OceanSITES
Taking the pulse of the global ocean

OceanSITES:
A Worldwide Network of Deepwater Reference Stations

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OceanSITES - observations in support for:

GOOS
GCOS
GLOBAL CLIMATE OBSERVING SYSTEM
jcomm
OCEANOGRAPHY & MARINE METEOROLOGY
CLIVAR
WCRP
World Climate Research Programme

OceanSITES network

Vision

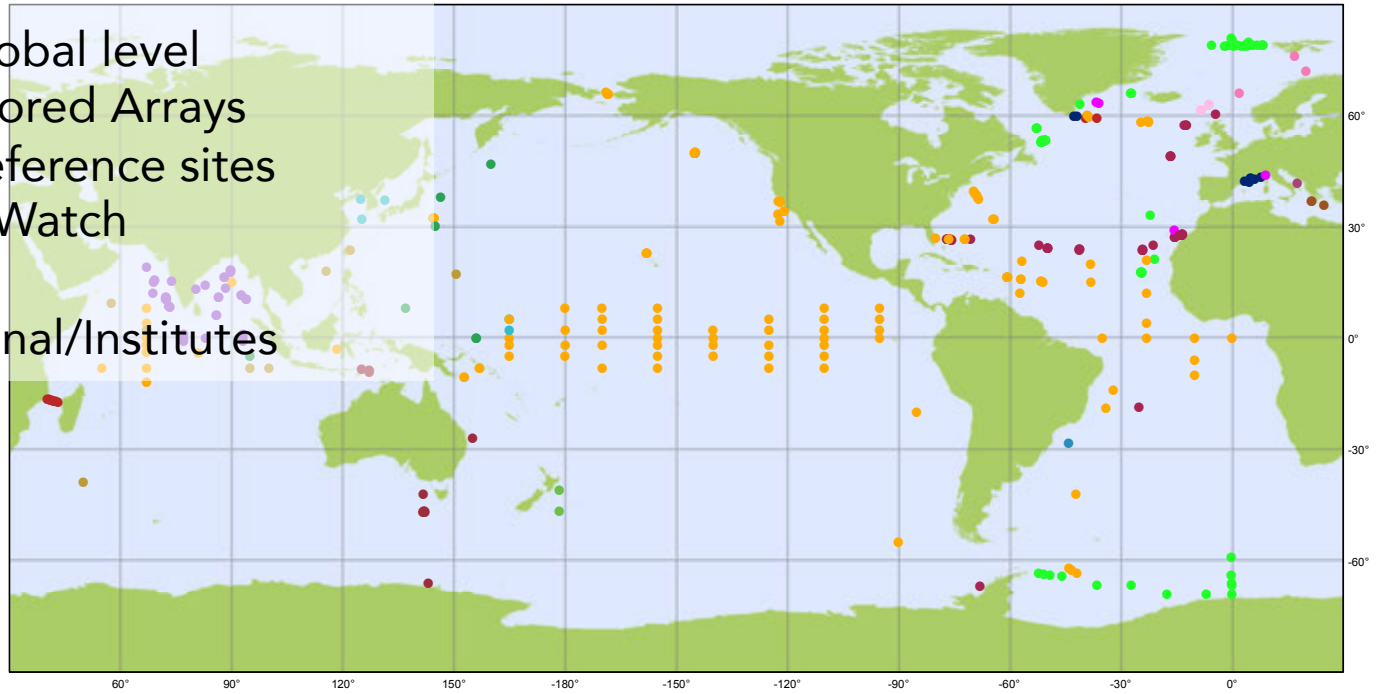
Time series observations are an essential element of a global ocean observing system. They provide a unique view of the full temporal behavior of a system; accurate reference and long-time baseline data; and the maximum possible range of interlinked variables from the seafloor to the atmosphere while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



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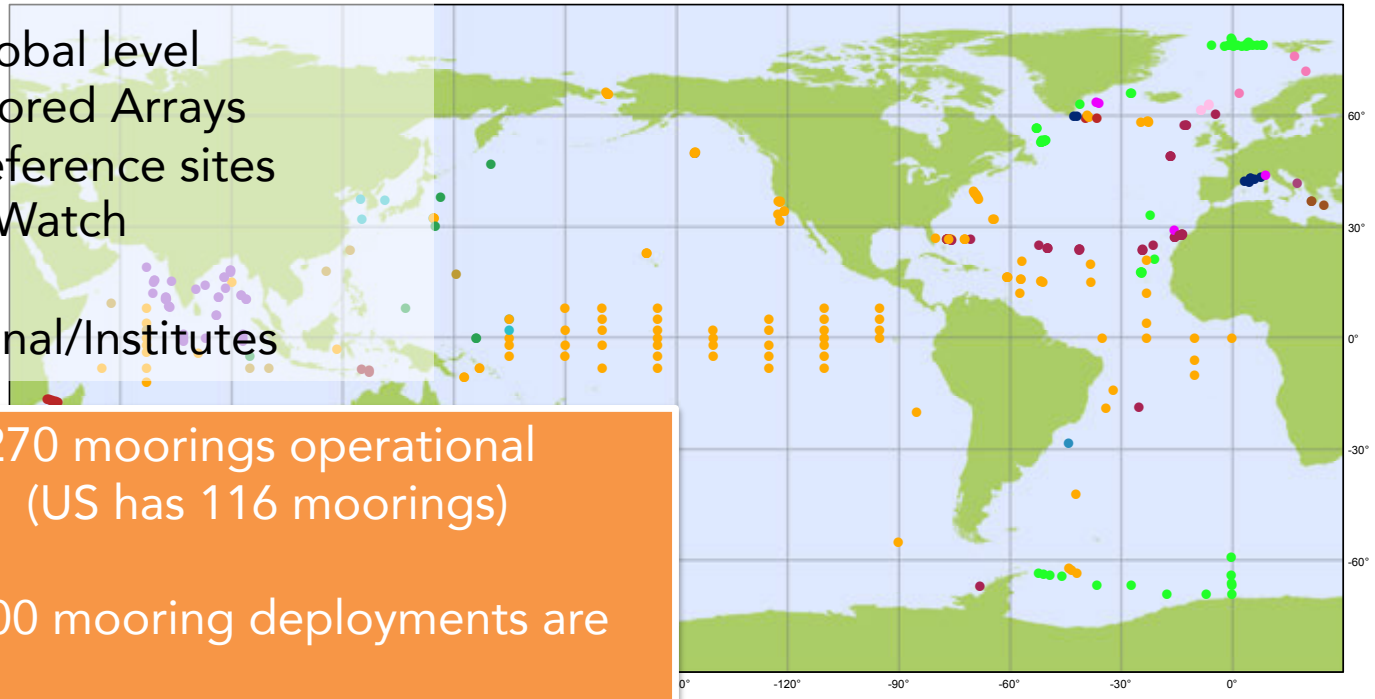
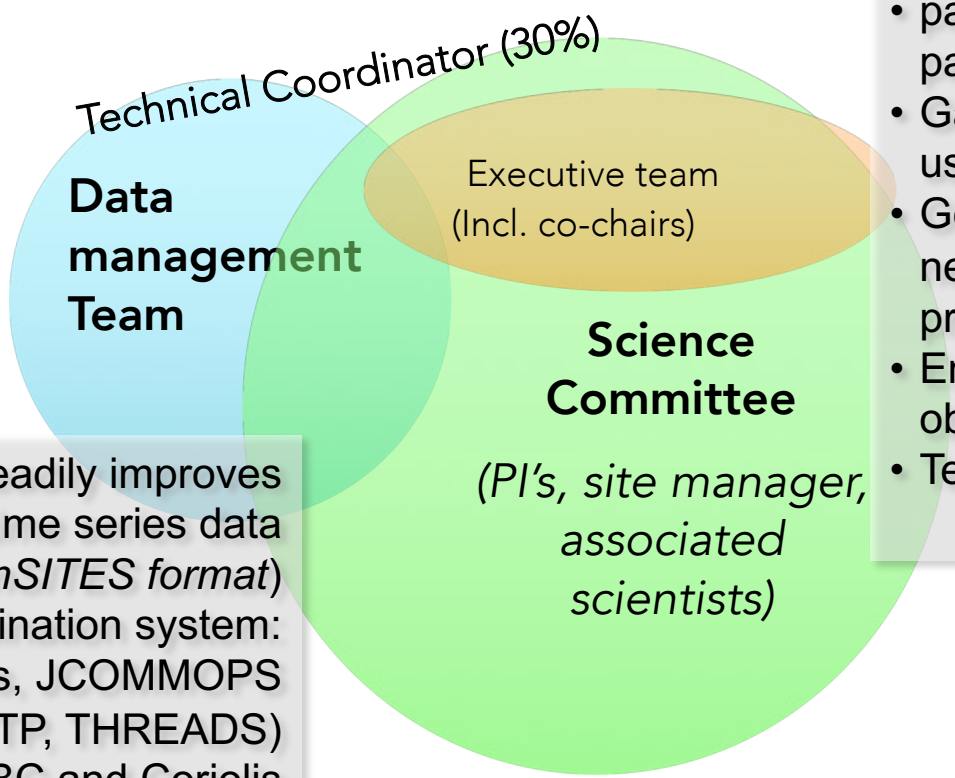


Currently >270 moorings operational
20 countries (US has 116 moorings)

In total >3500 mooring deployments are archived

OceanSITES Organigram



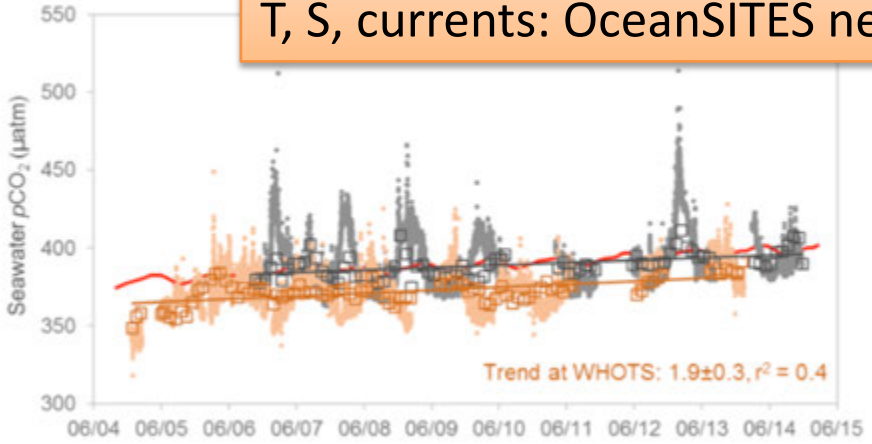
- part of a large network of partners
- Gain access to and enhance usership of infrastructure
- Get assistance for initiating new sustained time-series programs
- Enhance foodprint of your observations
- Technologiical development

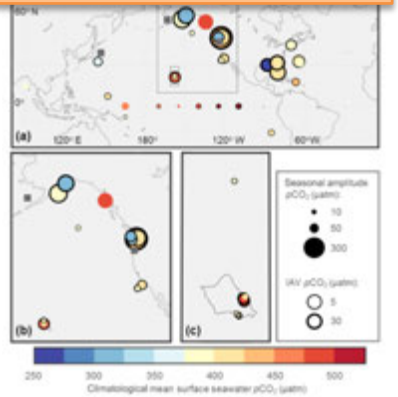
- Steadily improves netCDF based time series data format (*OceanSITES format*)
- Dissemination system: DACs, GDACs, JCOMMOPS
- Data shared (FTP, THREADS) via NDBC and Coriolis

OceanSITES network data examples

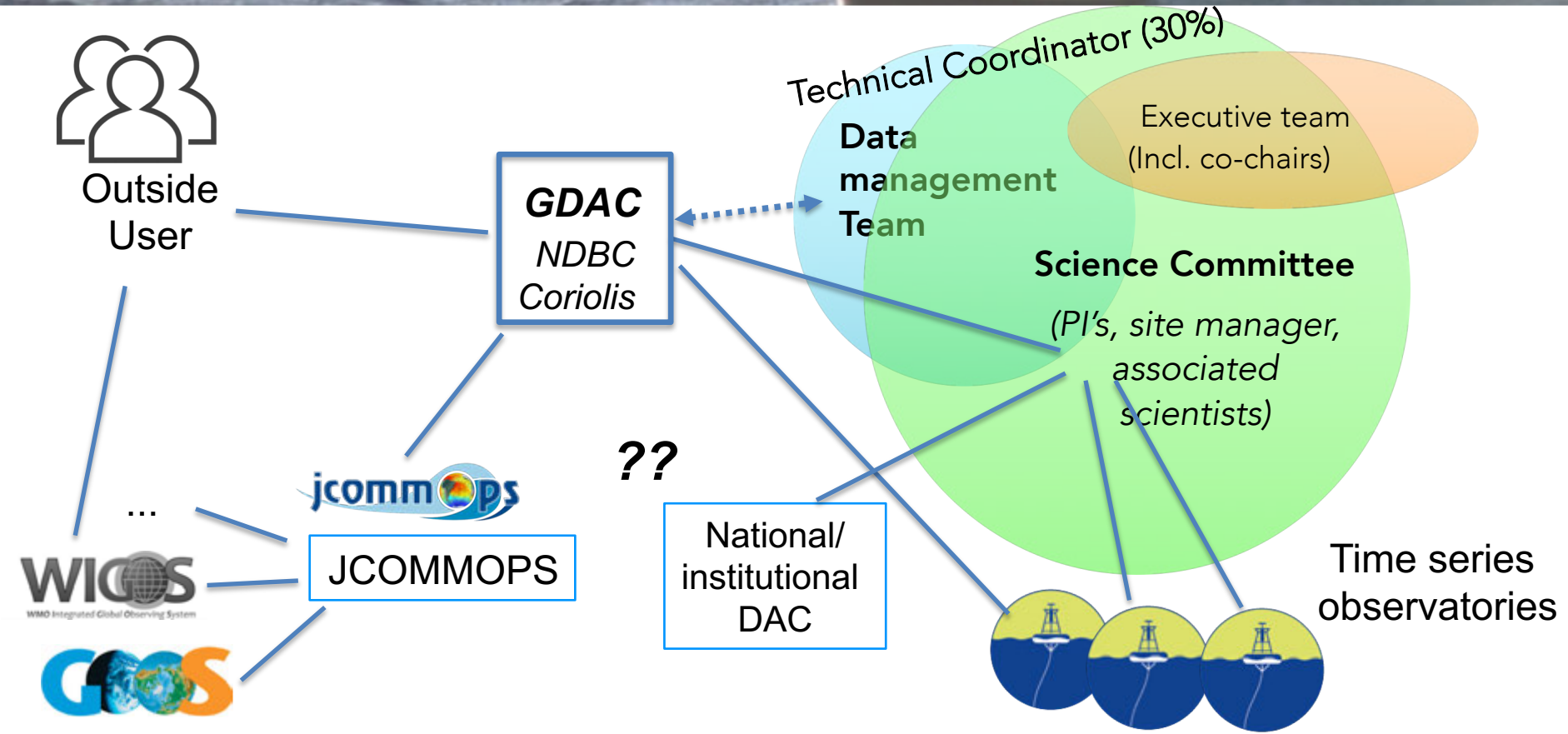
- pCO2/pH time series from 40 surface buoys and the emergence of anthropogenic trends (Sutton et al. 2019; Earth Syst. Sci. Data, 11, 421–439, 2019 https://doi.org/10.5194/essd-11-421-2019)

Data:
pCO2/pH data at https://doi.org/10.7289/V5DB8043
T, S, currents: OceanSITES netCDF on THREADS/FTP



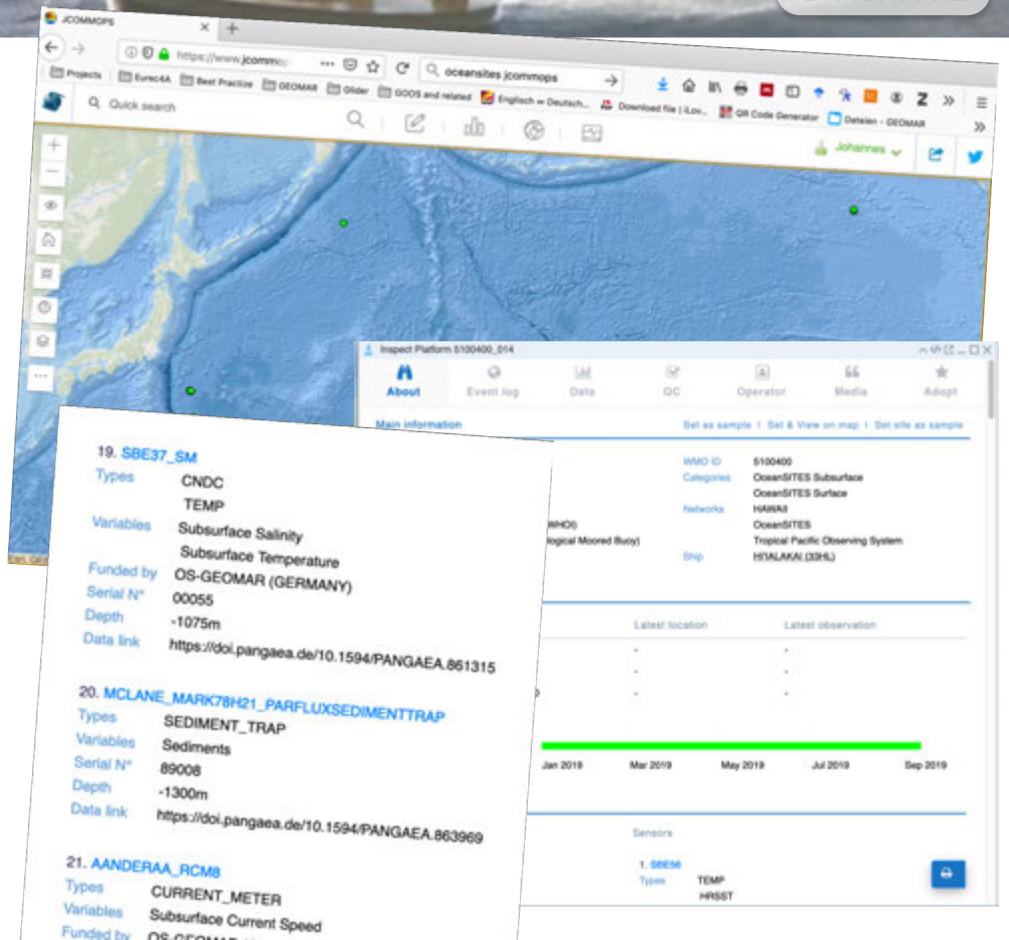


OceanSITES Data flow



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, ...)



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

Data References (include names of documents and links)	OceanSITES: IFREMER Coriolis (FTP). ftp://ftp.ifremer.fr/ifremer/oceansites/ US NDBC (FTP). ftp://data.ndbc.noaa.gov/data/oceansites/ OceanSITES Data Format Reference Manual http://www.oceansites.org/docs/oceansites_data_format_reference_manual.pdf OceanSITES User Guide (accessable soon from http://www.oceansites.org/documents/index.html) Tropical Moored Arrays: http://www.pmel.noaa.gov/tao/data_deliv/deliv.html http://tao.ndbc.noaa.gov/

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oceansites.jcommops.org