

Ship Observations Team

- OCG-15 Report -

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Executive Summary: Major advancements: as a WMO/IOC capacity development, the SOT conducted a successful VOS training program in the observation-sparse Pacific region via the 7th PMO Workshop, and the VOS network is being expanded in that region as a result of that workshop and the VOS Donation Program. Observation restriction over the Indian water was resolved by international and bi-lateral communications. Globally, up to 20 ships perform upper air soundings. Metadata is successfully managed via GitHub. Most VOS operators have started using the new SOT-IDs and WIGOS-compliant metadata submission to OceanOPS. SOT teams published updated brochures and observation Best Practices (e.g. XBT Best Practice). VOS GDACs received nearly 2.4 million observations in 2023. A new blended/synthesized marine surface meteorological and oceanographic dataset – the ICOADS Daily was released.

Challenges that WMO/IOC/OCG could potentially help to mitigate: 1) Declining financial contribution from member countries, directly impacting SOT activities through reduced funds to both SOT and the OceanOps. 2) Finding a solution for the coming end-of-life support for the widely used VOS observation software, Turbowin. Important as it is, not all member countries/teams are on the same page on finding a solution: some countries/team are focusing on the software itself, while others want a high level (WMO/IOC/OCG level) statement on the requirements for future VOS observations as a whole, together with a software solution. 3) Trend of declining participation of network observations from member countries, particularly triggered by COVID19 event (New Zealand for VOS, and declining ASAP participation are two examples); observation requirements from high level (WMO/IOC) are needed. 4) Difficulties that some scientific riders on ships of opportunities encountered (liability waivers) – IOC/GOOS can potentially help with a template letter but issued case by case basis.

Voluntary Observing Ships (VOS):

- **Successes:** 1) A written resolution on the use of Iridium within Indian waters; 2) A new VOS Brochure; 3) Most VOS operators migrated to SOT-IDs and WIGOS-compliant metadata submission to OceanOPS (95% from OceanOPS to WMO-OSCAR); 4) Capacity building in the Pacific region via PMO-7 Workshop
- **Future Plans & Opportunities:** 1) Provide technical expertise and support to the development of the Next Generation Turbowin software; 2) Conduct capacity development webinars; 3) Continue VOS Donation Program
- **Challenges & Concerns:** 1) Unable to access new SOT-IDs or register new ships during OceanOPS down time; 2) Uncertainty on the Next-Gen Turbowin software.
- **How OCG Can Help:** Discuss with shipping companies at very high level for strong partnerships across the full OCG portfolio & potentially contributions (funding instruments, in-kind support for software developments). 2) Sustained funding solution for OceanOPS

Ship Of Opportunity Programme (SOOP):

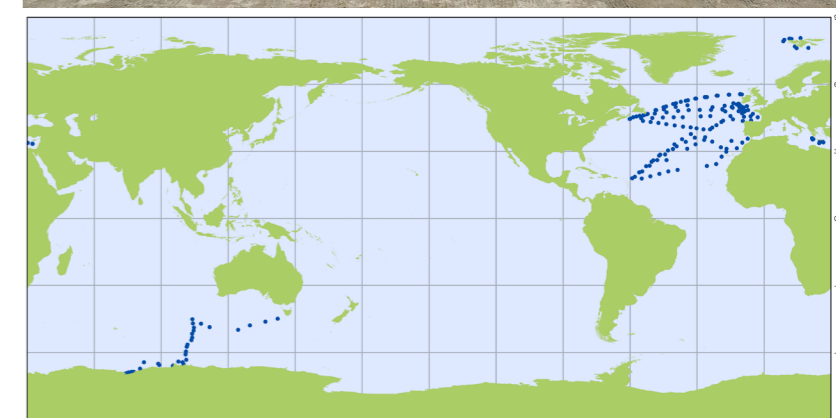
- **Successes:** 1) Re-invigoration of additional networks involved with the SOOP (CPR, TSG and PCO₂), potential inclusion of new instruments (underway ADCP); 2) GOOS endorsement of a) XBT Best Practice & b) Vessel Recruitment Best Practice; 3) SOT-ID migration by CISRO; 4) Solution to XBT purchasing access for Italian institutions; 5) Resolution of most OceanOPS metadata input for XBT.
- **Future Plans & Opportunities:** Increase observations as widely as possible by removing barriers, for XBTs & beyond; 2) Foster metadata availability, focusing on CO₂ through Soconet initiative; 3) pCO₂ working towards increasing the implementation of “super SOOP” installations; 4) Continue to assist the growth of the other subnetworks (ADCP, CPR, TSG, Ferrybox, etc). 5) Promote the use of SOT-IDs for all.
- **Challenges & Concerns:** Unable to access new SOT-IDs or register new ships during OceanOPS down
- **How OCG Can Help:** Letter from IOC/GOOS in support of ships riders; More direct interaction with IOC/GOOS; Engage industry partners at their forums on behalf of SOT/SOOP.

Automated Shipboard Aerological Programme (ASAP):

- **Successes:** Up to 20 ships performed upper air soundings. 80-90% of around 4000 annual soundings are provided by the 16 ships of the European ASAP fleet (E-ASAP).
- **Future Plans & Opportunities:** Implement descent profiles (additional to standard ascent profiles) on board all ships of the European E-ASAP fleet
- **Challenges & Concerns:** 1) Budget cuts – will GBON requirements really help? 2) Not global ocean
- **How OCG Can Help:** Reconcile GBON requirements and funding reality; Long term stability for OceanOPS funding

SOT Task Teams:

- **Successes:** 1) VOS Delayed Mode Data (TT-VOS DM) received nearly 2.4 million observations in 2023, annual report being finalized; 2) DWD pilot project underway with WMO to make VOS-DM data available through WIS2.0; 3) TT-Metadata: issues & requests for OceanOps/reference table updates were successfully managed via GitHub; metadata reference tables were optimized for SOOP.
- **Future Plans & Opportunities:** 1) TT-VOS DM: 1a) Review data exchange format, replacing IMMT to overcome format limitations and adopt to new metadata standards; 1b) Review Minimum Quality Controls Standards (MQCS); 1c) Increase submission members; 2) TT-Metada: 2a) Arrange further training webinars; 2b) Create a document to guide users on how to view & extract metadata information; 2c) Work with members for SOT metadata migration; 3) Task Team on Expansion of Independent Class Observations (TT-EICO): Develop a guidance document to further community engagement in third-party observations.
- **Challenges & Concerns:** 1) TT-VOS DM: 1a) Most VOS data going to GTS are not submitted to DM DACs; 1b) UK GDAC undergoes an IT update which presently leads to some inconsistencies – working with DWD GDAC for a solution; 2) Task Team on Key Performance Indicators (TT-KPI): Funding at OceanOps poses a risk to implementation of new KPIs (Task Team on Key Performance Indicators (TT-KPI) and support and management of metadata across the networks.
- **How OCG Can Help:** Long term stability for OceanOPS funding.



Ship Observations Team
ASAP Launches
Position and Number of Reports per Format
January 2024
Legend: ASAP in TDC (385), ASAP in TAC (0)
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Proprietor: Huai Min Zhang (1501000)



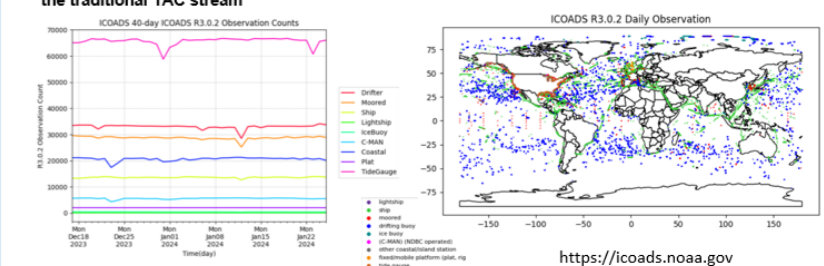
Observing Network Specification Sheet

Ship of Opportunity Program (SOOP)
- a Ship Observations Team (SOT) network -



ICOADS-Daily Version Released in Spring 2023

The new version R3.0.2 has more observations due to merging the new data stream from BUFR with the traditional TAC stream



<https://icoads.noaa.gov>