SynObs Web Meeting 7

Agenda

1. OceanPredict Steering Team Meeting 8

2. On-going Activities & Future Meetings

3. Current status of the flagship OSEs & discussion for OSSEs

★ OceanPredict Steering Team Meeting 8

➢ On Nov. 6-10 at Busan, South Korea.

➢ About half of OPST members (ST co-chairs, TT co-chairs, and rep. operational centers) attended in person.

➢ Policy of supporting the UN Ocean Decade activities are confirmed (SynObs, OP DCC, CoastPredict, Ocean Observing Co-Design, DITTO, Ocean Best Practice etc.)

➢ Current status and future plans of the operational centers were introduced.

➢ Current status Requirement of Argo and satellite observations (incl. SWOT) are presented.

➢ **On-line Seminars**: (COSS-TT, DA-TT, MEAP-TT, OP Operational System groups)

➢ Plan of the **OceanPredict Symposium 2024** is discussed

➢ **OceanPredict Summer School in 2026 in India** is suggested.

➢ **The new ocean reanalysis intercomparison** (global and **regional** systems) project is suggested.

➢ **OP Project Office supports ForeSea and SynObs.**

★ OceanPredict Symposium 2024

- **Nov. 18-22, 2024 at Maison de l'UNESCO in Paris**
- About 400 participants are expected.
- Generally, **only on-site participants can make presentations** (oral and poster)
- Presentations will be broadcasted and recording files will be shared via. Internet.
- WMO is also supported.
- No registration Fee
- Symposium themes:
    1. Operational oceanography: Past, present, and future
    2. Coastal / regional,   3. Polar ocean / sea ice,   4. Global/Basin-Scale/Open Ocean
    5. New developments in measurements/observations, modelling, DA, ML/AI, digital twins, etc.
    6. Ocean prediction (systems and) services
    7. User applications and societal benefits
- OS-Eval TT plans to propose the SynObs session (Maily Theme 5?)
- A short on-site business meeting of SynObs is also planned.

Some specific requests to the OceanPredict community

The Argo Steering Team would like to know …

- *About what timeliness is needed for real-time data delivery* … not just ever more calls for quicker data, but if there are really well made cases for timeliness, argo needs to hear them, so argo can deliver the strongest benefit to users, so long as it doesn't compromise the program

- *There was a time when near-surface sampling was under scrutiny, calls for argo to sample nearer the surface than say 2 or 1 dbar. Is that still a thing ?*

- *And part of the OneArgo design is the tropical and western boundary current enhancements. What does OP think about those needs ?*

- Contribution to Mission Requirements Document, reference document for the development of a space mission
  - ➢ Expression of needs (requirements) in terms of sampling, accuracy, spatio-temporal resolution, stability...

- Results from impact studies and experience (OSEs and OSSEs)
  - ➢ To demonstrate the feasibility of assimilating a new product
  - ➢ To assess the impact of the assimilation of a new or improved product
  - ➢ …

- Specific needs in terms of product level to be assimilated
  - ➢ L1 (eg, radiances) or L2 (eg, SST) or L3 (as done for altimetry) ?

- Needs in terms of latency (Now casting /forecasting /climate projection)
  - ➢ From Near Real Time (<3h) to Climate Data Record

- Error characterization
  - ➢ Per pixel or ?

- Guidelines for harmonising data policies
  - ➢ Standards
  - ➢ Format….

- Requirements in terms of data access
  - ➢ Push vs pull data services
  - ➢ FTP/SFTP vs API
  - ➢ Data-centric approach
  - ➢ Appropriate user support and training

★ Ongoing Activities

1. **The flagship OSEs (OP and S2S) and OSSEs** (will be picked up later)

2. **Plan to apply to the fund of US NSF AccelNet** for the collaboration among Ocean Observing Co-design exemplars and SynObs supported by UCAR

   - For travel cost for workshops in US, Storage, heiring scientists or research assistant

3. **SynObs special correction on the Frontiers in Marine Sciences**

   - 20 abstract is submitted (Great!). Manuscript Deadline: 25 Feb.

   - Contributions from OceanPredict DA-TT and COSS-TT

   - SynObs and the flagship OSEs is planned to be introduced in the preface (paper?).

4. **Brush-up of the SynObs web page** (Supported by OceanPredict project Office)

     https://oceanpredict.org/un-decade-of-ocean-science/synobs-2/

   (If your institute is officially support SynObs, please inform me!)

5. Enhancing collaboration with other international groups

     - Joint working group with OOPC and CLIVAR GSOP?

     - Official meeting with Argo Science Team (AST) Co-chairs to get official support from AST

★ Future Meetings

1. **OSM 2024 (Feb. 18-25) SynObs Session was cancelled.**

   ➢ Presentations are moved to DA, TPOS, or Satellite Sessions.

2. **UN Ocean Decade Conference (Apr. 10-12)**

   ➢ Supporting the session of Ocean Observing Co-Design

   ➢ Plan to make a presentation to introduce SynObs

3. **EGU 2024 (Apr. 14-19) SynObs Session** ⇒ Abstract Deadline: Jan, 10, 2024

   ➢ OS4.8 "Synergy between observation and prediction in the global ocean"

   ➢ It would be helpful if someone offer managing the session on site!

4. **WMO Observation Impact Workshop (May 27-30)** ⇒ Abstract Deadline: Dec. 15

   ➢ Hao Zuo (ECMWF) is added to the potential invited speakers list.

   ➢ I plan to recommend some other people as invited speakers (Maybe, Elisabeth Remy, Patrick Heimbach etc.) ⇒ Do you have any suggestion?

   ➢ I will also submit an abstract on SynObs activity (incl. flagship OSEs) in JMA as an ordinal presentation.

5. **6th WCRP International Conference on Reanalysis (Oct. 28 – Nov. 1)**

6. **OceanPredict Symposium 2024 (Nov. 18-22)** ⇒ In person SynObs meeting?

★ Current status of the flagship OSEs

1. Experiments are on-going in each operational center/research institute

    - Tentative Deadline: Reanalysis Run: End of 2023 ⇒ Extended to around Mar 2024

        Prediction Run: End of April 2024 ⇒ Extended to around Jul. 2024

    - Progress in each center was confirmed in the previous SynObs web meeting.

2. The flagship OSE guideline (Official Reference) is published (Fixed version)

    https://oceanpredict.org/docs/Documents/SynObs/SynObs_FlagshipOSE_Guideline_Ver1.pdf

    (Latest (editing) version)

    https://docs.google.com/document/d/1aHOn0AxS5iExV8VBzY9vhOV0GAEbowhz/edit

3. Sample NetCDF files for output variables in the SynObs database is updated.

    https://drive.google.com/drive/folders/1wmekoBVWcleIRc_pSrxECN_t7NsBXATy?usp=sharing

4. Python code for calculating output variables and the NetCDF Sample files (The Argo observation data are added for the reference.)

    https://github.com/shokido/SynOBS/tree/main

5. The SynObs database server will be installed at JAMSTEC-APL at the beginning of the next year.

    - We are now discussing how we collect the output data (via. internet or shipping)

★ Current status of the flagship OSEs (continue)

6. A new slack workspace is created for sharing information on the implementation of OSEs and OSSEs

   - Currently only people in the prediction centers are invited.

     (If you plan to provide OSE/OSSE results but are not invited to the slack, please inform me.)

   - People in the analysis groups will probably be invited in the future.

7. New offers for the volunteer diagnostic groups

   - Ruoying He, North Carolina University (Western North Pacific)

   - Hasibur Rahman, INCOIS (Indian Ocean)

8. Planned Introductive papers (Around Apr. 2024?)

   - Frontiers in Marine Science Special Collection Preface Paper

   - Another introductive paper (to BAMS?)

   - Early results from prediction centers, or/and some early results of the common analysis?

     - Impact of all observation data (S2S?) and Argo data (OP?)

     - Who will analyze? (YF or other volunteers?)

★ Possible OSSE setting

◆ **Reference and Calibration**
- ✓ **CNTL, NoArgo, NoALT**: with the same setting as in OP OSEs. (Use the observed positions at the year when the old TPOS worked well?)

◆ **For SWOT evaluation**
- ✓ **FullAlti**: CNTL + Nadir Altimeters + SWOT
- ✓ SWOT: CNTL (except for Nadir Altimeters) + SWOT
- ✓ SWOTnoArgo: CNTL – Argo + SWOT
- ✓ MultSwath: CNTL + SWOT + other 2 or 3 Swath satellites/

◆ **Other observations**
- ✓ **NewTPOS**: Same as TPOS but the old TPOS is substituted by new TPOS
- ✓ **Argox2**: The number of the Argo floats are doubled.
- ✓ Gliders: TS profiles in the shallow sea regions
- ✓ SurfV: Surface ocean current observation with a distribution planed by the satellite mission.

Any other OSSE?

We need to define the details of the synthesis observations!

★ Notes

- If you have specific comments on requirements of Argo and satellite SST data, please write them on the following questionnaire
  https://docs.google.com/forms/d/e/1FAIpQLScqMJEy4_b8zm05_nkcMIBaT8KnaQPEm36H6HbT0JxlzSyZuA/viewform?usp=sf_link
- Please contact YF if you attend EGU2024 and you can manage the SynObs session on site.
- The format of the WMO impact workshop is hybrid. It may be possible to make a presentation remotely. SynObs encourages to submit abstracts related to ocean observing system evaluation. SynObs plan to arrange some presentations which introduce the flagship OSEs and other SynObs activities.
- A slack workspace is created for sharing information on the implementation of OSEs and OSSEs. If you plan to provide OSE/OSSE results but are not invited to the slack, please contact YF.
- The modification of the sample netCDF files of output data and the python code for the creation is completed.
- Please contact YF or SK, if you have some trouble with the slack workspace, the sample netCDF files, and the python code.
- A standard land mask data will be provided.
- Prediction Centers are expected to provide some early results (their own analyses) of the flagship OSEs to YF as the materials for the SYnObs introduction paper.
- Short coupled prediction OSEs are suggested by Kristian Mogensen (collaboration with OP CP-TT)

★ Proposed Protocol of the coupled prediction OSEs

◆ Start day: 20200601

◆ End day: 20210601

◆ 00z starts only

◆ One 10 day deterministic forecast per day → Possible to change 5 days?

◆ An coupled ocean-atmosphere model must be used.

◆ Ocean initial conditions
  ✓ CNTL (Full DA system)
  ✓ SSTonly (Only SST data are used for assimilation or nudging. Other data are not assimilated.)
  ✓ Free (No DA and no SST relaxation)
  ✓ Possible to add NoArgo? (The same as CNTL but Argo data are withheld.)

◆ Output variables and data format should be discussed later.