

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

SHIP OBSERVATIONS TEAM (SOT)

EIGHTH SESSION

CAPE TOWN, SOUTH AFRICA, 20-24 APRIL 2015

SOT-8 / Doc. 7.8  
(01.04.2015)

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ITEM: 7.8

Original: ENGLISH

## VOS ANCILLARY PILOT PROJECT REPORT

*(Submitted by Sarah North (United Kingdom))*

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### Summary and purpose of the document

Late in 2011 the VOS Panel initiated the VOS Ancillary Pilot Project to react quickly to requests from shipowners to recruit VOS in cases where VOS operators don't have the resources available to allow such ships to be recruited to the traditional VOS classes prescribed in WMO Pub 47. The document outlines the consideration that has been given to this issue by the Task Team on VOS Recruitment and Programme Promotion (TT-VRPP) and makes recommendations to the SOT.

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### ACTION PROPOSED

The Team will review the information contained in this report, and comment and make decisions or recommendations as appropriate. See part A for the details of recommended actions.

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- Appendices:**
- A.** VOS Ancillary Pilot Project Proposal Summary
  - B.** List of ships recruited to the VOS Ancillary Class (01 March 2015)
  - C.** Observations from of ships recruited to the VOS Ancillary Class in 2013
  - D.** Observations from of ships recruited to the VOS Ancillary Class in 2014
  - E.** Extract from VOS Annual Ranking List 2014
  - F.** Metadata collected for Ancillary Class ships - 2014
  - G.** Report by the VOS Ancillary Pilot Project

**- A - DRAFT TEXT FOR INCLUSION IN THE FINAL REPORT**

7.8.1 Ms Sarah North (United Kingdom) reported on the activities of the VOS Ancillary Pilot Project during the last intersessional period and follow-up actions from SOT-7.

7.8.2 She reminded the meeting that the project had been initiated in response to increasing pressures on VOS operators to recruit new VOS in the face of limited PMO resources; financial constraints that prevented the supply of calibrated instruments; and increasing moves by VOS operators to automate their observing ships. Furthermore ships operating on international voyages were increasingly seeking recruitment to the VOS, but could not be inspected by PMOs at an established home port.

7.8.3 It had therefore been proposed by the SOT Task Team on VOS Recruitment and Programme Promotion (TT-VRPP) that a new VOS Ancillary class should be established as a Pilot Project to enable VOS operators to respond promptly to requests to recruit ships that might otherwise have to be turned down.

7.8.4 Detailed criteria for the recruitment of ships to the VOS Ancillary Pilot Project were developed and published on the VOS website<sup>1</sup> and are also attached at **Appendix A** to this paper together with the Terms of Reference for the Pilot Project.

7.8.5 Under the VOS Ancillary PP ships are to be supplied with the latest TurboWin software, and are required to report in real time. Moreover the parent shipping company is assigned responsibility for collecting the necessary metadata for WMO Pub 47, for supplying certified meteorological instruments and for monitoring the data quality of their ships.

7.8.6 Invitations to VOS operators to consider recruiting ships to the Ancillary class were issued in December 2011. It was additionally recommended at the last session that when it was not possible to recruit a potentially suitable manually reporting ship to participate in the VOS Scheme, or to maintain an existing manually reporting ship within the VOS Scheme that has a suitable observing record, then such ships and their parent shipowners/managers should be offered the opportunity to participate in the Ancillary Pilot Project.

7.8.7 In view of the slow take-up of ships, the Team recalled that it was agreed at the last session that the VOS Ancillary Pilot Project should be continued until SOT-8 when a final decision would be taken on the need for a new Ancillary VOS class. The SOT Technical Coordinator was tasked with assisting with the development of the Pilot Project as needed. In particular it was decided that the SOT Technical Coordinator should:

- (i) Oversee the performance of the Ancillary VOS (e.g. checking that metadata is being collected and that the companies concerned are providing feedback on data quality);
- (ii) Liaise with Ancillary ship Masters and parent companies (and with VOS Focal Points where appropriate) to gather and check the accuracy of Ancillary metadata prior to entering such information into the E-SURFMAR database;
- (iii) Ensure that any masked call signs that may be assigned to Ancillary ships are referred to the Task Team on Call sign Masking for approval;
- (iv) Ensure that monitoring information and qc tools are made available and are applied by shipping companies that have volunteered Ancillary class ships to participate in the Pilot Project; and
- (v) Provide input to the TT-VRPP on the operation of the Ancillary PP to assist decisions being made on the need to formally introduce the new VOS Ancillary class at SOT-8.

7.8.8 The Team recalled that at its last Session only 8 Ancillary ships had been recorded on the E-SURFMAR metadata database ( by March 2013) and that these ships had only submitted a total of 1963 observations during 2012 (including observations submitted under

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1 <http://www.bom.gov.au/jcomm/vos/projects.html#supp6>

masked call signs).

7.8.9 The VOS Chair reported that recruitment of new ships to the Ancillary PP had been very slow since the last session and that (by March 2015) there were only 20 ships recorded as having been recruited and, furthermore, that only ten of these ships had actively reported during 2014. (**Appendix B**). She also pointed out that the number of observations from Ancillary ships had actually decreased in 2013 (to 1390 observations) but had risen slightly to 2301 observations in 2014. Details are included at **Appendix C & D**.

7.8.10 The Team also noted that in considering the low level participation the SOT Technical Coordinator advised the TT that he had been trialling the ancillary class with several ships and that Clipper<sup>2</sup> had recently volunteered yachts sailing around the world to participate.

7.8.11 The TT Chair reported that the UK intended to upgrade two of the current Ancillary ships as UK VOS Climate ships and were in discussion with a shipowner about upgrading a further two ships, depending on their performance.

7.8.12 It was further noted that the US had appointed a further 29 ships to the Ancillary class but due to problems with their national iVOS database it was not presently possible to transfer information on these ancillary ships to the E-Surfmar metadata database. Although these problems were being addressed, the US considered that these ships didn't belong in the Ancillary class. In this respect it was noted that of these ships well over half were being flagged routinely on the quality monitoring black lists. It was further noted that in addition to these 29 proposed US ancillary class ships there were currently a further 127 ships assigned to what they refer to as the US Support Fleet, many of which had been recruited remotely.

7.8.13 The US stated that whilst these ships could not be expected to comply with the criteria prescribed by the pilot project for ancillary ships, their contribution should nevertheless still be recognized. There was serious concern however that the poor quality data from these ships would continue to pass unfettered through the US gateway and onto the GTS. At present they don't actually fall into any proper VOS class and moreover they can't be visited nor inspected, and their observers can't be properly trained. The Team suggested that observations from these US ancillary/support vessels should not be passed to the gateway but rather sent to some form of 'observation purgatory' until they are shown to be of suitable quality to pass to the GTS.

7.8.14 Ms North also explained that the SOT Technical Coordinator had reported that some yachts which had been experimenting with ancillary class reporting felt that the TurboWin software included more options than they really needed. The Team requested the SOT Technical Coordinator to coordinate and work with KNMI and E-SURFMAR to investigate the case for developing a 'TurboWin Lite' version with more limited functionality (**action; M. Kramp; SOT-9**).

7.8.15 The Team noted the recommendation from the SOT Technical Coordinator that consideration should be given to developing an App for Smartphone's and tablets that could be used for sending observations either through an onboard satellite system or through GSM, if within coverage. The TT recognised that this would be a good way of crowd-sourcing third party data to support the established VOS quality data. The Team requested the SOT Technical Coordinator to discuss with the SOT Chair and to investigate the potential and funding implications involved (including whether any financial support could be realized) in developing an App for sending weather observations via Smartphone's or tablets (**action; SOT Chair; SOT-9**).

7.8.16 Notwithstanding the low take up to the Ancillary PP, the Team noted that the quality of observations from participating ships was generally high as evidenced by the scores achieved in the UK Met Office VOS Annual rankings<sup>3</sup>. An extract relating to active Ancillary ships is provided at **Appendix E**.

<sup>2</sup> <https://www.clipperroundtheworld.com/race/route-map>

<sup>3</sup> <http://research.metoffice.gov.uk/research/nwp/observations/monitoring/marine/VOSranking/index.html>

7.8.17 Although difficult to fully determine, the Team felt that only a few shipowners operating Ancillary ships were actively providing routine feedback on the quality of their ships. Moreover it was noted that only limited metadata had been collected for many of the Ancillary ships. (details of the Metadata extracted from the E-SURFMAR metadata database are provided at **Appendix F**).

7.8.18 In view of the above factors, the limited number of ships recruited to the Ancillary PP over the last 3 years, and the low number of observations that they had generated, the Team agreed with the Task Team's recommendation that the Ancillary PP should be discontinued and that where possible suitable existing Ancillary ships should be transferred to national VOS fleets.

7.8.19 As a consequence of this decision it was agreed that details about participation in the Ancillary Pilot Project should be removed from Supplementary Programs section of the VOS website (**action; M. Kramp; asap**).

7.8.20 Although ships recruited to the PP had not achieved the standards or numbers expected, the Team agreed with the Task Teams recommendation that there remained a need for a separate category for ships that wish to submit marine observations to support the VOS effort, but which were be unable to comply with the provisions or requirements normally imposed on participating VOS Class ships.

7.8.21 The Team agreed that such a third party 'support' fleet should not be considered as formal VOS class ships belonging to a particular recruiting country but would, in effect, be third party VOS. They could still be referred to as 'Ancillary' observing ships if that was considered appropriate, but they would not be bound by the same criteria that had been established for Ancillary PP class ships.

7.8.22 The Team also recognised that the data from such a third party fleet might be of lesser quality than for fully recruited VOS class ship, especially if amateur observers using uncertified instruments are involved. As a consequence, the Team agreed that their observations should not be routed to the GTS unless moderated (e.g. by automatic QC routines) and their data shown to be of adequate quality. The Team invited the VOS operators to develop mechanisms to 'block' poor quality data from non VOS observing ships from being inserted on the GTS (**action; VOS Operators; ongoing**).

7.8.23 In considering this issue, the Team recognised that the 'ZZ' country notation currently used to identify Ancillary class ships in the E-SURFMAR metadata database had worked well as a way of quickly identifying participating ships, and for segregating them from the established national VOS fleets. The Team therefore agreed that the ZZ notation should be continued for the proposed new third party ancillary/support ships that aren't recruited to the established VOS by a National Meteorological Service.

7.8.24 In considering the concept of such a third party support fleet, the Team recalled that the UK Met Office, supported by the Royal Meteorological Society, had developed a Weather Observations Website (WOW) for land based amateur observers (<http://wow.metoffice.gov.uk/>). The Team noted with appreciation that the WOW website was now being extended to other countries (Australia, New Zealand and the Netherlands) who are also active within the VOS Scheme.

7.8.25 Furthermore agreement had recently been reached to extend the capability of the WOW site to include ship observing sites. It was possible therefore that this could potentially be used by third party or amateur observing ships that cannot, for whatever reason, be recruited to the traditional manned VOS. The ships could then submit, and visualise, their weather reports by, for example, using adapted versions of electronic log book software such as TurboWin.. The Team considered that the future potential for linking TurboWin to WOW should be investigated (**action; E-SURFMAR/KNMI; SOT-9**).

7.8.26 The Team requested the Chair of the TT-VRPP to keep SOT advised of any relevant WOW developments (e.g. for including new ship observations) and to circulate details to the JCOMMOPS PMO, VOS and SOT mailing lists when available (**action; S. North;SOT-9**).

7.8.27 The meeting also requested the SOT Chair to remove details of the Ancillary Pilot Project from Supplementary Programs section of the VOS website (**action; SOT Chair; asap**);

7.8.28 The meeting made the following recommendations:

- (i) That the Ancillary PP should be discontinued and that where possible existing Ancillary ships should be transferred to national VOS fleets;
- (ii) That the TT-VRPP should consider the need, value and mechanisms for establishing a third party (non-VOS) Ancillary/Support fleet, and to make proposals to SOT-9 on how this might be developed and operate in practice; and
- (iii) That the Terms of Reference of the TT-VRPP should be revised accordingly.

7.8.29 The detailed report by the Pilot Project is provided in **Appendix G**.

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Appendices: 7

## APPENDIX A

### VOS ANCILLARY PILOT PROJECT PROPOSAL SUMMARY

The VOS Ancillary Pilot Project is an initiative to allow more ships to join the global VOS without some of the constraints of being part of a national VOS fleet.

The SOT Task Team on VOS Recruitment and Programme Promotion (TT-VRPP) proposes that a 'VOS Ancillary Pilot Project' be created, to respond to offers from ships that want to join the VOS scheme, but which for various reasons cannot be recruited to a national VOS in the traditional way. Due to a finite pool of NMS calibrated instruments for ships, and a lack of PMO support in some areas, it is recognized that NMS may not be in a position to recruit all ships wishing to join VOS.

The TT-VRPP wants to encourage the participation of these ships and recognizes that with the support of shipping companies, these vessels could provide useful observations, particularly in data sparse regions. Under the VOS Ancillary Pilot Project, ships will prepare observations using their own instruments and TurboWin software, and will be actively supported in their VOS participation by their shipping companies, who will take responsibility for data quality and the feedback of performance monitoring information.

#### Background

About 25 countries are listed as having a VOS fleet, with approx. 4000 ships listed in WMO Pub 47, of which around 2000 ships are considered to be active on a monthly basis. This is however, only a small percentage of the global merchant fleet of about 29,000 ships, and the TT-VRPP has considered ways to increase VOS participation and deal with potential offers of ships wanting to join VOS.

In recent years, some countries have withdrawn funding for their VOS programmes and the number of PMOs has also been decreasing. Budget constraints and a lack of PMO resources have resulted in some NMS rationalising their VOS fleets to discard inactive ships and to concentrate their efforts on supporting ships in the Selected and VOSclim classes.

The TT-VRPP recognizes there is a need to find a solution to deal with ships that volunteer to join VOS, but which do not fit under the traditional national VOS recruitment process. The need to address this has arisen because of the following reasons:

- The number of shipping companies wanting to be involved in 'green' environmental monitoring activities has increased in recent times. There is a greater awareness of SOT activities and bodies like the WOC are promoting SOT participation, which could lead to a sudden increase in the numbers of ships wanting to join the VOS Programme.
- NMS have an inability to recruit a sudden influx of ships, for example if a company suddenly offered 10 or more ships to join the VOS, it is unlikely that these ships could be accommodated within a national VOS programme.
- Some ships want to join VOS while trading in areas where there are no PMOs. Consequently these offers have not been utilized because formal recruitments were not possible.

The VOS Ancillary Pilot Project has been conceived to respond to offers from ships wanting to join the VOS scheme, but which for various reasons cannot be recruited to a national VOS in the traditional way. These 'Ancillary' ships will be seen as supporting the global VOS.

The definition of the term Ancillary as quoted from [www.yourdictionary.com](http://www.yourdictionary.com) means: '*something that is helping or subordinate but not as necessary*'.

## How the VOS Ancillary Pilot Project will operate

1. At SOT-VIII, the TT-VRPP will report on the progress of the Ancillary Pilot Project. If the review is positive, then, in conjunction with the TT-Pub47, the SOT will be asked to consider a proposal to create a new Ancillary class of VOS, and possibly an Ancillary AWS class of VOS. Creating a new class will involve in particular (i) updating Chapter 6 describing the VOS Scheme of the WMO No. 471 (Guide to Marine Meteorological Services), (ii) updating JCOMM TR No. 4 (VOS Framework Document), (iii) updating WMO No. 47, and (iv) proposing an implementation date, and (v) communicating with the PMO network about the new class and its requirements. Until the new Ancillary class is approved (by SOT and JCOMM), the metadata element 'type of reporting ship' (Pub 47 table 2202) will be reported as OT, with 'Ancillary Pilot Project' denoted in the footnote for this element.
2. Ancillary Pilot Project ships will report using their own shipboard instruments, with their Shipping Companies taking responsibility for data quality, and for the maintenance and inspection of the shipboard instruments.
3. Ancillary Pilot Project ships will be supplied with TurboWin version 5.0 software. They will select 'Not Assigned' as the country option in the 'Station Data'. The 'Not Assigned' country option assumes the Barometer data will be sea level pressure. The next version of TurboWin will require 'Ancillary Pilot Project' to be added as an option under 'Projects', until the new class is introduced. Selecting this option will disable the standard VOS class options.
4. Ancillary Pilot Project ships will report in real-time in the full code with Email being the primary means of communication (only if it does not impact on data timeliness). Ships may use SAC services when email is not an option, but this raises concerns about increased communications costs for NMS at a time when NMS are trying to reduce costs. There is also an overhead in resource time in setting up ship addresses on an email 'white list' and in ensuring that observations are actually received.
5. The ships and shipping companies must provide a minimum suite of Pub 47 metadata (e.g. Ship name, callsign, registry, IMO number, vessel type) to populate the ESURFMAR database for operational requirements. Operators will be encouraged to provide the metadata pertaining to instrument type and location. The TurboWin Pub47 module can be installed and used to collect these data.
6. The new SOT TC/Ship Logistics Coordinator could be tasked to gather and check the accuracy of the metadata before entry into the ESURFMAR database.
7. Ancillary Pilot Project ships will report using REAL callsign where possible. The use of a MASK callsign, within a dedicated callsign series for the Ancillary Pilot Project, would firstly need approval by the Task Team on Callsign Masking and would then require administration of the allocated MASK callsign series. This task could be assigned to the SOT TC/Ships Logistics Coordinator.
8. The Real-Time observations from Ancillary Pilot Project ships will be monitored by the RSMC. There is a risk that some poor quality data (from un-calibrated ships' instruments) could be assimilated into the models prior to the poor quality ships being rejected/black-listed. For this reason it is proposed that the RSMC would produce monthly monitoring statistics for the Ancillary Pilot Project ships as a separate list, and this be provided to the companies operating Ancillary Pilot Project ships. Consideration could be given to possibly recruiting good quality Ancillary Pilot Project ships into a national VOS programme as a Selected or VOSclim ship in the future as resources allow.
9. The emphasis for data quality will be put on the Shipping Companies. The Companies will use the QC monitoring tools as provided to them, with the new SOT TC/Ship Logistics

Coordinator acting as the intermediary. The Shipping Companies will use the monthly monitoring statistics to provide feedback to their ships (in the same way as a PMO would) and will take responsibility to improve bad performance. The sort of text that accompanies the ESURFMAR-generated monitoring reports would be included with the statistics sent to Shipping Companies, so that they know how to interpret the results.

10. The GCCs will be consulted about the usefulness of delayed mode data from Ancillary Pilot Project ships. Some data maybe of questionable quality, so the GCCs should advise if they wish to receive this data and what the preferred method of submission is.

### **Terms of Reference for the VOS Ancillary Pilot Project**

- Promote the VOS Ancillary Pilot Project as a means of getting more ships to join VOS.
- Ensure steps are in place to get the data from the VOS Ancillary Pilot Project ships distributed in real-time.
- Monitor the data quality and provide feedback to the responsible shipping companies.
- Provide a detailed report on the progress of the Pilot Project to SOT-VIII. If considered appropriate, liaise with TT-Pub47 to recommend the creation of new VOS classes as necessary, and propose relevant changes to WMO No. 471, WMO No. 47, and JCOMM TR No. 4.

### **Membership and chair**

Existing members of TT-VRPP, plus  
SOT TC/Ship Logistics Coordinator  
RSMC  
GCCs  
Scientific Advisors  
Chair – same as TT-VRPP

### **Bullet Point List of what is required from a Ship/Shipping company point of view**

- Support of shipping company for ship to become an Ancillary Pilot Project ship
- Ship to use ship's own instruments
- Ship to be supplied with TurboWin 5.0 software
- TurboWin setup to show 'Not assigned' country code
- Ship/Shipping company to supply essential metadata, plus as much additional metadata as possible
- Ship to send real-time reports
- Reports to be emailed where email is timely
- Shipping company to be provided with QC monitoring feedback and to take action with ship to improve data where necessary
- Shipping company to inspect and maintain the instruments



**APPENDIX B****LIST OF SHIPS RECRUITED TO THE VOS ANCILLARY CLASS (01 MARCH 2015)**

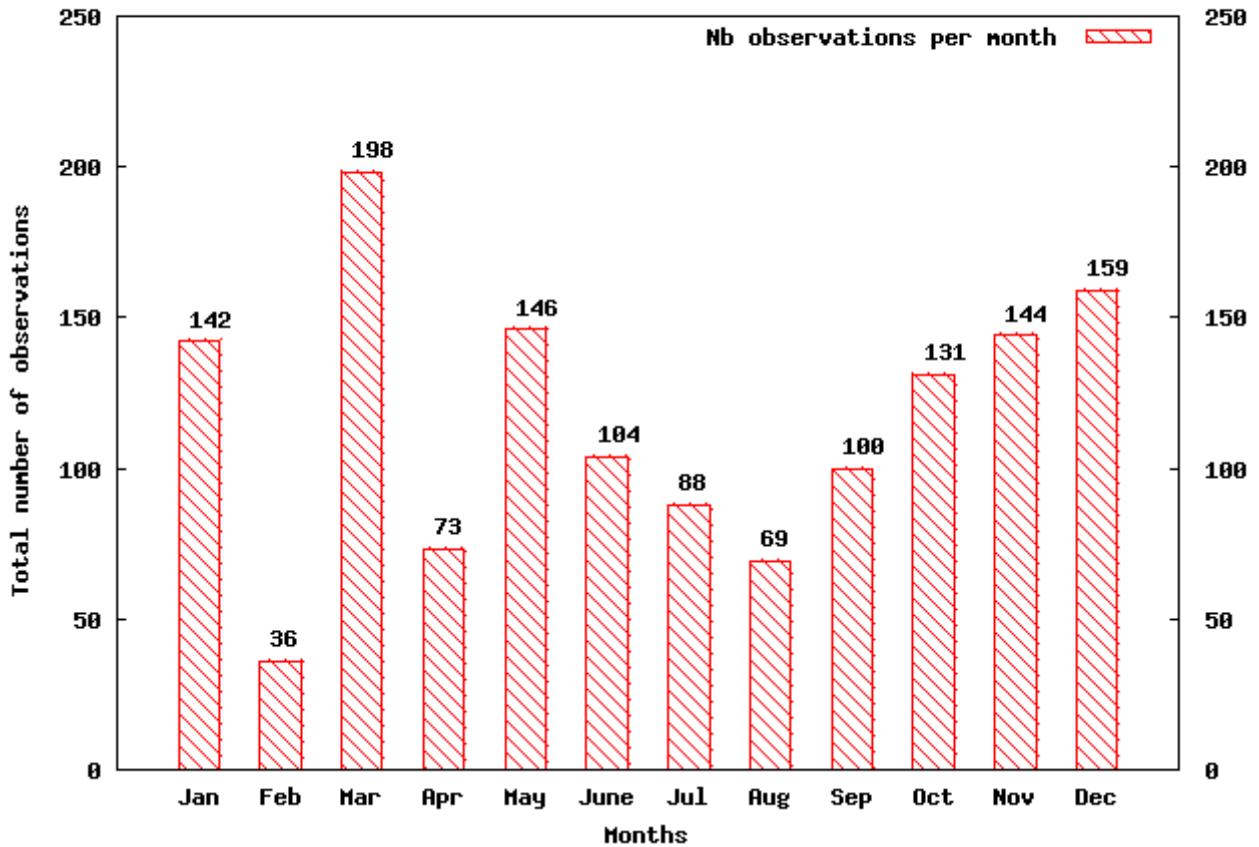
country	call_sign	nmsID	name	IMOn	atm code	vssIM code	prST code	Mask
ZZ	2CWR7	0	LoveSail		5	OT	SMAI	---
ZZ	FKWL	0	PATRIAC H		5	OT	SMAI	---
ZZ	FT3499	0	GWALARN		5	OT	SMAI	---
ZZ	HBY4190	0	Chamade		5	OT	SMAI	---
ZZ	WDG3055	0	Libby		5	OT	SMAI	---
ZZ	ZMW3959	0	Kuaka		5	OT	SMAI	---
ZZ	PHCQ	0	SAIMAAGRACHT	9288069	5	OT	CTH	---
ZZ	VRBI2	0	CSCL Oceania	9286009	5	OT		---
ZZ	ODYZZ01	1	Aventura IV		1	OT	SMAI	---
ZZ	PCSZ	0	Taagborg	9546461	5	OT	CTH	---
ZZ	OSCFR01	1	BOOGALOO		1	OT	ISBD	---
ZZ	FKUZ	0	GAMIN		5	OT	CTH	---
ZZ	ZR2335	0	LADY AMBER		5	OT	SMAI	---
ZZ	FIHV	0	LE SOLEAL	9641675	5	OT	SMAI	---
ZZ	FLSY	0	LE BOREAL	9502506	5	OT	SMAI	---
ZZ	PF7197	0	Rainbow Warrior	9575383	5	OT	SMAI	---
ZZ	GHJV	0	Lord Nelson	1002495	5	OT	CT41	---
ZZ	3EPD8	0	TRINITY ARROW	9319404	5	OT	CT41	---
ZZ	3FMV6	0	TRINITY GLORY	9350927	5	OT	CT41	---
ZZ	ZQHM2	0	TENACIOUS	1005679	5	OT	CT41	---

**APPENDIX C**

**OBSERVATIONS FROM OF SHIPS RECRUITED TO THE VOS ANCILLARY CLASS IN 2013**

<b>Total of observations received From 2013-01-01 to 2013-12-31 for 20</b>									
<b>World Ocean</b>			<b>EUCOS Area</b>						
<b>Total</b>	<b>Manned</b>	<b>Pressure</b>	<b>Total</b>	<b>Manned</b>	<b>Pressure</b>	<b>Main synop.</b>	<b>Intermediate</b>	<b>Hourly</b>	<b>Others</b>
1390	100 %	1387	479	100 %	478	308	76	95	0

World Ocean Data : (ESURFMAR database query)  
 Evolution of number of obs from 2013-01-01 to 2013-12-31  
 (Produced by Météo France for E-SURFMAR)



**[ TABLE : Details / Call\_sign ]**  
**[ 20 VOS in Query / 7 VOS performed Obs on period selected]**

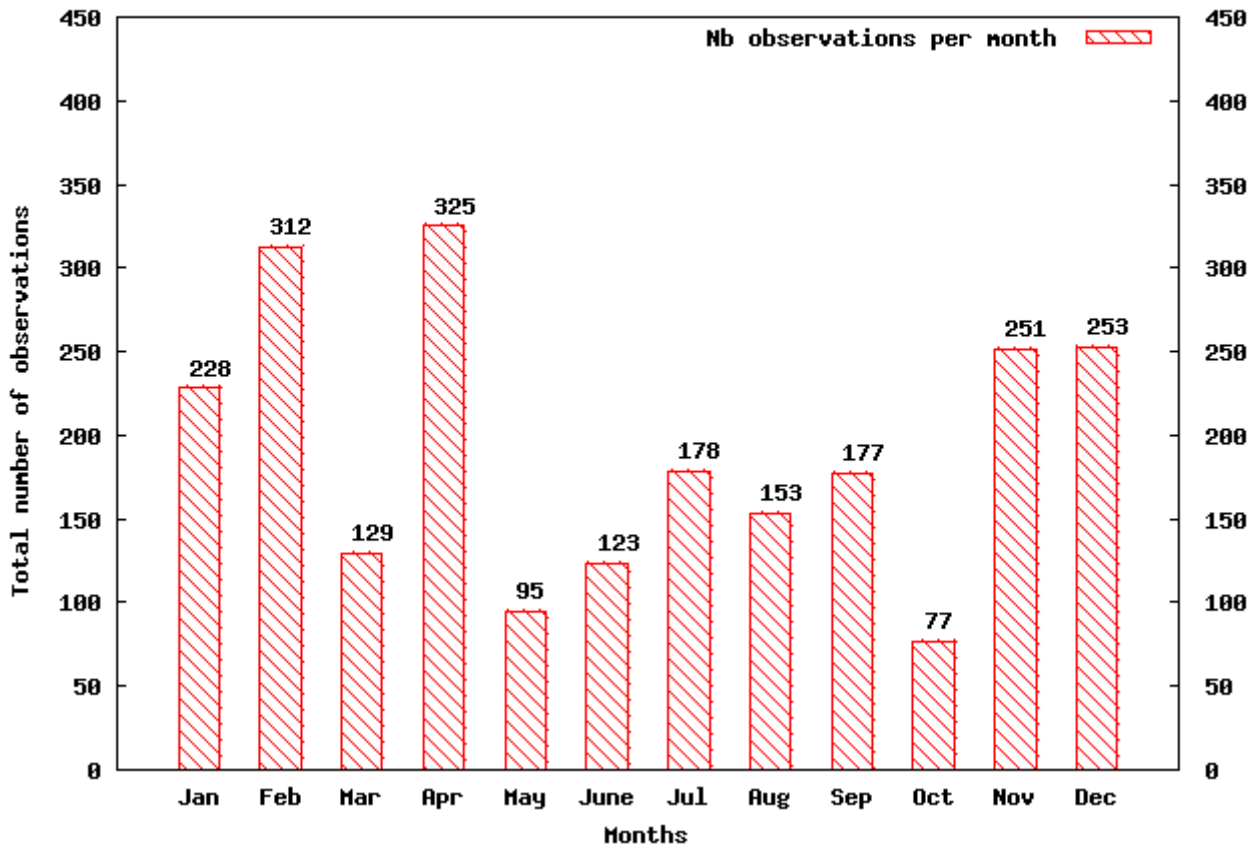
From 2013-01-01 to 2013-12-31	World Ocean			EUCOS Area						
	Call Sign	Total	Manne d	Pressur e	Total	Manne d	Pressur e	Main synop .	Intermediat e	Hourl y
3FMV6	601	100 %	599	82	100 %	82	81	0	1	0
GHJV	263	100 %	263	0		0	0	0	0	0
PHCQ	174	100 %	174	139	100 %	139	113	25	1	0
ZQHM2	169	100 %	169	168	100 %	168	56	45	67	0
FIHV	109	100 %	109	27	100 %	27	23	1	3	0
FLSY	72	99 %	71	63	100 %	62	35	5	23	0
3EPD8	2	100 %	2	0		0	0	0	0	0
2CWR7	0			0			0	0	0	0
FKWL	0			0			0	0	0	0
FT3499	0			0			0	0	0	0
HBV4190	0			0			0	0	0	0
WDG3055	0			0			0	0	0	0
ZMW3959	0			0			0	0	0	0
VRBI2	0			0			0	0	0	0
ODYZZ01	0			0			0	0	0	0
PCSZ	0			0			0	0	0	0
OSCFR01	0			0			0	0	0	0
FKUZ	0			0			0	0	0	0
ZR2335	0			0			0	0	0	0
PF7197	0			0			0	0	0	0

APPENDIX D

OBSERVATIONS FROM OF SHIPS RECRUITED TO THE VOS ANCILLARY CLASS IN 2014

Total of observations received From 2014-01-01 to 2014-12-31 for 20									
World Ocean			EUCOS Area						
Total	Manned	Pressure	Total	Manned	Pressure	Main synop.	Intermediate	Hourly	Others
2301	71 %	2276	1363	54 %	1339	522	224	617	0

World Ocean Data ; (ESURFMAR database query)  
 Evolution of number of obs from 2014-01-01 to 2014-12-31  
 (Produced by Météo France for E-SURFMAR)



**[ TABLE : Details / Call\_sign ]**  
**[ 20 VOS in Query / 10 VOS performed Obs on period selected ]**

From 2014-01-01 to 2014-12-31	World Ocean			EUCOS Area							
	Call Sign	Total	Manne d	Pressur e	Total	Manne d	Pressur e	Main synop .	Intermediat e	Hourl y	Other s
	GHJV	575	100 %	574	266	100 %	265	64	60	142	0
	OSCFR01	502	0 %	481	502	0 %	481	84	87	331	0
	PCSZ	266	100 %	265	175	100 %	175	164	10	1	0
	ZQHM2	207	100 %	206	207	100 %	206	53	62	92	0
	FIHV	206	99 %	206	69	100 %	69	37	3	29	0
	VRBI2	202	100 %	202	0		0	0	0	0	0
	3FMV6	163	100 %	163	1	100 %	1	1	0	0	0
	ODYZZ01	159	0 %	158	122	0 %	121	104	2	16	0
	3EPD8	18	100 %	18	18	100 %	18	12	0	6	0
	FLSY	3	100 %	3	3	100 %	3	3	0	0	0
	2CWR7	0			0			0	0	0	0
	FKWL	0			0			0	0	0	0
	FT3499	0			0			0	0	0	0
	HBY4190	0			0			0	0	0	0
	WDG3055	0			0			0	0	0	0
	ZMW3959	0			0			0	0	0	0
	PHCQ	0			0			0	0	0	0
	FKUZ	0			0			0	0	0	0
	ZR2335	0			0			0	0	0	0
	PF7197	0			0			0	0	0	0

## APPENDIX E

## EXTRACT FROM VOS ANNUAL RANKING LIST 2014

(<http://research.metoffice.gov.uk/research/nwp/observations/monitoring/marine/VOSranking/index.html>)

Country (Ancillary )	Call Sign	Final score	Total Num Obs	Pressure		Wind Speed		Wind Direction		Air Temperature		Relative Humidity		Visibility		SST		Timeliness Score
				Score	Num Obs	Score	Num Obs	Score	Num Obs	Score	Num Obs	Score	Num Obs	Score	Num Obs	Score	Num Obs	

ZZ	GHJV	0.577	3820	0.575	578	0.602	578	0.594	406	0.584	577	0.579	576	0.601	558	0.527	547	0.346
ZZ	ZQHM2	0.595	1369	0.607	218	0.625	215	0.636	113	0.591	219	0.638	218	0.500	216	0.534	170	0.276
ZZ	PCSZ	0.607	1645	0.667	256	0.601	252	0.578	142	0.629	252	0.596	249	0.481	248	0.548	246	0.275
ZZ	3EPD8	0.634	120	0.812	18	0.567	18	0.580	13	0.568	18	0.744	18	0.425	18	0.460	17	0.000
ZZ	VRBI2	0.652	1282	0.721	200	0.615	198	0.669	124	0.615	200	0.591	200	0.492	192	0.675	168	0.178
ZZ	OSCFR01	0.655	2551	0.487	478	0.656	493	0.715	305	0.820	412	0.919	396	MISSING	0	0.465	467	0.004
ZZ	FIHV	0.745	888	0.769	187	0.709	187	0.682	76	0.706	141	MISSING	0	0.611	181	0.603	116	0.657
ZZ	3FMV6	0.784	990	0.803	149	0.819	149	0.773	86	0.812	149	0.795	149	0.684	149	0.723	159	1.092
ZZ	ODYZZ01	0.784	537	0.618	154	0.619	155	0.630	72	MISSING	0	MISSING	0	MISSING	0	0.588	156	0.248



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ZZ;4;12022015;0;Libby;WDG3055;YA;12022015;OT;5;SMAI;12022015;vsslM;Ancillary;

ZZ;4;06122011;0;Lord Nelson;GB;GHJV;1002495;SA;AV;54.7;9;2.1;4.1;0;31;R13;R62;06122011;OT;5;FPD;CT41;TurboWin  
5.0;5.1;3;3;DA;NEGRETTE & ZAMBRA PRECISION ANEROID BAROMETER;4.1;CR;hPa;17102011;MER;ZEAL 2/C - BS  
692;S;OT;4.9;1;P;S;BU;1.0;OS7;24042013;vsslM;thmL;Proposed Ancillary Vessel;Single Screen on  
Poop deck;

ZZ;4;19022015;0;LoveSail;2CWR7;YA;19022015;OT;5;SMAI;19022015;vsslM;Ancillary;

ZZ;4;05022015;0;PATRIACH;FR;FKWL;YA;05022015;OT;5;SMAI;05022015;vsslM;Ancillary;

ZZ;4;16042012;0;Rainbow Warrior;NL;PF7197;9575383;YA;57.9;11.3;5.2;16042012;OT;5;SMAI;TURBOWIN  
5.0;ELE;Bohlken  
Westerland;WH;SN;SN;ET;05062013;vsslM;Ancillary;  
ZZ;4;05092013;0;SAIMAAGRACHT;NL;PHCQ;9288069;GC;173;26;6;10.6;01012000;04042008;OT;5;FPD;CTH;TurboWin  
5.0;3;3;AN;Fuess;22.4;PW;mb;23032013;MER;Schneider;SL;3;1;P;SL;C;SS;24;13112014;vsslM;;  
Ancillary;

ZZ;4;16012014;0;Taagborg;ZZ;PCSZ;9546461;BC;AV;16012014;OT;5;IRR;CTH;TurboWin 5.1;23.0;3;3;SAN;Ships  
Aneroid;23.0;PW;hPa;15012014;C;2.0;OT;26052014;vsslM;barg;Ancillary vessel;No  
barograph available.;

ZZ;4;06122011;0;TENACIOUS;GB;ZQHM2;1005679;SA;AV;65.0;10.6;2.0;4.58;40;R61;R62;R41;06122011;OT;5;FPD;CT41;TurboWin V5.0  
professional;6;3;3;DA;PAB;6;CR;hPa;04052011;MER;Ordinary  
2/C;S;8;6;1;P;S;BU;2.0;OS7;16022012;vsslM;Proposed Ancillary Vessel;

ZZ;4;09112011;0;TRINITY  
ARROW;PA;3EPD8;9319404;LT;NA;27102011;OT;5;CT41;14052012;vsslM;Proposed Ancillary Vessel;

ZZ;4;09112011;0;TRINITY  
GLORY;PA;3FMV6;9350927;LT;NA;289;27102011;OT;5;CT41;14052012;vsslM;Proposed Ancillary Vessel;



**APPENDIX G**

**REPORT BY THE VOS ANCILLARY PILOT PROJECT**

**REPORT BY THE VOS ANCILLARY PILOT PROJECT**

*(Report submitted by Sarah North – United Kingdom)*

1. The TT-VRPP was tasked at SOT-7 with promoting the VOS Ancillary class and reporting on its implementation of the Pilot Project at SOT-8.
2. The TT recalled the detailed criteria established for recruitment to the Ancillary class (at **Appendix A**) and reviewed participation in the Ancillary PP since its inception in December 2011.
3. It was recalled that at the last session only 8 Ancillary ships had been recorded on the E-SURFMAR metadata database (by March 2013) and that these ships had only submitted a total of 1963 observations during 2012 (including observations submitted under masked call signs).
4. The TT noted that recruitment of new ships to the Ancillary PP had been very slow since the last session and that (by March 2015) there were currently only 20 ships recorded as participating and, furthermore, that only ten of these ships had actively submitted observations during 2014 (**Appendix B** refers) Since the start of the PP four Ancillary class ships had been withdrawn.
5. Furthermore it was noted that the number of observations from Ancillary ships had decreased in 2013, to 1390 observations, and had only risen slightly very slightly in 2014, to 2301 observations. Details are included at **Appendix C & D**.
6. Closer analysis of the ships participating in the PP showed that only two vessels had exceeded the level of ~350 observations/year recommended by some VOS operators as the minimum of performance expected of an active manual reporting VOS.
7. The Chair of the TT reported that the UK Met Office intended to reassign two of the current Ancillary ships (Lord Nelson and Tenacious) as UK VOS Climate ships. These sail training ships had previously been appointed to the Ancillary class due to poor performance, but had since improved. She also advised that two further Ancillary ships (Trinity Glory and Trinity Arrow) had recently been the subject of discussion with the London based shipowner (K Line) and that, depending on performance, consideration was also being given to including these vessels within the UK VOS fleet. (Accordingly had these changes been introduced at the start of 2014 the total of observation would have been further reduced to 1338 observations in 2014).
8. The TT noted that the US had appointed a further 29 ships to the Ancillary class but due to problems with their national iVOS database it was not presently possible to transfer information on these ancillary ships to the E-Surfmar metadata database. Although these problems were being addressed the US considered that these ships didn't belong in the Ancillary class. In this respect it was noted that of these ships well over half were being flagged routinely on the quality monitoring black lists. It was further noted that in addition to these 29 proposed US ancillary class ships

there were currently a further 127 ships assigned to what they currently refer to as the US Support Fleet, many of which had been recruited remotely and were not routinely monitored for quality.

9. The US stated that whilst these ships could not be expected to comply with the standards being prescribed for ancillary class ships, their contribution should nevertheless still be recognized. There was serious concern however that the poor quality data from these ships was being allowed to pass unfettered through the US gateway and onto the GTS. At present they don't fall into any proper VOS class and moreover they can't be visited or inspected, and their observers can't be properly trained. It was suggested that observations from these US support vessels should not be passed to the gateway but rather sent to some form of 'observation purgatory' until they are shown to be of suitable quality to pass to the GTS. Whilst there would still be a need to assess the quality of the observations from such ships there was however, as yet, no easy mechanism to do this.
10. However the SOT Technical Coordinator advised the TT that he had been trialling the ancillary class with several ships and that Clipper <https://www.clipperroundtheworld.com/race/route-map> had recently volunteered 12 new yachts sailing around the world to participate, with obvious potential to provide observations in data sparse areas.
11. The SOT Technical Coordinator also advised the TT on issues reported on yachts that had been experimenting with participation with ancillary class reporting. In particular it was understood that some observers were not happy with having to use the TurboWin software as it included more options than they really needed. He suggested therefore that there might be a case for investigating the potential for a 'TurboWin Lite' version with more limited functionality. **(Action KNMI, E-SURFMAR & SOT Technical Coordinator)**
12. He also recommended that increased consideration should be given to developing an App for Smartphone's or tablets that could be used for sending observations either through the onboard satellite system or through GSM if within coverage. The TT recognised that this would be a good way of crowd-sourcing third party data to support the established VOS quality data. The SOT Technical Coordinator undertook to investigate further how such an App might be developed and whether financial support could be realised. **(Action SOT Technical Coordinator)**.
13. Notwithstanding the low take up to the Ancillary PP it was noted that the quality of observations from participating ships was generally high as evidenced by the scores achieved in the Met Office VOS Annual rankings (at <http://research.metoffice.gov.uk/research/nwp/observations/monitoring/marine/VOSranking/index.html> ). An extract relating to active Ancillary ships is at **Appendix E**.
14. Although it was difficult to fully evaluate, the TT felt that few shipowners operating Ancillary ships were actively providing routine feedback on the quality of their ships. Moreover it was noted that only limited metadata had been collected for many of the Ancillary ships (**Appendix F** refers).
15. In view of the above factors, the limited number of ships recruited to the Ancillary PP over the last 3 years, and the low number of observations that they had generated, the TT agreed that the Ancillary PP should be discontinued and that where possible existing Ancillary ships should be transferred to national VOS fleets. Accordingly

the TT invites the SOT 'Team' concur with this recommendation.

16. Although ships recruited to the PP had not achieved the standards or numbers expected, the TT agreed that there remained a need for a separate category for ships that wish to submit marine observations to support the VOS effort, but which were be unable to comply with the provisions or requirements normally imposed on participating VOS Class ships.
17. Such a 'support' fleet would not be considered as formal VOS class ships belonging to a particular recruiting country but would in effect be third party VOS. They could if preferred still be referred to as 'ancillary' observing ships, but they would not be bound by the same criteria that had been established for Ancillary PP class ships, which had not been followed by shipowners that volunteered their ships to the class.
18. It was recognised that the data from such a new ancillary/support fleet might be of lesser quality than for fully recruited VOS class ship, especially if amateur observers using uncertified instruments are involved. As a consequence it was considered that their observations should not be routed to the GTS unless moderated (e.g. by automatic QC routines) and their data shown to be of adequate quality. The TT therefore recommended that, where possible, VOS operators should develop mechanisms to 'block' poor quality data from being inserted on the GTS.
19. In considering this issue it was recognised that the ZZ country notation used to identify Ancillary class ships in the E-SURFMAR metadata database had worked well as a way of quickly identifying participating ships, and for segregating them from the established national VOS fleets.
20. The TT also noted that the Task Team on Metadata were proposing that the code ZZ should be added to WMO Pub47 code table 1801 to address 'JCOMMOPS recruited Ancillary Ships'. In addition they were proposing adding new codes 80 and 85 (AWS) to code table 2202 (type of meteorological observing ship) if the Pilot Project decides to elevate the Ancillary class to a formal VOS Class.
21. Although the TT was recommending that the Ancillary PP should be discontinued they agreed that the ZZ notation should be continued for the proposed new third party ancillary/support ships that aren't recruited to the established VOS by a National Meteorological Service. The TT expressed no preference whether the proposed ships should be continue to be called 'Ancillary' ships or whether they should now be referred to as 'Third Party' or Observing 'Support' ships.
22. When considering the possibility for such a support fleet the TT recalled that the UK Met Office, supported by the Royal Meteorological Society, had developed a Weather Observations Website (WOW) for land based amateur observers (<http://wow.metoffice.gov.uk/>) . The WOW website has now been extended to other countries (Australia, New Zealand and the Netherlands) who are also active within the VOS Scheme.
23. It was noted that agreement had recently been reached to extend the capability of the WOW site to include ship observing sites. It was possible therefore that this could potentially be used by amateur observing ships that cannot, for whatever reason, be recruited to the traditional manned VOS to submit and visualise their weather reports by, for example, using adapted versions of electronic log book software such as TurboWin.

It was recommended that the future potential for linking TurboWin to WOW should be investigated **(Action E-SURFMAR/KNMI)**.

24. The Chair of the TT-VRPP was requested to keep SOT advised of relevant WOW developments and to circulate details to the JCOMMOPS PMO, VOS and SOT mailing lists when available **(Action VRPP Chair)**.
  
25. The TT recommended to the SOT that they should be tasked with considering the value and mechanisms for developing a non VOS support fleet and to make proposals to SOT-9 on how this might be developed and operate in practice.

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