



# Activities of CLIVAR-GSOP and its contribution to the GODAE OceanView community

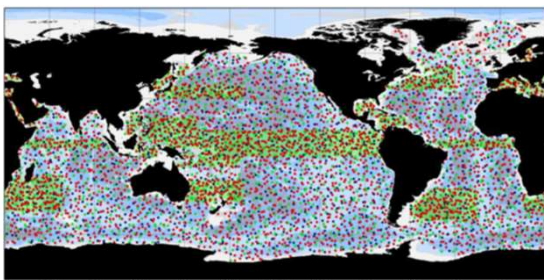
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(Also thanks to other GSOP members). <http://clivar.org/clivar-panels/gsop>

## What is GSOP?

- **Global Synthesis and Observations Panel** (a global panel of CLIVAR)
- **Responsible for**
  - Definition and promotion of CLIVAR's overall global needs for sustained ocean observations
  - Advancement and evaluation of synthesis of ocean observations based on numerical ocean models and data assimilation techniques
  - Including methodological research uptake and development of new climate-related validation metrics.
- **10<sup>th</sup> Session of GSOP took place at Woods Hole, in Feb. 2019.**

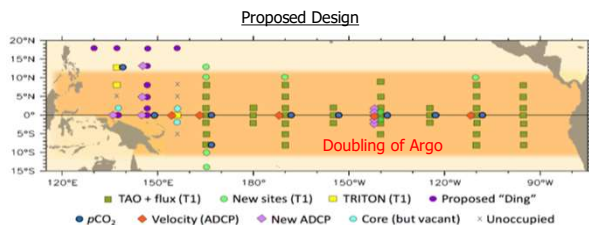
## Supporting development of ocean observing networks and ocean observation databases

- **GSOP endorses the new vision of the global Argo array, Argo2020.**



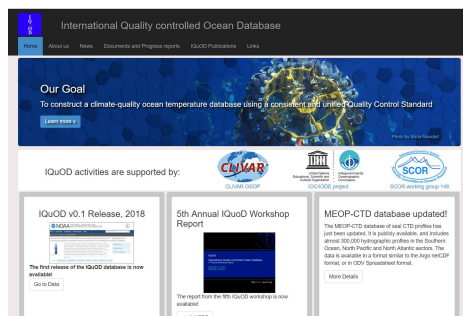
BGC and Deep floats deliver a core float data stream: 10 day cycle, profile at least 2000dbar, park at 1000dbar.

- **GSOP has provided feedback to the new design of the tropical Pacific Observing System proposed by TPO2020 and supports its efforts.**



- ✓ Retain all sites at 2°S, 0°, 2°N across the basin
- ✓ Deployment of Chinese "Ding" array.
- ✓ More complete measurements of air-sea flux variables
- ✓ enhance sampling of the rapidly-varying mixed layer
- ✓ Doubling of the number of Argo profiles in the 10°S-10°N band

- **GSOP supports International Quality-Controlled Ocean Database (IQuOD)**



- ✓ Quality controls
- ✓ Intelligent metadata
- ✓ Assigned uncertainties
- ✓ Emphasis on temperature
- ✓ Best practice XBT corrections

<http://www.iquod.org>

☆ IQuOD is also endorsed by GODAE OceanView. IQuOD is expected to provide essential data set for ocean analysis systems.

## Contribution to OceanObs'19

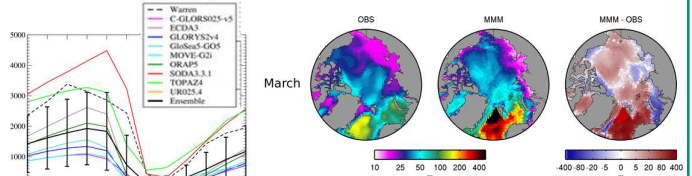
- **GSOP supports writing of OceanObs'19 community white papers associated with ocean reanalysis and observing system evaluation.**
- **GSOP will host the "Model and Assimilation Innovation" breakout session**

## Supporting Ocean Reanalysis Intercomparisons

- **GSOP took initiative for Ocean Reanalysis Intercomparison (ORA-IP) with GODAE OceanView.**

Special Issue: Climate Dynamics, Vol. 49. (August, 2019)

- **GSOP supports Polar regions Intercomparison (PORA-IP) led by FMI.**

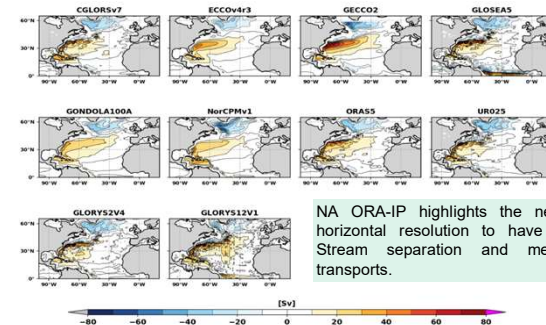


Climatology of Arctic snow volume (mostly under-estimated, large uncertainty)

Mixed layer depth in ice-covered areas (under-estimated in summer, over-estimated in winter)

From Uotila et al., 2019 (Clim. Dyn.)

- **GSOP supports North Atlantic Ocean Intercomparison (NA ORA-IP) led by UKMO and Mercator Ocean**



NA ORA-IP highlights the need for >1/4° horizontal resolution to have realistic Gulf Stream separation and meridional heat transports.

From L. Jackson et al. (submitted to JGR-O)

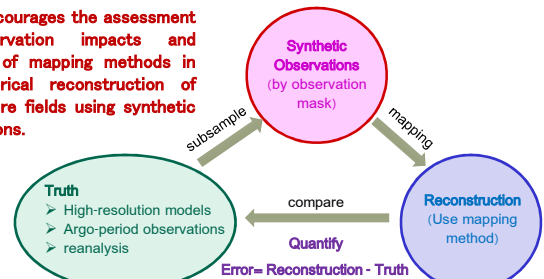
- **GSOP supports Real-Time Ocean Reanalysis Intercomparison (Real-Time ORA-IP) led by NCEP and BoM**

- Temperature intercomparison webpage hosted by NCEP:  
[http://www.cpc.ncep.noaa.gov/products/GODAS/multiara\\_body.html](http://www.cpc.ncep.noaa.gov/products/GODAS/multiara_body.html) (1980-2019, 6 ORAs)  
[https://www.cpc.ncep.noaa.gov/products/GODAS/multiara93\\_body.html](https://www.cpc.ncep.noaa.gov/products/GODAS/multiara93_body.html) (1993-2019, 9 ORAs)
- Salinity intercomparison webpage hosted by BoM:  
<http://poama.bom.gov.au/project/salinity>

## Supporting Observing System Evaluation

- **GSOP collaborates with GODAE OceanView OSEval TT on the observing system evaluation based on ocean/climate reanalysis/prediction systems.**

- **GSOP encourages the assessment of observation impacts and reliability of mapping methods in the historical reconstruction of temperature fields using synthetic observations.**



- **GSOP Supports the initiative of IORP and other panels to have a Pan CLIVAR meeting to discuss the challenges of reviewing/designing the regional observing systems for the next decade.**