** *Bearing in mind that it is planned to make a backup of the project BUFR data available to the DAC via the Met Office's external FTP server, the meeting is also invited to consider whether the GTS remains the preferred system for the exchange of VOSClim data between the RTMC and the DAC or whether a move to FTP is desirable.*

### 3 VOSClm 'Project' or 'Programme'

One of the original objectives of the VOSClm project, outlined in the Project Document, is the intention that it should eventually transform into a long-term operational programme. Although there have been some problems with data availability on the project website, the data delivery process is now effectively in place, and the target number of ships has almost been achieved. It is recognised that there remain a number of issues to resolve, such as those identified above, but these are now mostly matters of detail rather than substance.

**Issue 19:** *Given the current state of progress of VOSClm given in this report, the meeting is therefore invited to consider whether it should remain as a 'project', or whether the time is now approaching when it should be established as a fully integrated component of the VOS Programme. If so how best can this be achieved? e.g. should it continue as VOS Climate subset within the VOS Scheme? , or should a decision be made to progressively aim to upgrade all suitable VOS to higher quality VOSClm standards?*

**ANNEX A****Overview of VOSClim Project Status**

<b>Element of VOSClim Project</b>	<b>Implemented?</b>	<b>Status</b>
Recruitment	Yes - but more needed	Initial target of 200 ships almost met.
Real time data exchange	Mostly	Data after July 2006 not available from DAC website. Backup FTP transfer to be implemented BUFR template not ideal for exchange.
Metadata availability	Partly	Metadata often only available with significant delay. Availability of digital imagery not fully resolved
Delayed mode data exchange	Mostly	IMMT-3 approved by JCOMM-II. MQCS-V being implemented by participating countries. Data not available from DAC website.
Monitoring	Mostly	Monthly statistics for full range of variables being produced by RTMC. Monitoring information available up to November 2006 from DAC website. Mechanisms for logging monitoring follow up not fully resolved
Project Promotion	Yes	Brochure available. Newsletter and articles issued Certification being issued
VOSClim website	Partly	Website updated in 2006 Not all data streams available on website. Recent monitoring information not available.
VOSClim Dataset	Partly	Assembled from a variety of sources (still need update for recent metadata and delayed mode data). No mechanism for regular updating.
Scientific Analysis	Partly	Exploitation of dataset delayed by past lack of availability of data streams. Scientific journal paper published using VOSClim dataset. Some comparison of VOS and VOSClim reports (SOT-IV Scientific and Technical Workshop). No wide engagement from scientific community (interest expressed but suitable datasets not yet available).
Review	Starting	Review of requirements for both VOS and VOSClim requested by JCOMM-II.



**Review of Status of action items from SOT-III**

III-B/1.3.2	DAC to link to the latest version of Pub. 47 on the WMO web site and the JCOMM VOS web site, and the tools for metadata display and interrogation on the JCOMMOPS website.	DAC	Done
III-B/1.3.2	Scientific Advisers to be responsible for the association of metadata with individual VOSClim reports. A mechanism for the provision and storage of VOSClim digital images to be investigated.	Scientific Advisers and DAC	Part done
III-B/1.3.3	Increased recruitment of VOSClim ships.	VOSClim operators, VOS operators who have yet to contribute	Ongoing/ done
III-B/2.1.2	RTMC to take appropriate actions so that only reports received in ocean areas (model surface type 'ocean') would be included in the monitoring statistics.	RTMC	Done
III-B/2.1.2	Operators who had responded to the monitoring statistics to provide feedback on remedial actions.	VOSClim operators	Part done
III-B/2.1.2	Once the VOS monitoring feedback system is established, using JCOMMOPS facility, mechanism to be extended to VOSClim project.	RTMC, JCOMMOPS Coordinator, VOSClim operators	Not done
III-B/2.1.2	An up-to-date list of the project focal points to be maintained on the web site.	VOSClim operators	Done
III-B/2.1.2	Modifications to the list of participating ships to be sent to the RTMC and VOSClim Data Assembly Centre	VOSClim operators	Part done
III-B/2.2.1	DAC and RTMC to take actions to recover data from the Met Office to fill the gap in the BUFR data stream between the end of April and the end of August 2003 due to the transition from e-mail to GTS transmission of the BUFR data stream.	DAC and RTMC	Done
III-B/2.2.2	DAC and the RTMC to agree on improved mechanisms, which will be put in place to avoid RTMC BUFR data loss.	DAC and RTMC	In hand
III-B/2.2.2	Mechanisms for simplifying data delivery between RTMC and the DAC, such as ftp, to be considered	DAC and RTMC	In hand
III-B/2.2.2	DAC to simplify data delivers to users using ftp site.	DAC	Part done
III-B/2.2.2	RTMC to investigate whether the monthly statistics and suspect lists can be transferred to the DAC by ftp rather than e-mail.	RTMC	Done
III-B/2.3	VOSClim operators to ensure implementation of the latest version of IMMT.	VOSClim operators	Ongoing/ Part done
III-B/2.3.2	All contributing members of the VOSClim project to review their delayed mode data submission processes to the GCCs in IMMT-2 or IMMT-3, and ensure or work toward their processes and submissions being up-to-date	VOSClim operators	Ongoing
III-B/2.3.3	France to attempt to revise the BATOS system.	France	Done
III-B/3.1.1	Since the lack of delayed mode data for the VOSClim project is a problem, as an interim measure VOSClim operators to provide raw data from the data entry software direct to the Scientific Advisers.	VOSClim operators	Not done
III-B/3.1.2	Scientific Advisers to convene an informal 'Scientific Users Group' to widen expertise inform the development of the high-quality dataset and guide the assessment and exploitation of the value of VOSClim datasets.	Scientific Advisers	Part done
III-B/3.1.2	A strategy for the future production and maintenance of a high-quality dataset to be developed and agreed based on results of assessment of value of VOSClim datasets. The strategy to include a determination of how many ships and observations will be needed to ensure the quality of the dataset.	Scientific Advisers	In hand
III-B/3.1.3	JCOMMOPS to set up and maintain a VOSClim Task Team mailing list.	JCOMMOPS	Done
III-B/3.1.4	New Task Team on VOSClim to prepare a report to SOT-IV on, inter-alia, overarching VOSClim issues.	Task Team on VOSClim	This report
III-B/3.1.5	Scientific Advisers to produce a VOSClim dataset for presentation at SOT-IV. Mechanisms for the maintenance of the dataset to be developed.	Scientific Advisers	Part done

III-B/3.1.5	VOSClm operators who are currently not providing delayed mode data in IMMT-2 and IMMT-3 formats to the GCC to contact the Scientific Advisers ( <a href="mailto:eck@noc.soton.ac.uk">eck@noc.soton.ac.uk</a> ) to arrange delivery of delayed mode data as a temporary measure to allow scientific assessment to proceed.	VOSClm ship operators	<b>Not done</b>
III-B/3.2.2	As an alternative to issuing a VOSClm Newsletter, Robert Luke (USA) to include an updated VOSClm article in a coming edition of the US Mariner Weather Log. NMS encouraged to take similar actions.	Robert Luke, NMS	<b>Done</b>
III-B/3.2.3	DAC to review the front page of the VOSClm web site and make revisions as appropriate. The Task Team on VOSClm to advise the DAC regarding any web site enhancement.	DAC and Task Team on VOSClm	<b>Done</b>