

Global Synthesis and Observations Panel (GSOP)

Co-chairs, Email addresses

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Panel overview

GSOP is responsible for the definition and promotion of CLIVAR's overall global needs for sustained ocean observations, and the evaluation of model-based synthesis of ocean observations and statistical mapping of the observations. As such, GSOP is concerned on fostering methodological advances in the development of coupled and ocean-only re-analyses, and the statistical mapping of observations, enhanced way to assess their performance and fit-for-purpose, and identifying practices for the best exploitation of key climate observing networks.

During the last year, the pandemic hampered organizing workshops/meetings, and the Panel activities mostly consisted of remote meetings. It is desirable that in the future the Panel be able to meet in and jointly other panel meetings.

Achievements for 2020-2021

- No Workshop was run because of travel restrictions due to the COVID pandemic, but the panel met virtually on four occasions (October 2020, May 2021, October 2021, November 2021)
- The panel did not undertake any coordinated scientific activities this year. We had intended to initiate these at the cancelled workshop, which was also intended to be an opportunity for knowledge exchange, capacity building, career support enabling activity. We are considering plans for the coming year.

Plans for 2022 and beyond

Continue to refresh and broaden the panel membership, including a new co-chair to join Peter Oke. The current membership is:

- Chairs:
 - Steven Jayne – Woods Hole Oceanographic Institution, USA
 - Peter Oke – CSIRO, Australia
- Members:
 - Andrea Storto – Institute of Marine Sciences, NRC of Italy (stepped down from co-chair)
 - Yan Xue – NOAA/NCEP, USA

- Shuhei Masuda – JAMSTEC, Japan
- Isabella Ansorg – University of Cape Town, South Africa
- Lijing Cheng – Institute of Atmospheric Physics, China
- François Counillon – NERSC, Norway
- Matt Mazloff – Scripps Institution of Oceanography, USA
- Nathalie Zilberman – Scripps Institution of Oceanography, USA
- Hindumathi Palanisamy – Centre for Climate Research Singapore
- Aneesh Subramanian – University of Colorado, Boulder
- Mathieu Belbeoch – OceanOPS, France
- Aida Alvera Azcárate – University of Liège, Belgium
- Ex officio:
 - Ken Ando – Tropical Moored Buoy Implementation Panel vice-chair
 - Uwe Send – OceanSITES co-chair
 - Susan Wijffels – Argo Steering Team co-chair

During the recent meetings, members have discussed the activities for the panel during 2022, concentrated along these main topics:

- The Deep Argo role in the observing system: The group discussed how to proceed with further multi-perspective studies, encompassing idealized and real observing scenarios, data assimilation and objective analysis multi-year studies. A google doc will be shared soon with tentative topics, to be populated by the group with details and relevant literature on the implementation of deep Argo and related studies.
- SynObs: SynObs is a Project under the UN Ocean Decade, led by one of our panel members (Yosuke Fujii). The main goals of SynObs are to contribute to design of an optimal, integrated, global ocean observing system; and to explore the synergy among different ocean observation platforms in the coastal and open ocean
- GSOP aims also to participate actively in the definition of two WCRP LHA ("Explaining and Predicting Earth System Change", "Digital Earths") and the new WCRP core project "Earth System Modelling and Data Capabilities"

Articles published in 2020/21 by Panel members that address our responsibility (first-authored by panel members in black, co-authored in grey)

Abernathey, R., Bladwell, C., Froyland, G. and Sakellariou, K., 2021. Deep Lagrangian connectivity in the global ocean inferred from Argo floats. *arXiv preprint arXiv:2108.00683*.

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- Alvera-Azcárate, A., Van der Zande, D., Barth, A., Troupin, C., Martin, S. and Beckers, J.M., 2021. Analysis of 23 years of daily cloud-free chlorophyll and suspended particulate matter in the Greater North Sea. *Frontiers in Marine Science*, p.1276.
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- Fujii, Y., Ishibashi, T., Yasuda, T., Takaya, Y., Kobayashi, C. and Ishikawa, I., 2021. Improvements in tropical precipitation and sea surface air temperature fields in a coupled atmosphere–ocean data assimilation system. *Quarterly Journal of the Royal Meteorological Society*, 147(735), pp.1317-1343.
- Geyer, F., Gopalakrishnan, G., Sagen, H., Cornuelle, B. and Mazloff, M.M., 2021. Assimilation of acoustic thermometry data in Fram Strait. *The Journal of the Acoustical Society of America*, 149(4), pp.A90-A91.
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Budget and other needs for 2022 (in CHF)

We are requesting 5000 CHF for the proposed Panel meeting to be held during the second semester of 2022, in a place TBD.

Annex A

Proforma for CLIVAR Panel requests for SSG approval for meetings

Note: If your group has approved funds in 2021 that were not used because of Covid19 and other unexpected issues, and you propose to use them in 2022, they should be included again in this request, in addition to any new request.

1. **Panel name:** GSOP
2. **Title of meeting or workshop:** Panel Meeting
3. **Proposed venue (Or indicate if online):**
4. **Proposed dates:**
5. **Proposed attendees, including likely number:** All panel members, plus 2 guests (TBD)
6. **Rationale, motivation and justification, including: relevance to CLIVAR science & WCRP Strategic Plan and Lighthouse Activities, and any cross-panel/research foci links and interactions involved:**
7. **Specific objectives and key agenda items:** Discussion on the Panel activities, especially those planned for 2022 (impact of deep Argo)
8. **Anticipated outcomes (deliverables):** Meeting report
9. **Format:** 2 days of presentation and discussion
10. **Science Organizing Committee (if relevant)**
11. **Local Organizing Committee (if relevant)**
12. **Proposed funding sources and anticipated funding requested from WCRP:** \$5K