



OceanSITES: A Worldwide Network of Deepwater Reference Stations

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OceanSITES - observations in support for:



Vision

Time series observations are an essential element of a global ocean observing system. They provide a unique view of the full temporal behavior of a system; accurate reference and long-time baseline data; and the maximum possible range of interlinked variables from the seafloor to the atmosphere while enabling shared resources

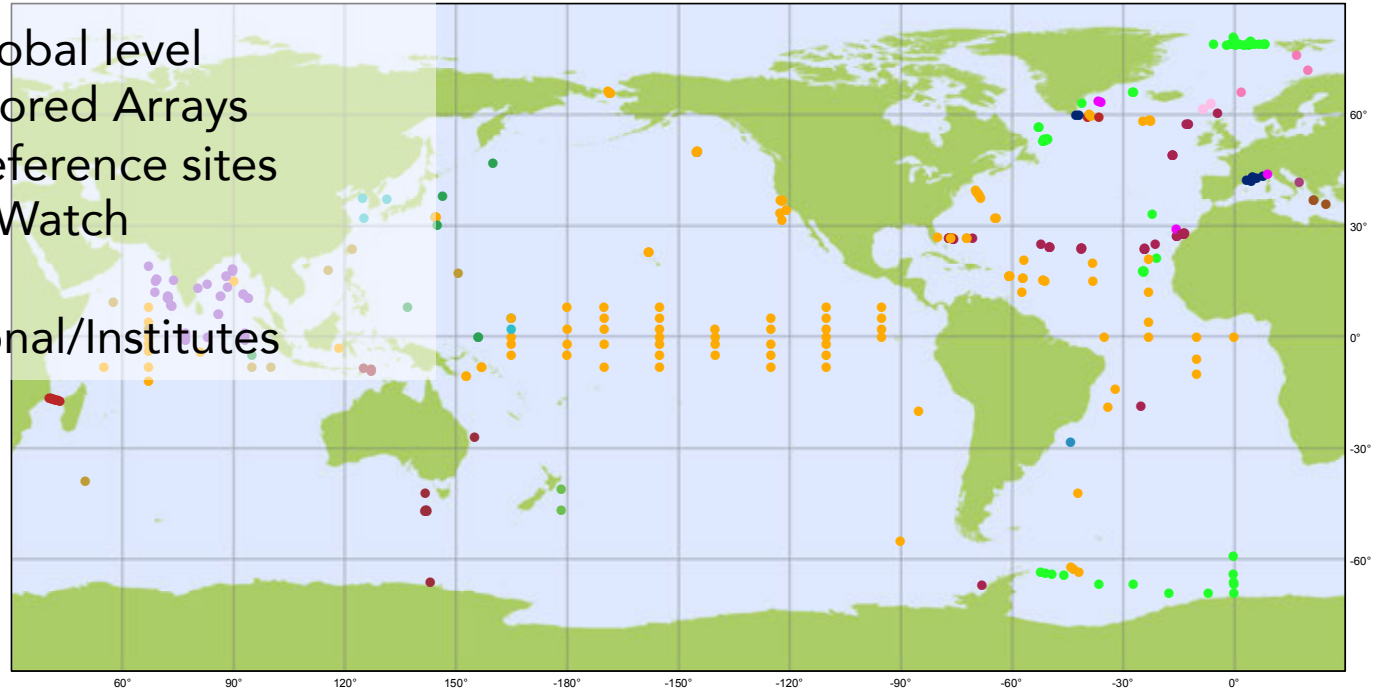
Mission

The OceanSITES network ensures optimal collection, delivery and promotion of highest-quality, long-term, high-frequency time series data at fixed locations in the open ocean. OceanSITES addresses multidisciplinary data worldwide and over the full-depth water column from the air/sea interface to the seafloor

OceanSITES time series stations



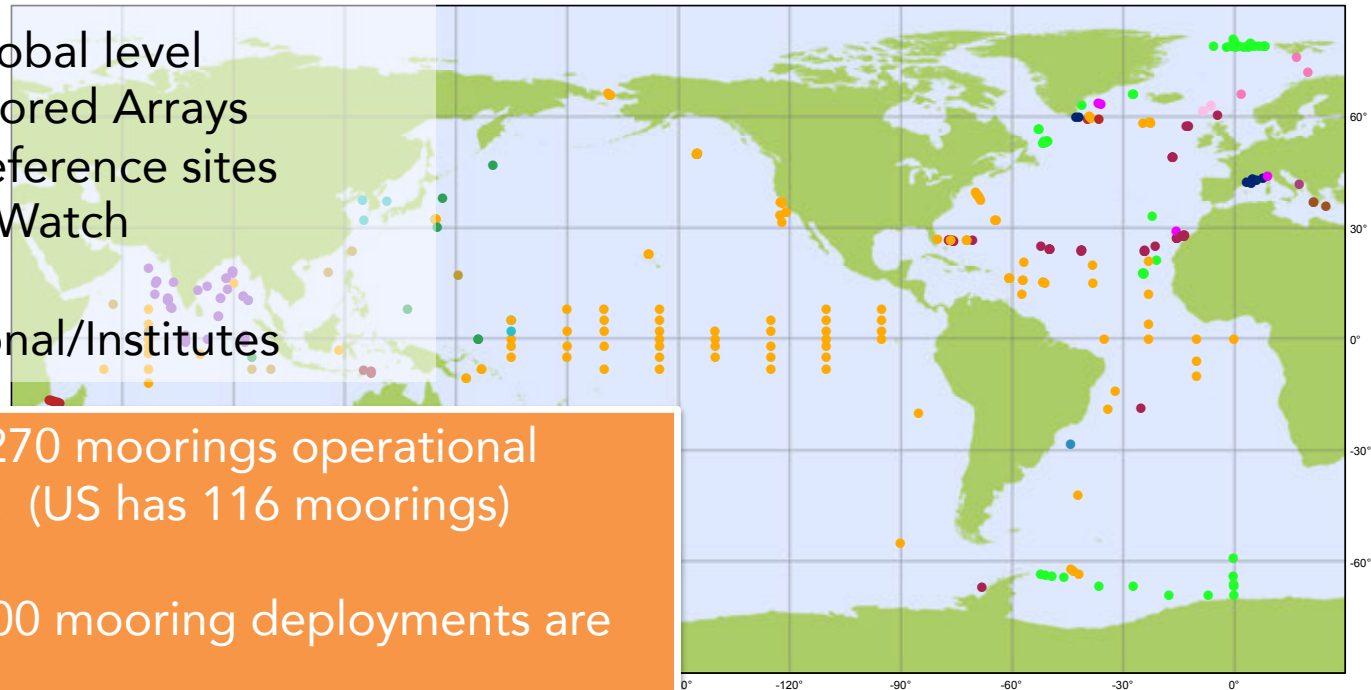
- Regional/local observing objectives
- Grouping at global level
 - Transport Moored Arrays
 - Air/sea flux reference sites
 - GlobalOceanWatch
 - Deep Ocean
- Funding: National/Institutes



OceanSITES time series stations



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Currently >270 moorings operational
20 countries (US has 116 moorings)

In total >3500 mooring deployments are archived

OceanSITES Organigram



Technical Coordinator (30%)

**Data
management
Team**

Executive team
(Incl. co-chairs)

**Science
Committee**

*(PI's, site manager,
associated
scientists)*

- Steadily improves netCDF based time series data format (*OceanSITES format*)
- Dissemination system: DACs, GDACs, JCOMMOPS
- Data shared (FTP, THREADS) via NDBC and Coriolis

- part of a large network of partners
- Gain access to and enhance usership of infrastructure
- Get assistance for initiating new sustained time-series programs
- Enhance footprint of your observations
- Technological development

OceanSITES network data examples

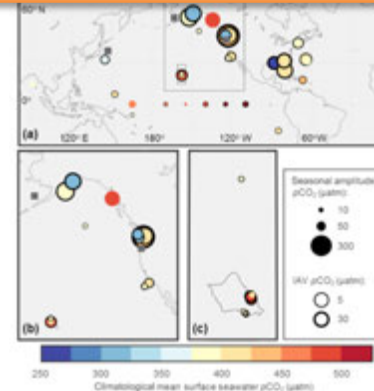
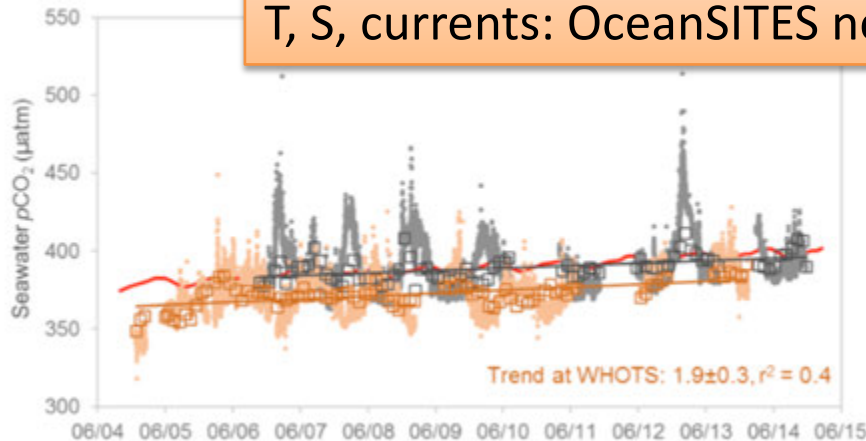


- pCO₂/pH time series from 40 surface buoys and the emergence of anthropogenic trends (Sutton et al. 2019; Earth Syst. Sci. Data, 11, 421–439, 2019 <https://doi.org/10.5194/essd-11-421-2019>)

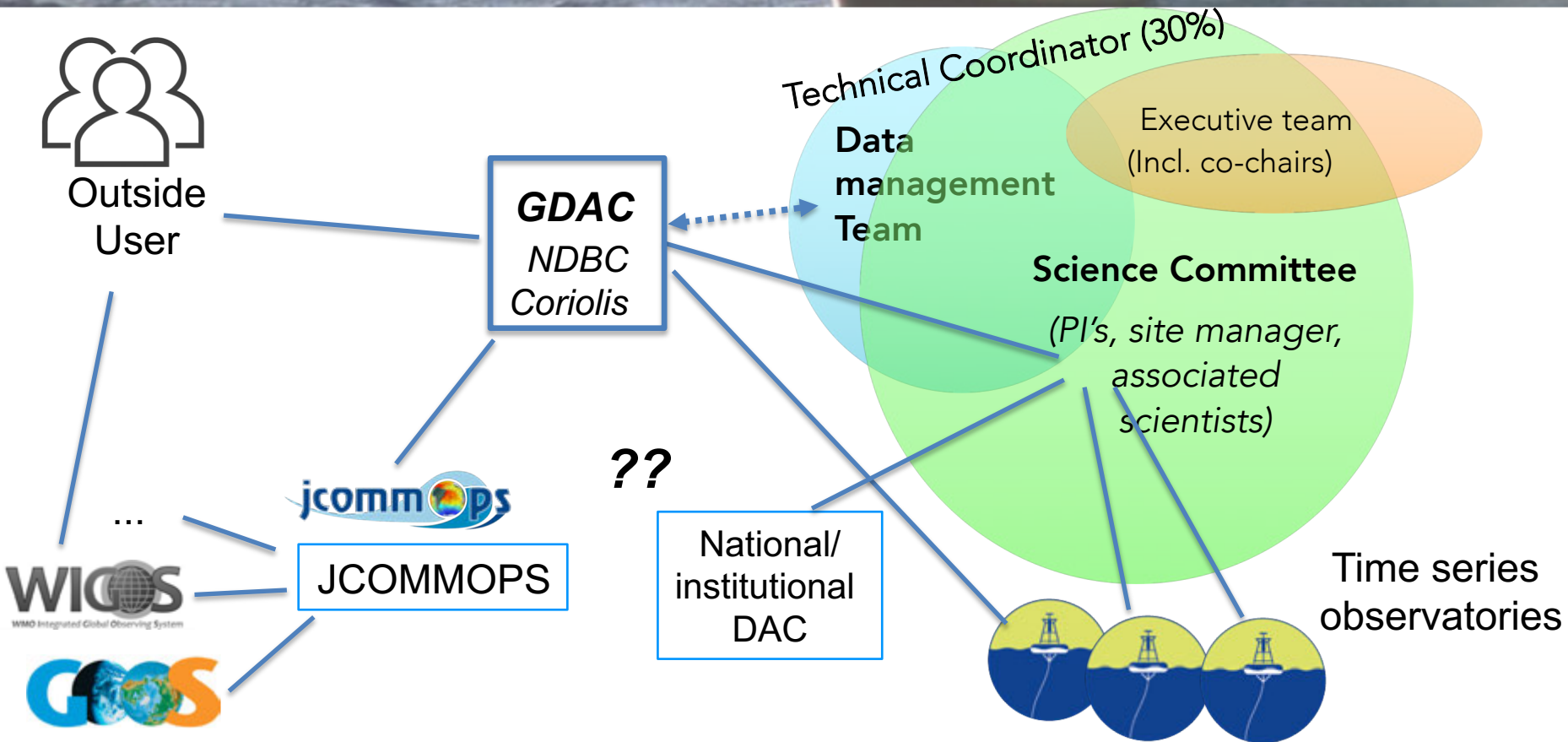
Data:

pCO₂/pH data at <https://doi.org/10.7289/V5DB8043>

T, S, currents: OceanSITES netCDF on THREADS/FTP



OceanSITES Data flow



OceanSITES and GOOS/GCOS



- One key objective of our coordination is making the observations and the observing effort visible in international systems such as GOOS/GCOS
- The official link is via JCOMM-OPS
- JCOMM-OPS was set up for Argo (notifications) but is now serving all observing networks (GO-SHIP, GLOSS, DBCP, ...)

A screenshot of the JCOMM-OPS website interface. The top part shows a map of the Pacific Ocean with several green dots representing observation platforms. Below the map, there are three detailed entries for different platforms. The first entry is for platform 19, SBE37_SM, which is a CNDC buoy measuring subsurface salinity and temperature. The second entry is for platform 20, MCLANE_MARK78H21_PARFLUXSEDIMENTTRAP, which is a sediment trap. The third entry is for platform 21, AANDERAA_RCM8, which is a current meter. Each entry includes details like type, variables, depth, and data link. The right side of the screenshot shows a detailed view of a platform, including its WMO ID, categories, networks, and a timeline of observations from 2019.

OceanSITES data challenges



- Metadata fields
- Metadata definitions e.g. Instrument vocabulary (across all sites >100 different instrument types)
- Compatibility with Global system (JCOMMOPS)
- **Standards** for auxiliary data (ship service, decoding? Expocode)
- Discovery and tracking of distributed (non-netCDF) data e.g. genomic analysis of samples, sediment trap data analysis
- Structuring and archiving data products (e.g. flux time series)
- Ensure that complex data carries adequate metadata (omics)
- Make data ready for use (e.g. Obs4MIPs)
- Release OceanSITES community endorsed Best Practices

OceanSITES data references



<p>Data References (include names of documents and links)</p>	<p>OceanSITES: IFREMER Coriolis (FTP). ftp://ftp.ifremer.fr/ifremer/oceansites/ US NDBC (FTP). ftp://data.ndbc.noaa.gov/data/oceansites/</p> <p>OceanSITES Data Format Reference Manual http://www.oceansites.org/docs/oceansites_data_format_reference_manual.pdf</p> <p>OceanSITES User Guide (accessible soon from http://www.oceansites.org/documents/index.html)</p> <p>Tropical Moored Arrays: http://www.pmel.noaa.gov/tao/data_deliv/deliv.html http://tao.ndbc.noaa.gov/</p>
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A research vessel with a blue superstructure is sailing on a dark blue, choppy ocean. The vessel is moving from the background towards the foreground, leaving a white wake. In the lower right foreground, a dark bird is captured in flight. The sky is a pale, clear blue. The overall scene conveys a sense of maritime research and environmental monitoring.

Taking the Pulse of the Global Ocean

www.oceansites.org

oceansites.jcommops.org