

**NATIONAL WEATHER SERVICE INSTRUCTION 10-2301**

**February 22, 2013**

**Operations and Services**

**VOLUNTARY OBSERVING SHIP PROGRAM, NWSPD 10-23**

**VOLUNTARY OBSERVING SHIP PROGRAM**

---

**NOTICE:** This publication is available at: <http://www.nws.noaa.gov/directives/>.

---

**OPR:** W/OPS51 (J.Wasserman)

**Certified by:** W/OPS5 (H. Portmann)

**Type of Issuance:** Routine

---

**SUMMARY OF REVISIONS:** This instruction supersedes NWSI 10-2301, dated July 31, 2010.

- *Effective date, OPR; Certified by, and Type of Issuance* changed; and *Summary of Revisions* was completely revised.
- Section 1, *Purpose*: Deleted “the National Oceanic and Atmospheric Administration (NOAA).”
- Section 2, third paragraph, second sentence: Added “(INMARSAT).”
- Section 3.1: Inserted new section “3.1 PMO Training.”
- Section 3.2, *Ship Selection and Recruitment*, subparagraph 1, 2, and 3: New sections 2, 3, and 4.
- Section 4: Inserted new Section 4: *Data Quality and Participation*.
- Section 5, *Ship Classification*: Inserted “World Meteorological Organization (WMO).”
- Section 5.3, *VOSCLIM*: Inserted “Sea Surface Temperature (SST)” and “Air Temperature (AT)” and “the National Climatic Data Center (NCDC).”
- Section 6, *Ship Visitation and Support*: Inserted new subparagraph 5.
- Section 6.1, *Timing of Visits*: Added to the end of the sentence “NWS services, information, and products.”
- Section 6.3.2, *Instrument Quality Checks*: Inserted new section.
- Section 6.3.3, *Explanation of Use of NWS Forecast Services*: Inserted new last sentence.
- Section 8, *Observational Aids and Marine Publications Provided to Voluntary Observing Ships*: Third bullet added.
- Section 9, *Observation Procedures and Transmission and Disposition of NWS Forms by Ships*: Inserted third sentence from end.
- Section 9.4, *Call Sign Masking Security*: Third sentence replaced.
- Section 10.2, *Merchant Marine Schools*: Inserted new sentence.
- Section 11, *Familiarization Trips*: First paragraph, last sentence replaced.
- Section 11.1, *Duties While on Familiarization Trips*: Last sentence replaced.

\_\_\_\_\_  
Signed February 8, 2013

Mark Paese Date  
Director, Office of Operational Systems

**Voluntary Observing Ship Program**

<b><u>Table of Contents</u></b>		<b><u>Page</u></b>
	Acronyms .....	3
1	Purpose.....	4
2	Mission.....	4
3	Port Meteorological Officer .....	4
3.1	PMO Training .....	4
3.2	Ship Selection and Recruitment.....	5
4	Data Quality and Participation.....	6
5	Ship Classification .....	6
5.1	Selected .....	6
5.2	Supplementary .....	6
5.3	VOSCLIM.....	6
5.4	Auxiliary .....	7
6	Ship Visitation and Support .....	7
6.1	Timing of Visits .....	7
6.2	Purpose of Visits .....	7
6.3	Visit Routine .....	7
6.3.1	Instructions on Observation Techniques.....	8
7	Instrument Quality Checks .....	8
7.1.1	Explanation of Use of NWS Forecast Services .....	9
7.1.2	Visitation Services to Foreign Ships.....	9
7.1.3	Visitation Services to U.S. Government and Private Research Ships .....	9
8	NWS Instruments Installed Aboard Ships .....	9
9	Observational Aids and Marine Publications Provided to Voluntary Observing Ships .....	9
10	Observation Procedures and Transmission and Disposition of NWS Forms by Ships .....	10
10.1	Observation Procedures Onboard Voluntary Observing Ships .....	10
10.2	VOS Observations .....	10
10.3	Disposition of Weather Records by Ships .....	10
10.4	Call Sign Masking Security .....	11
11	PMO Liaison Activities .....	11
11.1	Marine Weather Training Provided by PMOs .....	11
11.2	Merchant Marine Schools .....	11
12	Familiarization Trips.....	11
12.1	Duties While on Familiarization Trips .....	12
13	Awards for Voluntary Observing Ships.....	12

**Acronyms**

<b>Acronym</b>	<b>Definition</b>
AIS	USCG Automatic Identification System
AMVER	Automated Mutual-assistance Vessel Rescue
AT	Air Temperature
GCC	Global Collection Centers
IMMT	International Maritime Meteorological Tape
IMOP	Instruments and Methods of Observation Programme
INMARSAT	International Maritime Satellites
MIC	Meteorologist In Charge
MSC	Military Sealift Command
NAVTEX	Navigation Telex Radio
NCDC	National Climatic Data Center
NDBC	National Data Buoy Center
NOAA	National Oceanic and Atmospheric Administration
NOS	National Ocean Service
NWS	National Weather Service
NWSI	NWS Instruction
NWSPD	NWS Policy Directive
NWSTG	NWS Telecommunications Gateway
OPC	Ocean Prediction Center
OSHA	Occupational Safety & Health Administration
PMO	Port Meteorological Officer
PORTS	Physical Oceanographic Real-Time System
PPE	Personal Protective Equipment
QC	Quality Control
SEAS	SEAS Electronic Logbook Software
SLL	Summer Load Line
SLP	Sea Level Pressure
SOLAS	Safety Of Life At Sea
SST	Sea Surface Temperature
USCG	U.S. Coast Guard
VOS	Voluntary Observing Ship
WFO	Weather Forecast Office
WMO	World Meteorological Organization

## **1 Purpose**

The Voluntary Observing Ship (VOS) program is one of the National Weather Service's (NWS) sources of marine weather data from coastal, offshore, high seas areas and the Great Lakes.

## **2 Mission**

The mission of the VOS is two-fold:

- To collect and disseminate critical real-time maritime weather observations through the recruitment and support of ships to fulfill National needs and International agreements supporting commerce, forecasts and warning programs, and the Safety Of Life At Sea (SOLAS) worldwide, and
- To define the global climate and help measure extreme weather events, climate variability, and long-term climate changes.

Merchant ships participating in the U.S.-managed portion of the VOS program are recruited by Port Meteorological Officers (PMO). NWS VOS program vessels are asked to take observations at standard synoptic times (0000, 0600, 1200 and 1800 Universal Time Coordinated) while at sea. Additional reports are requested at three hourly intervals when within 300 nautical miles of named tropical storms or hurricanes and when within 200 nautical miles of the U.S., Mexican, and Canadian coasts.

The collection of marine reports from the Great Lakes, Gulf of Mexico, western North Atlantic Ocean, and north and south Pacific Oceans is a coordinated effort between the Department of Commerce's NOAA/NWS, and the Department of Transportation's U.S. Coast Guard (USCG). The International Maritime Satellites (INMARSAT) play a critical role in the data collection process. Three NWS regions (Eastern, Southern, and Western) have full time PMOs while the other three NWS regions (Alaska, Central, and Pacific) have part time PMOs.

## **3 Port Meteorological Officer**

PMOs are located in major U.S. seaports. They are responsible for recruiting ships, training ships' officers in weather observing procedures and practices, checking and calibrating shipboard instrumentation, maintaining the quality of ships' observations [Quality Control (QC)], organizing and maintaining liaison with maritime interests, and assisting NOAA's Office of Oceanic and Atmospheric Research in executing their VOS Program.

### **3.1 PMO Training**

PMOs work independently of others servicing NWS equipment aboard voluntary reporting vessels and offshore platforms. They enter, and transit cargo yards, marine terminals, remote docks, and refineries to perform their work. Ships include but are not limited to tankers, cargo ships, bulk carriers, research vessels, fishing vessels, commercial cruise liners, NOAA vessels, US Coast Guard vessels, and tugs. At the conclusion of their work, they transit these same areas. They face the same hazards as longshoremen, crew members, and dock workers. They pass through dangerous, sometimes poorly lit, vehicle operating areas in which cargo is being moved. They use the provided means of access to and from the vessels, which in some cases are not Occupational Safety & Health Administration (OSHA) compliant.

Their work environment is unique in that their employer neither creates, nor controls the hazards of the workplace. They work in a multi-employer environment in which they alone represent the

NWS. The only direct means of hazard abatement are administrative methods, and Personal Protective Equipment (PPE).

Newly hired PMOs will receive on the job training from a veteran PMO within the first 60 days of being hired. The training will cover general port safety awareness, possible hazards while working on board ships and in port areas and proper use of PPE. Within the first year of being hired, the region/Weather Forecast Office (WFO) will be responsible for sending the newly hired PMO to a Maritime Standards Safety Course. Refresher training should be held every 2 years at the national PMO conference.

### **3.2 Ship Selection and Recruitment**

Vessels enrolled in the VOS program allow for a broad distribution of observations over all oceanic regions. Priority is given to recruiting vessels that operate where the United States has forecast and warning responsibilities. Special emphasis is placed on recruiting ships traversing data-sparse areas, off the main shipping routes. In any recruitment, the following points should be considered:

1. No ship is to be recruited as U.S.-supervised if it is already in another nation's program. Foreign flag vessels may be recruited into the U.S. VOS program if they are not participating and considered inactive in the programs of their own countries. Release of support requests to the other nations will be coordinated by the VOS program office. Prior to recruitment, the PMO will ensure the vessel has not been dropped from another nation's VOS program due to performance deemed unacceptable by U.S. VOS standards (e. g., <http://www.meteo.shom.fr/qctools/>). If the vessel has been dropped from another VOS program, the PMO documents corrective measures taken by the vessel (in the remarks section of international VOS (iVOS) and receive permission from the VOS Program Office in order to continue recruitment.
2. Ships recruited into the U.S. VOS program should sail in waters deemed important to NWS forecast operations. PMOs should focus recruitment efforts on ships that traverse waters important to their local and regional forecast needs, and/or data sparse areas identified by the WMO. Ideally, the recruited ship should call at a U.S. port accessible to a PMO at least every six months and be visited by a PMO. If a PMO is contacted by a ship or company interested in the VOS program but the ship (or company) does not sail within the PMO's NWS forecast area, then the PMO will refer the ship (or company) to the VOS Program Office. The VOS Program Office will then identify the best option for the ship (or company) by working other WMO Members to identify the most appropriate office/PMO to service the ship (or company). This practice will apply to PMOs who have solicited for recruitment potential ships that are not sailing within their NWS forecast area.
3. Newly recruited ships will only begin submitting observations after observing equipment has been calibrated, and WMO Publication 47 metadata collected and documented in the iVOS database by the PMO.
4. National Data Buoy Center (NDBC) equipment will only be supplied to newly recruited ships at the discretion of the VOS Program Office, and should only be loaned to vessels that can be visited by a U.S. PMO once every six months. This is to ensure loaned equipment can be retrieved if the ship is decommissioned, transferred to another route, or fails to adequately participate in the U.S. VOS program.

#### **4 Data Quality and Participation**

Data quality is a critical component of the VOS program as VOS observations support local, regional, and global forecast and warning services and numerical weather predictions.

As a measure to ensure quality of data, PMOs should run quality control of the vessel's observations on a monthly basis. This may be accomplished with software, by comparing ship observations to nearby quality-controlled observations, or other means. Additional observing quality control checks can be accomplished using the web based Ocean Prediction Center Surface Marine Monthly Statistics, the Météo-France's Marine Observation Monitoring Quality Control Tools, or any of the tools or links provided in iVOS. If unacceptable discrepancies in the observations are found, the PMO will contact the ship so adjustments in the equipment or observing practices can be instituted in a timely manner to ensure the highest possible quality of data. Where this is not possible, the PMO will contact the vessel or company and provide them with information regarding the discrepancy, as well as advise the ship to contact a PMO for a visit at the earliest possible opportunity. Adjustments occur within one month of the request for the vessel to be considered in good standing with the U.S. VOS Program.

To maintain good standing with the U.S. VOS Program the vessel should maintain adequate participation. This means the vessel should submit a minimum of 300 observations per year or, in the judgment of the PMO (with concurrence from the Regional VOS Program Manager), is submitting a sufficient number of observations consistent with the vessel's type of operations, and operating area (including seasonal limitations). It is the responsibility of the assigned PMO to ensure the vessel is meeting participation standards, and that NWS/VOS equipment is properly tracked and retrieved from ships that are not meeting participation requirements.

#### **5 Ship Classification**

Ships in the VOS program are classified under WMO International VOS definitions, i.e., SELECTED, SUPPLEMENTARY, VOSCLIM, or AUXILIARY with sub classes to discern Automated Meteorological Systems.

##### **5.1 Selected**

A selected class ship is equipped with an NWS or shipping company-owned barograph, barometer and psychrometer, all of high quality and accuracy. These ships sail routes where they can be visited by a U.S. PMO at least every six months. This ship class is expected to take and routinely transmit weather messages in the FM-13 synoptic code format while at sea.

##### **5.2 Supplementary**

A ship with at least a barometer and a thermometer of acceptable accuracy is classified as supplementary when it lacks a full complement of suitable observing equipment or it cannot be reached for routine visits. Supplementary ships transmit weather messages in FM-13 synoptic code format while at sea.

##### **5.3 VOSCLIM**

A mobile ship station equipped with sufficient certified meteorological instruments for making observations, transmits regular and timely weather reports, enters the observations in an International Maritime Meteorological Tape (IMMT) compliant electronic logbook, and has a proven record of providing high quality observations. A VOSCLIM ship should have at least a

barometer, a thermometer to measure SST, a psychrometer (for AT and humidity), a barograph and possibly an anemometer. In addition, a VOSclim ship should be inspected at less than six monthly intervals, the full range of metadata is maintained in WMO No. 47, the full suite of digital images, sketches and drawings are available, and the delayed-mode IMMT data will be submitted to the Global Collection Centers (GCC) (Completed by NCDC).

#### **5.4 Auxiliary**

A ship with at least a barometer and a thermometer of acceptable accuracy, which does not desire or cannot routinely report, is classified as an auxiliary class vessel. Auxiliary ships transmit weather messages in FM-13 synoptic code format while at sea.

### **6 Ship Visitation and Support**

This function requires the greatest amount of the PMO's time. Proper management of this activity is essential to the VOS program. The PMO plans routine visits to:

- Recruit new ships into the VOS program,
- Inspect meteorological equipment and provide observing instructions to ships already in the VOS program,
- Replace or make adjustments to previously installed NWS equipment,
- Instruct observers and provide necessary meteorological equipment to newly recruited ships, and
- Make courtesy calls on domestic and foreign supervised VOS ships.

When possible, ships of Japan, India, Canada, United Kingdom, and other nations with active observing programs should be paid a courtesy visit and reminded of the U.S. high seas data requirements. For further reference, visits will be classified as the physical face-to-face meeting onboard the ship. Additional support is then classified as either by Email, telephone, radio, postal mail, or contact through an office and/or agent.

#### **6.1 Timing of Visits**

Ship visits should be planned for times when the greatest number of weather observing personnel can be reached to discuss observing procedures and the use of NWS services, information, and products.

#### **6.2 Purpose of Visits**

Ship visitations are made primarily to

- Expand the existing VOS program,
- Maintain the quality of weather observation programs aboard ships,
- Furnish observing and reporting instructions and supplies,
- Inform ships' personnel about the availability and use of NWS forecast and warning broadcasts and
- Download any archived observational data for submission to NCDC.

#### **6.3 Visit Routine**

The routine during a visit to a ship varies, but generally all visitations should begin with a call to the captain or the captain's designated representative to explain the purpose of the visit (follow-

up, new recruit, or courtesy) and to request permission to carry out all the PMO designated functions.

### 6.3.1 Instructions on Observation Techniques

The PMO should visit with as many shipboard observers as possible. During the first visit on a newly recruited ship, instructions from National Weather Service Observing Handbook No. 1, Marine Surface Weather Observations, should be reviewed with the observers. If observation records are onboard the ship, the PMO should examine them for coding and logging errors, or omissions and make tactful suggestions for correcting problems.

## 7 Instrument Quality Checks

World Meteorological Organization/Instruments and Methods of Observation Programme (WMO/IMOP) states shipboard barometers set to read Sea Level Pressure (SLP) by manually adjusting the barometer or by displaying the necessary correction next to the barometer. This should be accomplished by trained personnel with the required equipment to perform the task.

Adjustments made to Aneroid Barometers are within +/- .3 mb. If the barometer is already within +/- .3 mb, an adjustment is not necessary. The PMO should check all the weather observing equipment onboard the ship during the visit. NWS VOS program ships have barometers corrected to read sea level pressure. To correct to sea level, the portable inspection barometer should be brought to the bridge and the bridge height (h) correction determined using the following formula:

$$h = A + B - C$$

Where:

A = the distance in meters between the keel of the ship and the Summer Load Line (SLL)

B = the height in meters of the barometer above the SLL

C = the ships mean draft in meters

The ship's barometer is then set to sea level pressure by adding the height correction to the inspection barometer reading. If the ship's barometer cannot be adjusted, the observer applies a height correction (plus or minus) to achieve a sea level pressure reading. The correction should be entered on NWS Form B-13, Barometer Correction Label, and posted on or near the barometer face. Several barometer comparisons should be made to figure the proper height correction. Some large vessels, such as bulk carriers, ride either fully loaded or empty without ballast. Two different corrections should be provided for these ships since large changes in draft can cause considerable pressure difference. To maintain accuracy, the portable inspection barometer should be checked each day by the PMO before and after ship visitations.

Barographs should be checked for normal operation and adjusted to sea level pressure. Thermometers should be cleaned and columns inspected for separations. If necessary, the psychrometer muslin should be replaced. All defective NWS equipment should be replaced.

If the ship is equipped with an anemometer, the PMO should provide the ship with a wind plotting board and explain its use. The PMO should evaluate the wind system exposure and discuss the qualities of the instrument with the deck officers. Ship's officers should be encouraged to have their anemometers checked by a qualified technician at least semiannually and calibrated if necessary.

### **7.1.1 Explanation of Use of NWS Forecast Services**

Discussion of radio facsimile broadcast schedules and products, as well as radio broadcasts of forecasts, synopses, warnings, and analyses, should be brought to the attention of the ship's officers. If necessary, shipboard personnel should be provided information (and instructions, if needed) regarding NWS forecast services and Internet websites as well as the instructions on the interpretation and use of these NWS forecast products.

### **7.1.2 Visitation Services to Foreign Ships**

Ships recruited by foreign meteorological services or foreign ships not participating in any observing program should be visited by PMOs when time permits and visits can be arranged. The activities of the PMO on these ship visits should be the same as if visiting a vessel in the U.S. VOS program. The internationally approved Foreign VOS Inspection Form (VOSP001) should be completed and returned to the U.S. VOS Program Office for promulgation to the appropriate Foreign VOS management office.

### **7.1.3 Visitation Services to U.S. Government and Private Research Ships**

Every effort should be made to encourage the cooperation of ships that sail under the following Government-sponsored programs:

- U.S. Coast Guard
- National Oceanic and Atmospheric Administration (NOAA)
- Ships engaged in Government-funded research

Visitation services should be offered to all ships in the various categories listed above. Services to NOAA ships should be coordinated through National Ocean Service Marine Centers, National Marine Centers, and National Marine Fisheries Service Research Centers and Laboratories. Military Sealift Command (MSC) ships are supported operationally and logistically by the U.S. Navy as their observation reports are not publicly releasable.

## **8 NWS Instruments Installed Aboard Ships**

The NWS can provide as a loan:

- A barometer, barograph, and thermometer to ships of the selected class;
- A barometer and thermometer to supplementary class ships; and
- In special cases, a barometer and thermometer to coastal auxiliary class ships. In certain cases, U.S. VOS vessels will use NWS loaned automated weather observation equipment. In many cases, shipboard instrumentation is a mix between shipping company and NWS-loaned equipment.

## **9 Observational Aids and Marine Publications Provided to Voluntary Observing Ships**

Forms, aids, and publications provided to VOS vessels may include:

- National Weather Service Observing Handbook No. 1, Marine Surface Weather Observations
- WS Form B-81, Ship's Weather Observations
- Automated Mutual-assistance Vessel Rescue (AMVER)/SEAS Electronic Logbook Software
- Guide to Sea State, Wind and Clouds
- Worldwide Marine Radiofacsimile Broadcast Schedule

- Mariners Weather Log
- Barograph sheets (WS Form 455-12)
- Determining Cloud Type Poster
- Beaufort Wind Speed Scale Poster

Any ship classified as inactive should have its NWS loaned equipment recovered for re-issuance to actively supporting vessels.

## **10 Observation Procedures and Transmission and Disposition of NWS Forms by Ships**

All voluntary ships are requested to take weather observations on a routine basis while at sea. These observations are encoded according to WMO and U.S. requirements and transmitted to selected shore stations for relay to the NWS. Completed weather observation forms (B-81) will be submitted to the PMO and subsequently forwarded to NCDC, only when there is no digital archive or E-logbook is being used. In the case where vessels are utilizing an E-logbook to encode observations as a digital archived record, it will be retrieved from the E-logbook and forwarded to the PMO for their quality control check of the coded data. The PMO then sends the data to the National Climatic Data Center for archiving.

### **10.1 Observation Procedures Onboard Voluntary Observing Ships**

All voluntary ships are requested to take and record observations at intervals of 6 hours daily while at sea. Observations every 3 hours are requested from vessels operating within 200 nautical miles of the U.S. or Canadian coasts or within 300 nautical miles of named tropical storms or hurricanes. Observations every 3 hours are also requested when a ship is experiencing sea at 12 feet (Beaufort 6) or greater or winds in excess of 47 knots (Storm Force). Special observations are also made when specifically requested by a Weather Forecast Office, the National Hurricane Center, or the Central Pacific Hurricane Center or whenever the ship encounters weather conditions, especially those not forecast. These conditions can include ice, strong winds, high seas, tropical storms, etc., following the “International Convention on the Safety of Life at Sea (SOLAS)” instructions. In the case where a U.S. VOS program vessel has installed an NWS loaned automated weather system, observations may be automatically sent hourly to the NWS.

### **10.2 VOS Observations**

The VOS Observations made in accordance with National Weather Service Observing Handbook No. 1, Marine Surface Weather Observations, should include, whenever possible, the meteorological measurements of wind speed, wind direction, and barometric pressure as well as the ocean measurements of wave height, wave direction, wave period, and sea surface temperature. Other measurements contained in National Weather Service Observing Handbook No. 1 may be included and encoded in the observations.

### **10.3 Disposition of Weather Records by Ships**

Shipboard observers should be instructed to forward completed observation forms (NOAA Forms B-81), archived electronic media, and/or barograph sheets (WS Form 455-12) to the closest PMO to the port they are routinely operating out of if not delivered to the PMO during a visit.

#### **10.4 Call Sign Masking Security**

Due to security or business concerns, shipping companies or ship masters can request that their call sign and location not be shared on any public website whether in real-time or not. The VOS Program supports such requests by coordinating with the NWS Telecommunications Gateway (NWS TG) and having the REAL call signs replaced with “SHIP” as its identifier. The REAL call sign observations are then only routed to the Ocean Prediction Center (OPC) for forecasts/warnings, model verification and development; and to the VOS Program Office for proper statistical analysis. PMOs who receive such requests are to forward them the VOS Program Office for further coordination and implementation.

### **11 PMO Liaison Activities**

Next in priority to ship visitations, the PMOs are responsible for maintaining close liaison with shipping company officials, the U.S. Coast Guard, and other marine-oriented organizations. Through these contacts, the PMOs can gain support for the VOS program and determine the local marine communities’ requirements for weather services. Important unfulfilled requirements discovered by these contacts should be brought to the attention of the Regional Headquarters point of contact and the VOS Program Manager for necessary action.

#### **11.1 Marine Weather Training Provided by PMOs**

The PMOs are encouraged to provide training in weather observing techniques for shipboard weather observers. The purpose of the training is to provide the ship’s officers with practical assistance in observing techniques and uses of the meteorological services available to the ships. Basic meteorology necessary for weather map analysis and interpretation should be included in the training, if requested.

#### **11.2 Merchant Marine Schools**

Since the majority of cadets at merchant marine academies will eventually serve onboard ships participating in the VOS program, the US VOS Program should provide the schools with observer training, basic meteorology fundamentals, radiofacsimile chart training and other NWS products, information and services available to the mariner when requested (and if resources permit).

### **12 Familiarization Trips**

PMOs will maintain skills and expertise in meteorological observations and remain well informed concerning all marine meteorological services available to shipping. This requirement cannot be met by ship visitation and liaison alone. To fully understand the mariners and their challenges with regard to the VOS, all PMOs should sail onboard a cooperating merchant vessel at least once every two years. In addition, part time PMOs and marine forecasters are encouraged to take familiarization trips as time and resources permit. Arrangements for such voyages will be approved by the regional headquarters, national centers, and local Meteorologist in Charge (MIC) – if appropriate - and with the permission of the cooperating shipping companies affected.

Some Examples of Services:

1. Access the worldwide marine radiofacsimile broadcast schedule in order to obtain broadcasts relevant to the ships route/interest.

2. Obtain NWS products via email (FTP) if the radiofacsimile is not obtainable due to signal interference or any equipment outages.
3. Be familiar, knowledgeable, and able to obtain and interpret graphic marine forecasts and products.
4. Ability to access and be familiar with tides and currents and the impact of shipping Physical Oceanographic Real-Time System (PORTS) website provided by National Ocean Service (NOS).
5. Dissemination Information:
  - a. NOAA weather radio broadcasts
  - b. USCG broadcasts for high seas and offshore forecasts and storm warnings
  - c. Commercial services available
  - d. USCG Automatic Identification System (AIS) broadcast
  - e. NAVTEX
6. Be familiar with the different ways to obtain a marine forecast.
  - a. Marine text forecast/products
  - b. Graphic marine forecasts and products
  - c. Observations
  - d. Marine weather portals
    1. National Ocean Services NowCOAST web portal
    2. Great Lakes Marine Weather Portal

### **12.1 Duties While on Familiarization Trips**

During a familiarization trip, the PMO, part-time PMO, and marine forecaster should assist the deck officer in taking, encoding, and transmitting synoptic observations; discuss the weather broadcast schedules with the deck officers; and suggest that pertinent marine weather bulletins be copied. Using appropriate bulletins, the PMO, part time PMO, and marine forecaster should demonstrate plotting, drawing, and analyses of surface charts and assist ships' personnel with any questions they may have. The broadcast analysis and forecasts should be checked for accuracy and consistency. A complete report of any problems or discrepancies encountered with these products should be prepared. Dates and times of all observations transmitted and shore radio stations that acknowledge receipt of the messages should be noted. This information should be included in a trip report completed at the end of each voyage and sent to the VOS Operations Manager, and the regional, national center or local MICs, points of contact – if appropriate.

### **13 Awards for Voluntary Observing Ships**

To provide suitable recognition of long or especially effective service rendered by participants in the VOS program, awards may be granted. Awards are provided to ships, shipping companies and to individuals in the maritime community. Arrangements for presentation of awards will be made through the VOS Program Manager and the Regional Headquarters point of contact. When feasible, presentation should be made before a local, civic, or management group. The presentation ceremony should be adequately publicized. Newspaper clippings, pictures, and other pertinent information should be sent to the VOS Operations Manager for distribution to NOAA Public Affairs and for inclusion in the Mariners Weather Log as appropriate.