

VOS Climate Project (VOSCLim)



Newsletter No. 1 – October 2003

**Thank you for participating in this important project
– we look forward to hearing from you in future
issues!**

Welcome to the first issue of the VOSCLim Newsletter. This newsletter is our way of thanking everyone involved in the project for their support, and is also intended as a method of keeping participants informed of the latest status of the project. It is primarily directed to those observers on participating ships who voluntarily give their time to submit the observations that are so essential to our studies. However, the newsletter is also open to all those data users and meteorologists ashore who are busy collating and analysing the observations. Contributions are welcomed from anyone involved in the project.

The project is now in its implementation phase with almost 100 ships having been recruited to participate so far. The project website is now active and the valuable incoming data from project ships are now being monitored and analysed. We are therefore off to an excellent start!

S C North Project Leader

We should perhaps first set the scene by reminding ourselves how this ambitious project came into being, and why it is so important.

What is the VOSCLim Project?

Observations from Voluntary Observing Ships (VOS) have been providing vital information about the weather, and improving our knowledge of the earth's climate, for well over a hundred years.

As our understanding of the ways of the weather improves, data from satellites and improved computer models are increasingly called on to ensure accurate weather forecasting. This, in turn, has led to a growing demand for higher quality of measurements from the oceans.

Between 1988 and 1990 a special observing programme for Voluntary Observing Ships in the North Atlantic took place. It demonstrated that the quality of weather data was subject to the

types of instruments used, their exposures, and the observing practice of ships' personnel.

The main purpose of the VOSCLim Project, which is a natural extension to this earlier programme, is to provide a high quality sub-set of marine meteorological observations. These data, which will be available in both real-time and delayed mode, will be utilised for satellite ground truth verification, climate change studies and research into climate prediction.

What are the benefits?

By participating in the VOSCLim Project the shipping industry will be helping mankind face one of its greatest challenges — to understand the large-scale weather changes associated with climate change.

In recent years warmer sea and air temperatures have been observed, suggesting that rapid global warming is occurring, perhaps

due to changes in the atmosphere caused by man. To help us to understand these changes it is essential that we collect high quality data and fully document the observing practices on board participating ships.

Quality observations from the ships which have been specially chosen to participate in the VOSclim project are also needed to verify the information we derive from satellites and from our numerical prediction computer models

Higher quality observations, combined with an increased knowledge of the exact observing environment for each ship, will also benefit operational marine forecasting. Quality forecasts are, in turn, indispensable for ensuring maritime safety.

Information generated by participating VOSclim ships will also provide a benchmark dataset against which the accuracy of non-participating voluntary observing ships can be assessed.

What is Metadata?

Additional data, referred to as 'Metadata', is collected by visiting Port Meteorological Officers for each participating ship, and is an essential ingredient of the project. This includes information about the type and exposure of each ship's meteorological instruments, supported by digital photographs and arrangement drawings. Any particular characteristics of a ship that might influence meteorological readings are recorded.

Most of this metadata is collected at the time of initial recruitment to the project. However, once recruited, our Port Meteorological Officers will endeavour to visit project ships at regular intervals, ideally quarterly. Information about

any changes made to instrumentation will be recorded and, if necessary, the opportunity taken to resolve any observing problems.

How many ships are taking part?

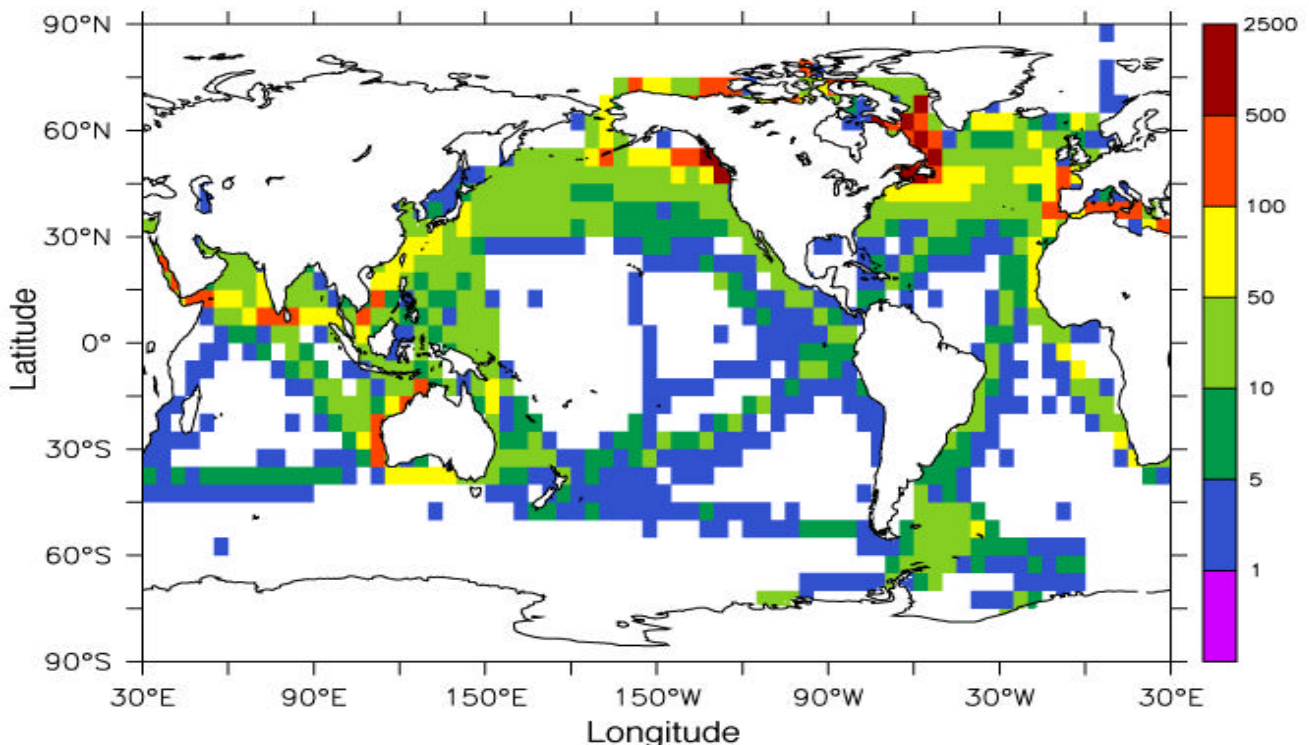
Careful ship recruitment is a critical to the projects success. An initial target of 200 ships was set for the project, and the current total stands at just over 90 ships.

Ships are selected for recruitment on the basis of their previous observing performance, and a more or less global coverage in both space and time is aimed for. Those ships making regular and frequent ocean crossings are ideal recruits as they can be routinely inspected by local Port Meteorological Officers. However ships operating in data sparse areas, such as those sailing in the Southern Oceans, Antarctic supply ships and research vessels, are of particular value to the project.

A full listing of all the ships that are participating in the project will be included in each issue of the newsletter, and is also available on the project website.

The map below shows the observation density for ships real-time data during the period February 2002 to April 2003, and gives an advance indication of the level of coverage likely to be achieved by project ships.

We are therefore making good progress and with the co-operation of ships on an international scale, the desired creation of a dataset of high-quality marine observations will be achieved.



VOSCLIM Ship List

(October 2003)

Ship Name	Call Sign	Date Recruited	Date Withdrawn	IMO Number	Recruiting Country
Kimberley	V2FM	22/11/2001		8912912	Australia
Al Messilah	9KWH	01/11/2001		7924425	Australia
Australian Pride	VNVJ	17/11/2001	09/10/2002	8613281	Australia
Japonica	C6SU3	09/10/2002		8613281	Australia
Pacific Triangle	ELXS8	30/01/2002		9189158	Australia
Arafura	MZHC8	28/11/2001		8917778	Australia
Nivosa	VJNV	20/12/2001		8300602	Australia
Bader III	C6HS4	24/08/2003		7504598	Australia
Al Kuwait	9KKS	01/10/2003		6705303	Australia
Sir Wilfred Laurier	CGJK	01/05/2002		8320456	Canada
Newfoundland Otter	CFD3659	01/05/2002		8915782	Canada
Terry Fox	CGTF	01/05/2002		8127799	Canada
John P. Tully	CG2958	01/05/2002		8320420	Canada
Arctic	VCLM	01/05/2002		7517507	Canada
Pierre Radisson	CGSB	01/05/2002		7510834	Canada
Leif Ericson	VOCJ	01/10/2002		8917388	Canada
CCGS Dumit	CG2522	01/10/2002		<i>to be confirmed</i>	Canada
CCGMS Limnos	CG2350	01/10/2002		6804903	Canada
Samuel Risley	CG2960	01/10/2002		8322442	Canada
Des Groseilliers	CGDX	01/10/2002		8006385	Canada
CCGS Eckaloo	CG2992	01/10/2002		<i>to be confirmed</i>	Canada
CCGS Griffon	CGDS	01/10/2002		7022887	Canada
GSI Admiral	VOCC	01/01/2003		7384314	Canada
L'Atalante	FNCM	01/07/2003		8716071	France
Val de Loire	FNVA	01/07/2003		8502406	France
Descartes	FNCI	01/07/2003		7039074	France
Edouard LD	FNFD	01/07/2003		7359670	France
Marion Dufresne II	FNIN	01/07/2003		9050814	France
Tellier	FNJI	01/07/2003		7229459	France
Pohang Senator	DQVN	01/09/2002		9147071	Germany
Pudong Senator	DQVI	01/09/2002		9141261	Germany
Pugwash Senator	DQVL	01/11/2002		9141297	Germany
Portugal Senator	DQVO	07/03/2003		9147083	Germany
Punjab Senator	DQVK	24/02/2003		9141285	Germany
Penang Senator	DQVH	14/03/2003		9139490	Germany
P&O Nedlloyd Samba	ELVG7	25/03/2003		8918992	Germany
Peking Senator	DQVJ	11/04/2003		9141273	Germany
Hanjin Philadelphia	A8AD5	02/02/2003		9232101	Germany
Portland Senator	DQVM	27/01/2003		9141302	Germany
M.T.A.B. Tarapore	VWXG	16/10/2000 *		<i>to be confirmed</i>	India
M.T. Annapurna	VTXT	16/10/2000 *		<i>to be confirmed</i>	India
M.T.B.R. Ambedkar	ATJZ	16/10/2000 *		<i>to be confirmed</i>	India
M.T.C.P. Shivaji	ATKE	16/10/2000*		<i>to be confirmed</i>	India
M.V. Harshavardhan	ATIU	16/10/2000*		<i>to be confirmed</i>	India
M.V. Hardwar	VVJV	16/10/2000*		8321096	India
M.T. Havildar Abdul Hamid	VWWY	16/10/2000*		8316652	India
M.V. Kanpur	VVGQ	16/10/2000*		8321034	India
M.V. Lok Pratima	VTGN	16/10/2000*		7503876	India
M.T.C.H.M. Piru Singh	VWNS	16/10/2000*		<i>to be confirmed</i>	India

VOSCLim Ship List – ctd

Ship Name	Call Sign	Date Recruited	Date Withdrawn	IMO Number	Recruiting Country
M.T.Major Shaitan Singh	VVWK	16/10/2000*		8316613	India
M.V. Nancowry	VTXB	16/10/2000*		8606434	India
M.T. Nanga Parbat	VTXF	16/10/2000*		8903129	India
M.V. Patliputra	VVKK	16/10/2000*		<i>to be confirmed</i>	India
M.V. Rajiv Gandhi	VVGG	16/10/2000*		<i>to be confirmed</i>	India
M.T. Sabrimala	VTXK	16/10/2000*		<i>to be confirmed</i>	India
M.V Sagar Kanya	VTJR	16/10/2000*		8123183	India
M.T Satyamurti	ATJW	16/10/2000*		7373901	India
M.V. S/o Tripura	ATQO	16/10/2000*		<i>to be confirmed</i>	India
M.T. Tirumalai	VTXG	16/10/2000*		8512413	India
Pelagia	PGRQ	01/11/2002		9001461	Netherlands
Peninsular Bay	MHCQ7	06/10/2001		8808628	UK
Scottish Star	C6KU8	10/09/2001	12/05/2003	8315994	UK
St.Lucia	C6LF8	30/08/2001		9038323	UK
Dominica	C6LF9	15/08/2001		9038335	UK
Queen Elizabeth 2	GBTT	10/12/2001		6725418	UK
Oriana	GVSN	23/05/2002		9050137	UK
Resolution Bay	GXEV	26/10/2001	17/09/2002	7417575	UK
City of Cape Town	GXUP	05/09/2001		7510901	UK
Providence Bay	MSTM6	20/10/2001		9080613	UK
P&O Nedlloyd Southampton	MXBC6	18/05/2002		9153850	UK
CanMar Honour	ZCBP5	03/09/2001		9165360	UK
James Clark Ross	ZDLP	10/09/2001		8904496	UK
City of London	MXMM5	28/08/2001		9137703	UK
Ernest Shackleton	ZDLS1	19/09/2001		9114256	UK
Glasgow Maersk	MZGK7	12/09/2001		9193420	UK
P&O Nedlloyd Genoa	MYMX5	05/08/2002		9168219	UK
P&O Nedlloyd Shackleton	ZQYC5	23/01/2002		9211494	UK
Discovery	GLNE	19/02/2002		5090660	UK
Mairangi Bay	GXEW	12/10/2001	31/07/2002	7417563	UK
Berlin Express	GQHC	17/08/2001	31/07/2002	7218383	UK
Grasmere Maersk	ZQAY4	10/09/2002		9193276	UK
Maersk Gateshead	VQBW2	05/12/2002		9235543	UK
Pegasus Bay	GXIC	01/09/2001	01/11/2002	7510896	UK
Chiquita Belgie	C6KD7	16/03/2003		9015204	UK
Chiquita Nederland	C6KD9	27/04/2003		9015199	UK
Newport Bay	MQEC7	05/04/2003		9005558	UK
OOCL Montreal	VRY03	02/07/2003		9253739	UK
APL Japan	S6TS	27/08/2002		9074391	US
APL China	S6TA	17/06/2002		9074389	US
APL Singapore	WCX8812	27/08/2002		9074547	US
APL Korea	WCX8883	27/08/2002		9074535	US
APL Thailand	WCX8882	27/08/2002		9077123	US
APL Philippines	WCX8884	27/08/2002		9077276	US
President Truman	WNDP	10/02/2003		8616283	US
President Adams	WRYW	02/07/2002		8616434	US
APL Kennedy	WRYE	28/03/2003		8616295	US
President Jackson	WRYC	28/02/2003		8616300	US
President Polk	WRYD	15/04/2003		8616922	US
Horizon Spirit	WFLG	11/06/2002		7729459	US

* Date ships were proposed for participation in the project

VOSClm Gallery



The *Australian Pride* (now sailing as *Japonica*), recruited by Australia.

The *Grasmere Maersk* recruited by the United Kingdom.



The Royal Research Ship *James Clark Ross* recruited by the United Kingdom.

Saying 'thank you' to ships recruited for the VOSCLim Project

All ships participating in the project are presented with a framed Certificate of Participation, while ship's observing officers qualify for a framed Certificate of Appreciation in recognition of their work.



Captain J. Harris , above left, with Captain Harry H. Gale (UK PMO for South-east England) accepts a certificate marking the participation of the *City of Cape Town* in the project.



Left - Captain M. Samwell (on right with Captain Gale), accepts a certificate marking the participation of the *Grasmere Maersk* in the project.

Right - Captain H.P. Lobo receives a certificate of participation from Steve Keys (UK Port Met Office for South-east England), recognising the work of the *CanMar Honour* in the VOSCLim Project.





Captain G.M. Long, Master of the R.R.S. *Discovery*, with the ship's certificate of participation (and a special award recognising his assistance with the deployment of drifting buoys on behalf of the UK Met Office).

M.V. *Arafura*, Melbourne, 20 August, 2003.

Capt. Barry Hinchcliffe receiving the VOSClm Certificate of Participation from Graeme Ball, Marine Operations Group, Commonwealth Bureau of Meteorology.



M.T. *Japonica*, Fremantle, 10 September, 2003.

Captain Tony Holitzer and 2nd Mate Andrew Cambridge (wearing the Commonwealth Bureau of Meteorology's Marine Observing Program cap) holding the VOSClm Certificate of Participation presented by Mal Young, PMO Fremantle.

M.V. *Kimberley*, Fremantle, 19 September, 2003.

Mal Young, PMO Fremantle, presenting the VOSClm Certificate of Participation to Captain David Heppingstone



A First Look at the VOSCLIM Data

The first reports from ships recruited to VOSCLIM were made nearly two years ago; by April 2003 there were over 40 thousand reports from 75 ships recruited by 7 different countries. This means that we now have enough reports to begin looking at some of the scientific questions that we hope to answer using this unique dataset. We here show how the VOSCLIM data is helping to quantify errors in ships' reports of air temperature caused by the heating of the ships superstructure.

The weather reports made by VOSCLIM ships are extracted from the GTS, the Global Telecommunication System, by the Met Office in the UK. Each ship report is then combined with output from the Met Office weather forecast model. Checks are made that the report is in broad agreement with the forecast and the combined data sent to the US for archival. The preliminary results shown here are from a comparison of this ship data and model output. However we are also using the metadata provided by the Ships' Officers and Port Meteorological Officers giving information about the types of instruments, their locations and the methods used to make the observations. Whilst we know that weather forecasts can often be wrong, comparisons with model output are a powerful tool for comparing data which are scattered around the globe. We need to use large amounts of data in our analyses so we can average out problems caused by bad forecasts or individual ships to get an overview of the data.

Example Analysis: Air Temperature

Ships heat up during the day and become warmer than the air around them; how much does this affect the air temperature values? The graph

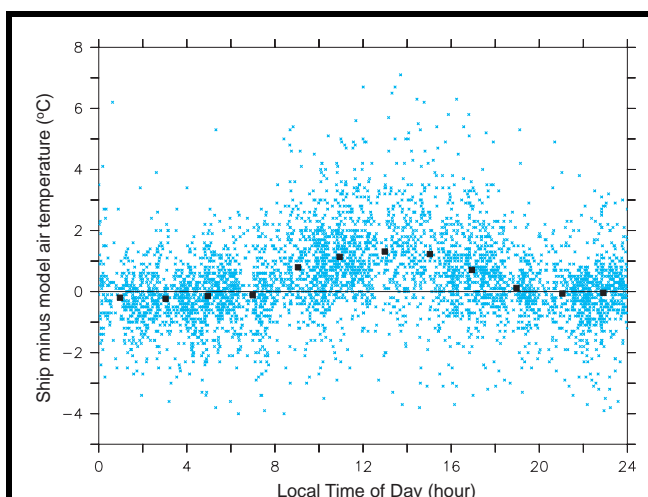


Figure 1: Ship minus model forecast air temperature as a function of local time of day for all VOSCLIM ships reporting in the Tropics between February 2002 and April 2003. Crosses show individual ship - model differences and the squares these same differences averaged in two hourly intervals. The scatter is large, partly due to errors in the ship data and partly due to errors in the forecast.

shows how the difference between the ship and the model forecast temperature varies throughout the day for observations made in the Tropics. The crosses show the individual differences for each report and the squares the same differences averaged into two hour intervals. At night the ships are on average slightly colder than the model forecast (ship - model air temperature negative) but during the day the ships are on average warmer than the model predicts by more than 1°C. The figure also shows, as one might expect, that the ship is warmer in the evening than at the corresponding time in the morning. This allows us to calculate the size of the error due to the ship heating up during the course of the day. We expect that the relative warming of the ships will be greatest for large ships where the air temperature sensors are close to the ships superstructure or poorly exposed. The photographs show how the exposure of the air temperature screens varies among the VOSCLIM ships.

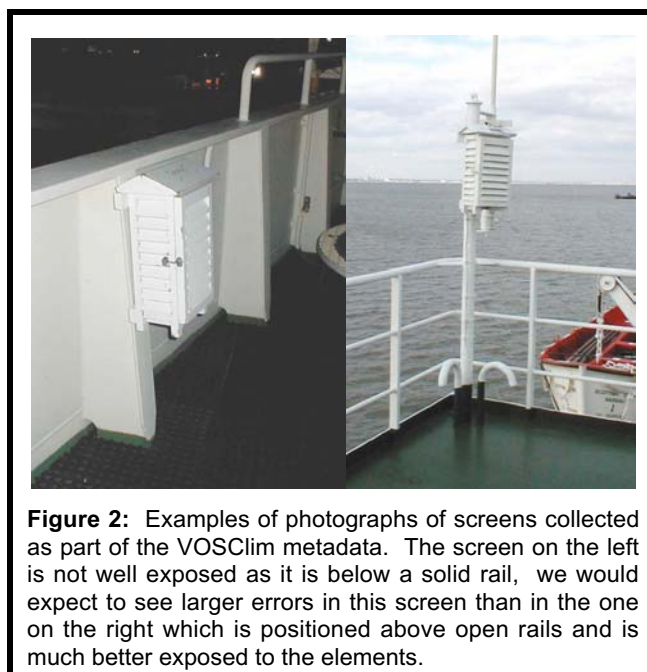


Figure 2: Examples of photographs of screens collected as part of the VOSCLIM metadata. The screen on the left is not well exposed as it is below a solid rail, we would expect to see larger errors in this screen than in the one on the right which is positioned above open rails and is much better exposed to the elements.

We are developing a correction model for this warm bias in ships' daytime air temperature reports so that the daytime reports can be used in climate studies to increase the amount of data available. Although in this example of the scientific analysis shows up a problem with the ships' reports, we expect that as the analysis continues we will find examples where the ship data reveals problems with the weather forecast.

We will report on the ongoing analysis of the dataset in future issues of the newsletter.

Elizabeth Kent, Southampton Oceanography Centre, UK.

- Check out the Website at.....

..... <http://lwf.ncdc.noaa.gov/oa/climate/vosclim/vosclim.html>

At the heart of the project is the project website. This is the focus for the data generated by the project and is the repository of all the information necessary for its efficient operation. Together with this newsletter it provides an important avenue for exchanging information and for keeping all those involved in the project – both ashore and at sea – aware of the latest developments

Although it is recognised that very few ships currently have easy internet access on board, observers may wish to check the project website out next time they are on leave. It includes:

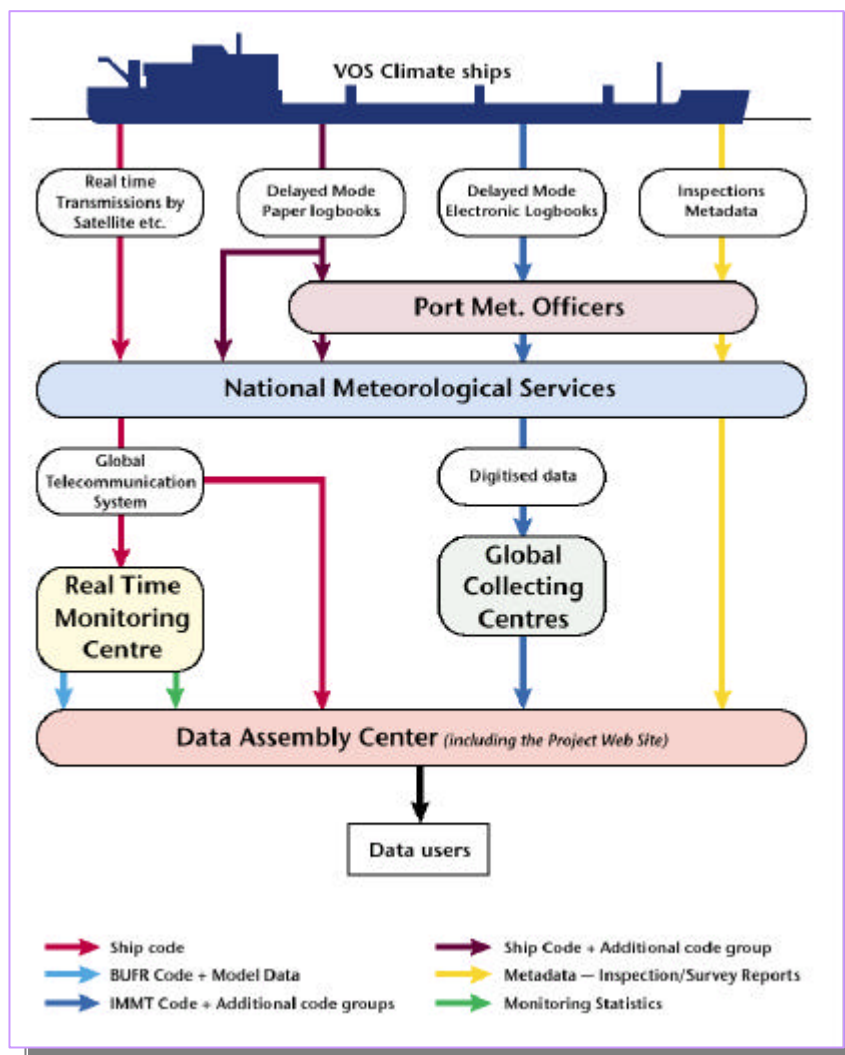
- Up-to-date lists of all participating ships
- Downloadable copies of this project newsletter
- Access to the metadata collected for participating ships
- Data sets of all the ships observations (both real time and delayed mode) and associated model data
- Copies of the project documentation and certification
- Lists of project contact points and Port Meteorological Officers
- Monthly statistical observation monitoring information for each participating ship
- Links to other information relevant to the project

The screenshot shows the VOSCLIM Project Home Page. At the top, there is a navigation bar with links: [NCDC / Climate / GetView / VOSCLIM Project / Search / Help](#). Below this is a banner image with the text "Voluntary Observing Ship CLIMate Project". The main content area is divided into two columns. The left column contains a "Home" section with a list of links: [Search For Ship](#), [Monthly Data](#), [Ship Information](#), [Inspections](#), [Monthly State/Subject List](#), [Survey Form](#), [Certificate of Ship List](#), [Project Document](#), [Links](#), [FTP Directory](#), [Newsletter](#), and [Country Contacts](#). The right column contains the following text: "Welcome to the VOSCLIM Project Home Page. VOSCLIM is an ongoing project within JCOMM's Voluntary Observing Ships' Scheme. It aims to provide a high-quality subset of marine meteorological data, with extensive associated metadata, to be available in both real-time and delayed mode to support global climate studies. VOSCLIM is a follow-up to the earlier VOS Special Observing Project North Atlantic (VSOP-NA) which was conducted on behalf of the World Climate Research Project (WCRP) from 1988 to 1990. Data from the project will be invaluable for climate change studies and research. In particular it will be used to: 1) input directly into air-sea flux computations, as part of coupled atmosphere-ocean climate models; 2) provide ground truth for calibrating satellite observations; 3) provide a high quality reference data set for possible re-calibration of observations from the entire VOS fleet. A few of the links in the side bar are under construction. Some metadata is now available online and VOSCLIM data will be available starting with January 2003 data. For detailed information about the VOSCLIM Project, look at the following documents: [Explanatory Brochure...PDF Version](#) and [Project Document](#)".

▪ **How does it all come together ??**

The schematic diagram below gives a simple overview of where the data goes once it has been transmitted by a participating ship, or collected by a visiting Port Meteorological Officer.

The 'real-time' observed data is transmitted in Ship Code by project ships (usually via Inmarsat) to the National Met Services in order that it can be disseminated internationally on the Global Telecommunication System for use by operational forecasters. The data – including a number of additional code groups essential to the project - are also stored on board as 'delayed-mode' observations (either in the ships meteorological logbook, or in an electronic logbook such as TurboWin) until such time as they can be collected by a visiting Port Meteorological Officer.



The UK Met Office in its capacity as the Real Time Monitoring Centre (RTMC) for the project transfers the datasets of the real-time observations, together with associated forecast model field values, to the Data Assembly Centre (located at the National Climatic Data Centre in the United States). Meanwhile, the delayed mode observations that are collected by the Port Meteorological Officers are and then sent to the Global Collecting Centres (located in Edinburgh, UK and Hamburg, Germany) who apply quality control procedures before also forwarding the data on to the Data Assembly Centre. The resultant data for all participating ships is then made available to users and researchers through the project website.

■ Monitoring the data

Observation data received from VOSclim ships is monitored to more stringent criteria than normal voluntary observing ships.

Six elements of each ship's observations receive particular attention - pressure (corrected to sea level); wind direction; wind speed; sea-surface temperature; air temperature; and humidity. Statistics of the 'fit' of these observed variables with numerical weather prediction model results are generated, and any ships that appear to have submitted suspect observations are 'flagged' for attention. A Port Meteorological Officer (PMO) will then arrange to visit the ship at the earliest opportunity in order to correct the problem.

Monitoring lists are posted on the project website (<http://wf.ncdc.noaa.gov/oa/climate/vosclim/vosclim.html>) on a monthly basis

■ Want to contribute to the newsletter?

Any questions, comments and letters about the project – or contributions to the newsletter - can be sent via your local Port Meteorological Officer, or sent direct to the World Meteorological Organization at:

Ocean Affairs Division World Weather Watch–Applications Department WMO
7bis avenue de la Paix Case postale 2300 Geneva 2 Switzerland

Fax: +41 22 730 8021

E-mail: oca@wmo.int

Please don't hesitate to ask the project team any questions you may have related to the project. Wherever possible we shall try and include summaries of pertinent questions in the newsletter. Questions can also be submitted via any of the national focal points listed in this newsletter.

■ Questions and answers

To get the ball rolling a couple of the most common questions being asked are reproduced below...

Q: *Why do we want to know the dimensions of the ship and the position of the anemometer?*

A: The ship disturbs the airflow — the anemometer will not measure the true value that the wind would have if the ship were not there. Using computer models it is possible to calculate the flow around ships and find out how big this error is. Alternatively, a model of the ship can be placed in a wind tunnel where the error for various wind directions can be measured.

Q: *Why don't satellites tell us everything we need to know?*

A: Satellites may not measure storm-force winds correctly, some instruments cannot 'see' through clouds, or do not provide values close to the sea surface. Despite all the advances in space technology we still need good data from ships. For example, in 1991, the eruption of Mount Pinatubo caused huge quantities of ash to be thrown high into the atmosphere. This ash cloud circled the tropics and caused satellites to report that sea surface temperatures were suddenly 1 °C colder than usual. In fact, ships and buoys showed that temperature was actually 0.5 °C warmer than usual!

▪ **Where do I send my observations to ?..**

Almost all ships participating in the project will be equipped with Inmarsat-C communications equipment for compliance with SOLAS Convention requirements. Observations should therefore be submitted as 'Code 41' in the same manner as for normal ships' weather observations sent via Inmarsat. Inmarsat Land Earth Stations currently accepting Code 41 observations are listed below

<i>Station name</i>	<i>Country</i>	<i>ID No.</i>
Atlantic Ocean Region — East		
Aussaguel	France	121
Goonhilly	United Kingdom	102
Southbury	United States	101
Station 12	The Netherlands	112
Thermopylae	Greece	120
Atlantic Ocean Region — West		
Goonhilly	United Kingdom	002
Southbury	United States	001
Station 12	The Netherlands	012
Indian Ocean Region		
Arvi	India	306 (Within Metearia VIII (N) only)
Aussaguel	France	321
Perth	Australia	322
Jeddah	Saudi Arabia	315
Sentosa	Singapore	328
Station 12	The Netherlands	312
Thermopylae	Greece	305
Yamaguchi	Japan	303
Pacific Ocean Region		
Perth	Australia	222
Santa Paula	United States	201
Sentosa	Singapore	210
Yamaguchi	Japan	203

VOSCLim Project Focal Points

UNITED KINGDOM

**Ms Sarah North
(PROJECT LEADER)**

Nautical Officer
Met Office
Observations Supply - Marine Networks
Beaufort Park
Easthampton
WOKINGHAM, Berkshire RG40 3DN
United Kingdom

Telephone: +44-1344 85 5617

Telefax: +44-1344 85 5873

E-mail: sarah.north@metoffice.com

ARGENTINA

Licenciada Ana Teresa Gomez

Servicio Meteorologico Nacional
25 de Mayo 658
1002 BUENOS AIRES
Argentina

Telephone: +54-11 4514 4221

Telefax: +54-11 4514 4225

E-mail: cim@meteofa.mil.ar

JAPAN

Akiko Shouji

Scientific Officer

Marine Division, Climate and Marine Department
Japan Meteorological Agency
1-3-4, Otemachi, Chiyoda-ku, Tokyo, 100-8122,
Japan

Fax + 81 3 3211 6908

Email: VOS@climar.kishou.go.jp

AUSTRALIA

Mr David K. Evans

Manager, Observations Operations
Bureau of Meteorology
150 Lonsdale Street
MELBOURNE, Vic. 3000

Australia

Telephone: +61-3 9669 4205

Telefax: +61-3 9669 4168

E-mail: d.evans@bom.gov.au

THE NETHERLANDS

Mr Frits B. Koek

Royal Netherlands Meteorological
Institute (KNMI)
Wilhelminalaan 10
P.O. Box 201
3730 AE DE BILT
The Netherlands

Telephone: +31-30 2206860

Telefax: +31-30 2204614

E-mail: frits.koek@knmi.nl

CANADA

Mr Ronald Fordyce

Supt. Marine Data Unit
Meteorological Service of Canada
Ontario Region
100 East Port Blvd
HAMILTON, Ontario L8H 7S4
Canada

Telephone: +1-905 312 0900

Cell Phone: +1-905 719 0820

Telefax: +1-905 312 0730

E-mail: Ron.Fordyce@ec.gc.ca

NEW ZEALAND

Ms Julie Fletcher

Marine Meteorological Officer
Meteorological Service of NZ Ltd
P.O. Box 722
WELLINGTON
New Zealand

Telephone: +64-4 4700 789

Telefax: +64-4 4700 772

E-mail: fletcher@metSERVICE.com

<p style="text-align: center;">CHINA</p> <p style="text-align: center;">Mr Song Lianchun China Meteorological Administration 46 Baishiqiao Road BEIJING 100081 China</p> <p>Telephone: +86-10 6840 6325 Telefax: +86-10 6217 4797 E-mail: songlc@sky.nmc.gov.cn Telex: 22094 FDSMA CN</p>	<p style="text-align: center;">PAKISTAN</p> <p style="text-align: center;">Mr Muhammad Muslehuddin Director, Computerised Data Processing Centre (CDPC) Pakistan Meteorological Department (PMD) Meteorological Complex, University Road P.O. Box No. 8454 KARACHI-75270 Pakistan</p> <p>Telephone: +92-21 8114053 Telefax: +92-21 8112885, 8112887 E-mail: pmdcomp@paknet3.ptc.pk</p>
<p style="text-align: center;">FRANCE</p> <p style="text-align: center;">Mr André Péries Météo-France - DSO/QMR/PMO 42, avenue G. Coriolis 31057 TOULOUSE Cédex France</p> <p>Telephone: +33-5 61 07 98 54 Telefax: +33-5 61 07 98 69 E-mail: andre.peries@meteo.fr</p>	<p style="text-align: center;">POLAND</p> <p style="text-align: center;">Dr Mirosław Mietus Chairman, JCOMM Expert Team on Marine Climatology Institute of Meteorology and Water Management Maritime Branch Waszyngtona 42 PL-81-342 GDYNIA Poland</p> <p>Telephone: +48-58 62 03 532 Telefax: +48-58 62 88 163 E-mail: Miroslaw.Mietus@imgw.pl http://www.imgw.gdynia.pl</p>
<p style="text-align: center;">GERMANY</p> <p style="text-align: center;">Dr Volker Wagner Deutscher Wetterdienst Klima und Umwelt, FE 26 P.O. 700421 D-22004 HAMBURG Germany</p> <p>Telephone: +49-40 6690 1430 Telefax: +49-40 6690 1499 E-mail: volker.wagner@dwd.de</p>	<p style="text-align: center;">TANZANIA, UNITED REPUBLIC OF</p> <p style="text-align: center;">Mr Sicylla M. Sillayo Tanzania Meteorological Agency P.O. Box 3056 DAR ES SALAAM United Republic of Tanzania</p> <p>Telephone: +255-51 110227 / 110231 Telefax: +255-51 110231 / 844299 E-mail: mmctz@meteo.tz.org</p>
<p style="text-align: center;">INDIA</p> <p style="text-align: center;">Mr S.K. Prasad Director, Marine Division c/o Deputy Director General of Meteorology (WF) India Meteorological Department Shivajinagar PUNE - 411 005 India</p> <p>Telephone: +91-20 5535886 Telefax: +91-20 5535886/5533201 E-mail: imd pune@pn3.vsnl.net.in</p>	<p style="text-align: center;">USA</p> <p style="text-align: center;">Mr David McShane VOS Technical Leader National Weather Service/NOAA National Data Buoy Center Building 1100, RM 353A STENNIS SPACE FLIGHT CENTER, MS 39529-6000 USA</p> <p>Telephone: +1-228 688 1768 Telefax: +1-228 688 3153 E-mail: David.McShane@noaa.gov</p>

Other Essential Project Contact Points

<p>REAL TIME MONITORING CENTRE</p> <p>Mr Colin Parrett Observation Monitoring Met Office London Road BRACKNELL Berkshire RG12 2SZ United Kingdom</p> <p>Telephone: +44-1344 856 996 E-mail: colin.parrett@metoffice.com</p>	<p>DATA ASSEMBLY CENTRE</p> <p>Mr Daniel J. Manns National Climatic Data Center 151 Patton Avenue ASHEVILLE, NC 28801-5001 USA</p> <p>Telephone: +1-828 271 4458 Telefax: +1-828 271 4022 E-mail: Daniel.J.Manns@noaa.gov</p>
<p>WMO SECRETARIAT</p> <p>Dr Peter E. Dexter Oceans Affairs Division World Weather Watch-Applications Department World Meteorological Organization 7 bis, Avenue de la Paix Case postale No 2300 CH-1211 GENEVE 2 Switzerland</p> <p>Telephone: +41-22 730 82 37 Telefax: +41-22 730 80 21 E-mail: pdexter@wmo.int</p>	<p>SCIENTIFIC ADVISORS</p> <p>Dr Elizabeth C. Kent James Rennell Division Southampton Oceanography Centre SOUTHAMPTON SO14 3ZH United Kingdom</p> <p>Telephone: +44-2380 596 409 Telefax: +44-2380 596 400 E-mail: elizabeth.c.kent@soc.soton.ac.uk</p> <p>Dr Peter K. Taylor James Rennell Division (254/27) Southampton Oceanography Centre European Way SOUTHAMPTON, SO14 3ZH United Kingdom</p> <p>Telephone: +44-23 8059 6408 Telefax: +44-23 8059 6400 E-mail: peter.k.taylor@soc.sot</p>

■ Postbag

Observers on VOSClm ships are also welcome to use the Newsletter to report any other interesting phenomena that they may experience, not necessarily directly related to the project. Some examples of reports received from ships recruited to the project, follow:

Sea smoke:

m.v. *Providence Bay* in position 40° 32' N, 71° 16' W on 5 December 2002.

Observing Officers: Captain K.C. Riddick, O. Ridyard (2nd Officer), J. Weber (2nd Officer), D. Heppenstall and L. Turner (Cadets).

The *Providence Bay* was on a heading of 269° at 19.8 knots in conditions of moderate seas and low swell. The sky was overcast, with the cloudbase estimated at 500 feet and, during the previous two and a half hours, the visibility had been moderate owing to very fine snow flurries. Sea smoke was also observed at about 1500 UTC. The whole sea had the appearance of a steaming bath — with large wisps of 'steam' between two and four metres high being blown along the direction of the wind.

The appearance, particularly as the visibility was reduced by snow, was spectacular and very 'atmospheric'. The conditions would have lent the vessel a ghostly appearance had there been any other vessels to observe! The phenomenon continued for about another hour and a half.

At 1500 the air temperature and wet-bulb readings were 2.5°, while the sea temperature was 14.2° and the wind was ENE'ly force 4/5.

Waterspout and hail:

m.v. *Peninsular Bay* in position 37° 39' N, 08° 15' E on 30 January 2003.

Observing Officers: Captain S. Millar and A. Ward (2nd Officer)

A 1230 UTC the ship experienced heavy hail, with thunder and lightning, from large cumulonimbus clouds. The diameter of the hail ranged from four to nine millimetres. A waterspout was then sighted four miles ahead. There was a very pronounced area of disturbed surface water approximately 20 m in diameter, and the waterspout column rose about 100 m to the cloud above. It lasted for about three minutes before splitting into two parts and dissipating.

Four minutes later another area of disturbed water was seen one mile to the south of the ship, but no waterspout was seen. It was not possible to take a photograph of the phenomenon owing to the driving hail. During the period of observation the wind veered to NW'ly and then strengthened to from 24 knots to 35 knots through the next 30 minutes.

The air temperature was 8.2°, wet bulb 8.2°, sea 16°, pressure 1009.5mb. Height of sea waves was estimated at three metres, and there was a northerly swell of 3.5 metres.

Lunar eclipse:

R.R.S. *James Clark Ross* in position 44° 56 03' S, 40° 15 02' W on 15 May 2003.

Captain M.J.S. Burgan; Observing Officers: A. Ramsden (Ship's Doctor) and P. Clarke (3rd Officer)

At approximately 2230 UTC on a clear and cloudless night, a shadow was noticed covering one side of the full moon. This was followed at 2303 by a much darker semicircular shadow passing slowly across the face of the moon.

This darkening had reached half way by approximately 2335 and the moon was completely enveloped in shadow by 0014 on 16 May. At this stage the moon was still visible but with much reduced brightness which allowed many more of the surrounding stars to be visible (they appeared to have greater luminence than the eclipsed moon).

The surface markings of the moon could still be observed with binoculars, and the surface itself was a dull copper colour. The eclipse was visible for several hours, and the moon was fully visible again by 0217. During the entire eclipse the *James Clark Ross* was on course 038° at 12 knots.