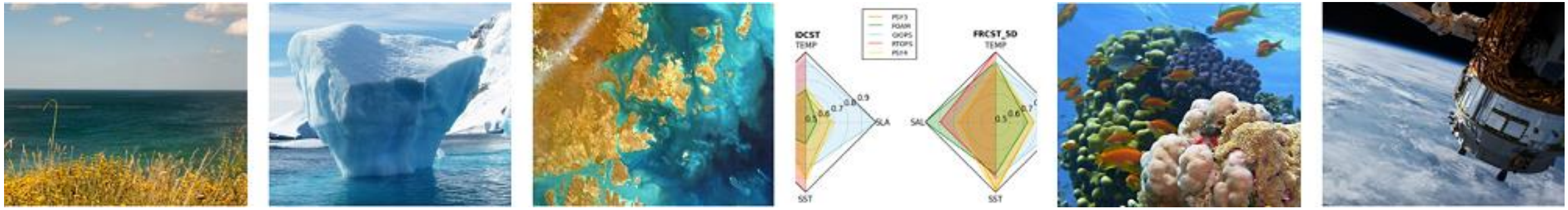


OceanPredict Intercomparison and Validation Task Team (IV-TT) Virtual Meeting

Chaired by : Greg Smith and Fabrice Hernandez

Agenda

1. Status of Class4 intercomparison (US GODAE, transition to ECCC server)
2. Proposal for new standard datasets to use for Class4 Intercomparison (SLA, SST, profiles)
3. Plan to improve robustness of Class4 intercomparison
4. Policy with respect to use and sharing of Class4 data
5. 5-yr strategic plan (links to other TT and UN Decade initiatives)
6. Preparation of publication on Class 4 intercomparison
7. Online seminar series
8. Opportunity for new co-chairs
9. Any other business

1. Status of Class4 intercomparison

OceanPredict
Advancing the science of ocean prediction

US GODAE Server

- Request by Emily Smith to relocate Class4 activity elsewhere due to imminent decommissioning of US GODAE (Sept. 2025)

External ECCC computing cluster

- General Purpose Scientific Computing Cluster (GPSC-C)
  - Referred to hereafter as "**ECCC cluster**"
- ECCC cluster has some limited parallel computing capacity, significant disk space (many TBs) as well as general libraries (e.g. Netcdf, Python)
- Provides shared space for exchange of files, codes and can be used as a common "sandbox" for collaboration
  - Not to be used for activities unrelated to IV-TT.
- Several user accounts already opened for IV-TT
  - Ask Greg for form to open additional user accounts
- UK Met class4 model equivalents for SLA and T-S profiles now uploaded directly on ECCC cluster

1. Status of Class4 Intercomparison

```
| CLASS4 FILES STATUS REPORT FOR YEAR 2025
| >> last update at 2025-06-24 21:48:01 UTC ]

 >> SYSTEM: FOAM_orca025_14.1   |   > Number of Class4 files per month

VAR/Mo       Jan   Feb   Mar   Apr   May   Jun   Jul   Aug   Sep   Oct   Nov   Dec
SLA           31    28    31    30    31    19     0     0     0     0     0     0
SST            0     0     0     0     0     0     0     0     0     0     0     0
profile       31    28    31    30    31    19     0     0     0     0     0     0
aice           0     0     0     0     0     0     0     0     0     0     0     0
currents       0     0     0     0     0     0     0     0     0     0     0     0
curr-filt      0     0     0     0     0     0     0     0     0     0     0     0

 >> SYSTEM: GIOPS_CONCEPTS_3.4   |   > Number of Class4 files per month

VAR/Mo       Jan   Feb   Mar   Apr   May   Jun   Jul   Aug   Sep   Oct   Nov   Dec
SLA           31    28    31    30     8     0     0     0     0     0     0     0
SST            0     0     0     0     0     0     0     0     0     0     0     0
profile       31    28    31    30     8     0     0     0     0     0     0     0
aice          31    28    31    30    31    23     0     0     0     0     0     0
currents       0     0     0     0     0     0     0     0     0     0     0     0
curr-filt      0     0     0     0     0     0     0     0     0     0     0     0

 >> SYSTEM: GLO12V4_orca12   |   > Number of Class4 files per month

VAR/Mo       Jan   Feb   Mar   Apr   May   Jun   Jul   Aug   Sep   Oct   Nov   Dec
SLA           30     4     0     0     0     0     0     0     0     0     0     0
SST            0     0     0     0     0     0     0     0     0     0     0     0
profile       31     4     0     0     0     0     0     0     0     0     0     0
aice          31     4     0     0     0     0     0     0     0     0     0     0
currents      31     4     0     0     0     0     0     0     0     0     0     0
curr-filt     31     4     0     0     0     0     0     0     0     0     0     0

 >> SYSTEM: BLK_omaps_4.0i   |   > Number of Class4 files per month

VAR/Mo       Jan   Feb   Mar   Apr   May   Jun   Jul   Aug   Sep   Oct   Nov   Dec
SLA           31     7     0     0     0     0     0     0     0     0     0     0
SST            0     0     0     0     0     0     0     0     0     0     0     0
profile       31     7     0     0     0     0     0     0     0     0     0     0
aice           0     0     0     0     0     0     0     0     0     0     0     0
currents       0     0     0     0     0     0     0     0     0     0     0     0
curr-filt     31    28    31     0     0     0     0     0     0     0     0     0
```

- Log file updated daily: ~sdfo500/data/class4/outgoing//GODAE_class4/2025/2025_bilan_Class4.log
- 4 Systems participating (FOAM, GIOPS, GLO12, BLK)
- Still missing SST due to change to US GODAE

2. Proposal for new reference datasets for Class4 production

- UK Metoffice would like to step down from being the production centre for SLA, SST and vertical profile observation reference files
  - Opportunity to revisit choice of datasets.
- Previous/current issues:
  - SST drifter dataset no longer available from US GODAE
  - Quality control issues for Argo has posed a problem in the past
  - As part of the effort to make the intercomparison more “operational” we require clearly referenceable datasets
- Proposal:
  - Anchor the intercomparison on datasets provided by CMEMS
    - SLA from Sea Level Thematic Assembly Centre
    - SST and Vertical Profiles from In Situ Thematic Assembly Centre
  - Expand vertical profiles to full set of in situ ocean data but with additional quality control and subsampling to 1 point per 0.1deg per day.
    - Thinning and QC done using “DFOQC”. Python code and documentation available.

CMEMS in situ dataset and DFOQC

- Include each dataset as a separate observation type file
- Use of observation types other than Argo will facilitate connection to coastal forecasting groups

General type	Platform type	Definition
PR (profile)	PR_PF	Profiling float (e.g., ARGO)
	PR_CT	CTD (Conductivity-Temperature-Depth) profiling system
	PR_GL	Underwater glider
	PR_SM	Animal borne sensor data
	PR_XB	XBT (eXpendable BathyThermographs), XCTD (eXpendable Conductivity/Temperature/Depth) profiling systems
	PR_TX	Thermistor sensor chain
	PR_ML	Mini logger
	PR_XX	Not yet identified data type
TS (time series)	TS_DB	Drifting buoy
	TS_MO	Mooring, fixed buoy
	TS_FB	Ferrybox
	TS_TS	Thermosalinographs
	TS_TG	Tide gauge

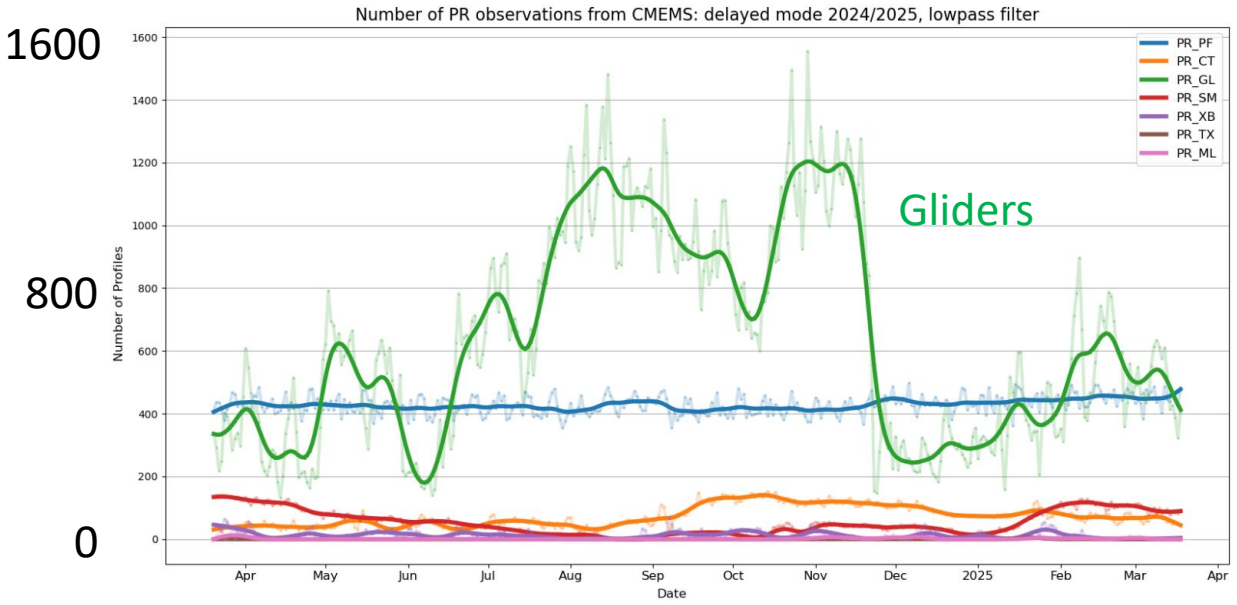
DFOQC Summary for 2024-25

Results correspond to files produced using “cutoff” files with a delay of 7 days

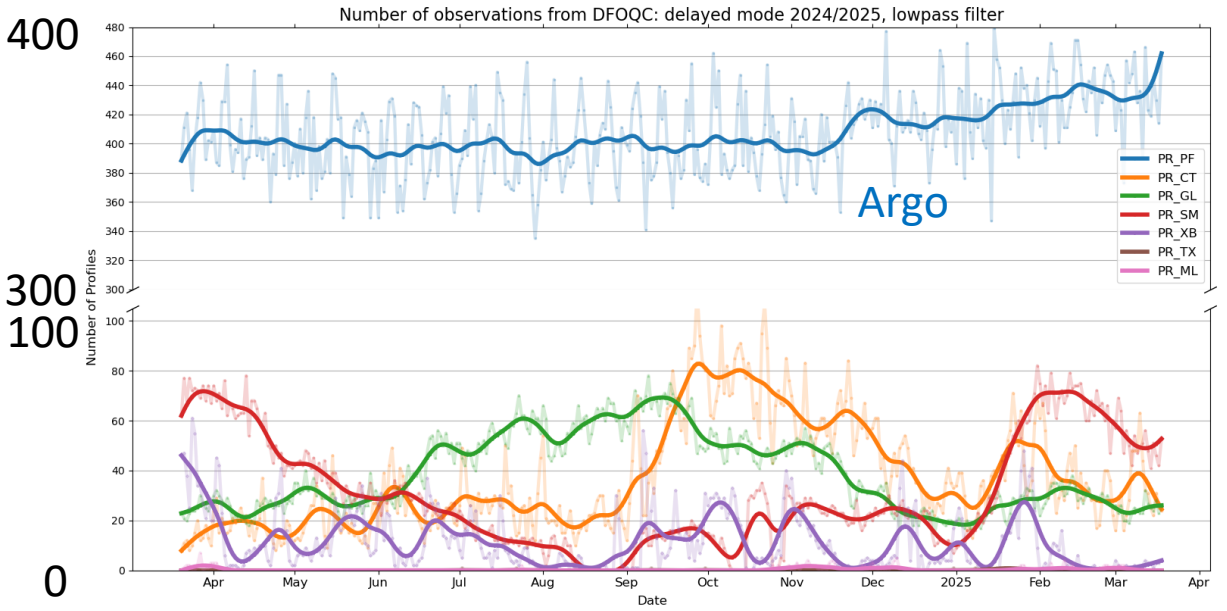
	2024/2025 Fiscal Year - Delayed Mode						
	CMEMS Obs.	Passed DFOQC		Reason for rejection by DFOQC			
Platform Type	Total	Total	(%)	Thinned (%)	Bad Obs. (%)	On Land (%)	Other (%)
TS (all)	37,824,053	1,656,587	4.38	70.37	7.53	21.29	0.81
TS_DB	12,994,481	1,070,764	8.24	92.65	4.88	1.64	0.83
TS_MO	16,902,351	158,120	0.94	64.97	7.5	27.51	0.03
TS_FB	3,389,468	90,444	2.67	58.66	15.23	25.99	0.12
TS_TS	2,292,521	332,299	14.49	71.46	11	8.01	9.53
TS_TG	2,245,232	4,960	0.22	8.44	7.49	84.07	0
PR (all)	433,617	189,384	43.68	96.49	2.69	0.59	0.23
PR_PF	154,563	147,353	95.34	74.23	23.08	2.3	0.39
PR_CT	25,877	13,203	51.02	84.2	13.74	2.06	0.01
PR_GL	229,370	13,988	6.1	98.67	1.05	0.05	0.23
PR_SM	18,509	10,862	58.68	78.84	10.02	10.96	0.18
PR_XB	3,989	3,636	91.15	52.97	35.69	8.22	3.12
PR_TX	60	19	31.67	100	0	0	0
PR_ML	426	107	25.12	88.09	4.39	7.52	0

Impact of QC and filtering on data quantify

Pre-treatment



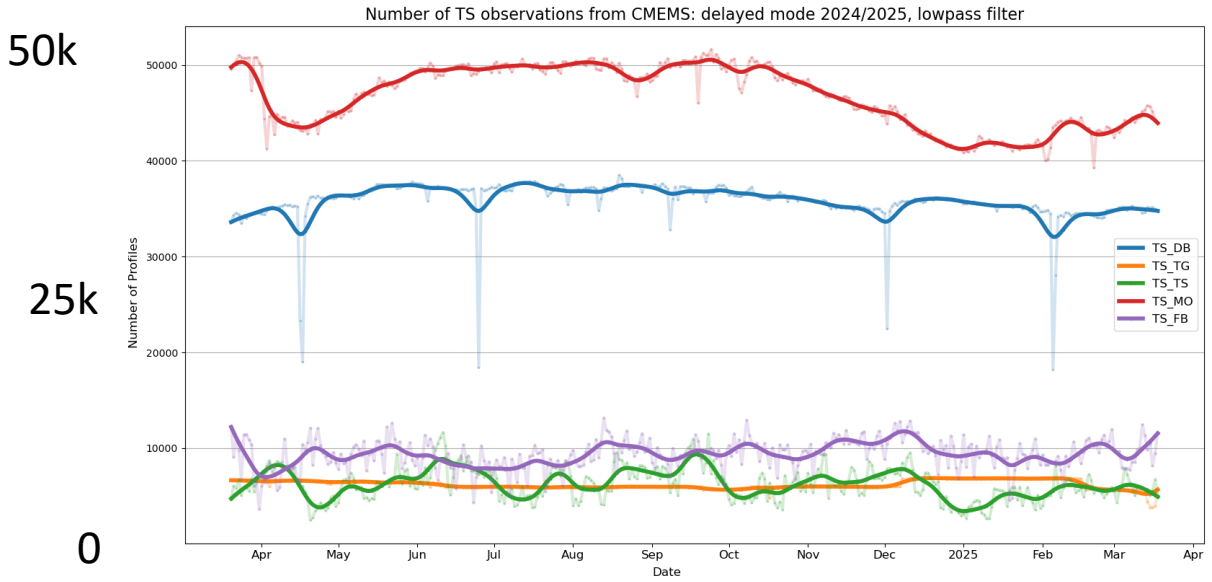
Post-filtering and QC



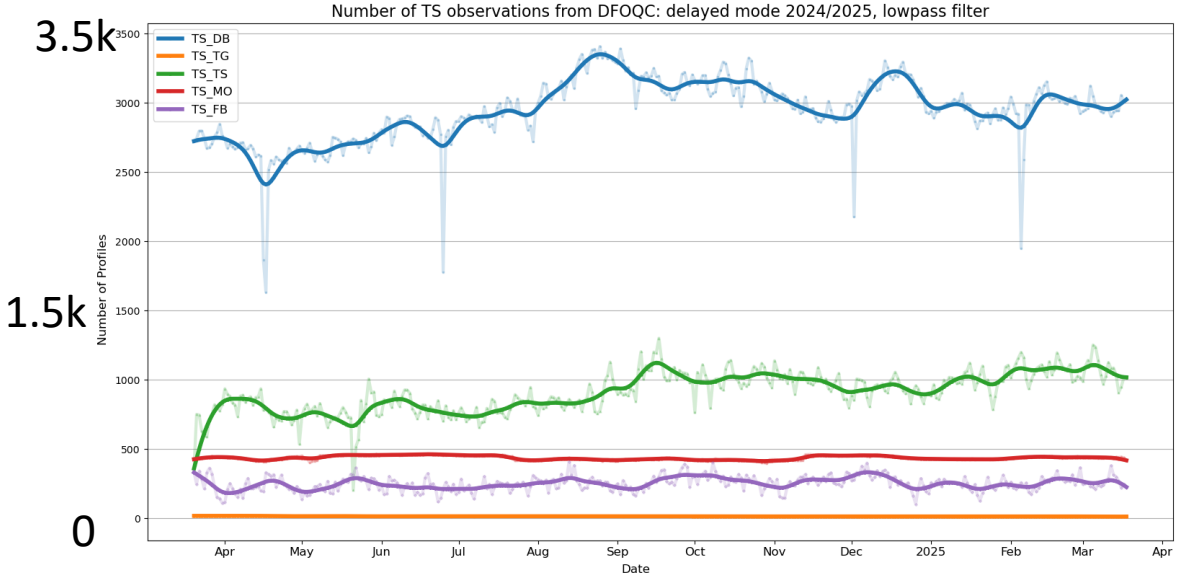
Time series of profile observations available from CMEMS in delayed mode (7d) for the 2024/2025 fiscal year. The faded line represents the raw data while the solid line is smoothed with a Butterworth lowpass filter (with order=2, critical frequency = 0.1).

Time series (TS) observation type

Pre-treatment



Post-filtering and QC



"Time series" (TS_*) observations can be used to replace the SST observations from drifters previously used.
Need to take care though about observation depths even for TS_DB data type.

3. Plan to improve robustness of Class4 intercomparison

- Class4 intercomparison activity began as a research project to investigate the feasibility
- Results from over 10 years of experience demonstrate the benefit and highlight the need to solidify the activity
- **Issue**: The effort is often supported “side of desk” without dedicated support
- Class4 activity similar to those supported by WMO for NWP and Waves.
- **Use similar approach**: Send letter to head of National Prediction Centres to solicit interest in participating (action by OPOS-TT)

4. Policy regarding the use and sharing of Class4 data

- Status:
  - Standing agreement that publication of results using class4 data was only with approval of production groups.
  - No sharing of data without approval of production groups.
- Issues:
  - Agreement has been breached more than once.
  - Data can be accessed via online dissemination platforms
- Other considerations
  - WMO share their class4 NWP files openly
  - Free sharing of data good to facilitate uptake and awareness of OceanPredict
- Path forward:
  - Are there any groups that have issues sharing data freely?
  - If so, we could put in place a charter to be signed by groups seeking access.

5. Future OceanPredict activities – towards a 5-year workplan

- It was agreed to **develop a 5-year OP workplan** (to describe OP plans until the end of the UN Decade).
- The plan should describe **crosscutting activities** within OP, especially concerning AI and the OPOS effort, but also the links of OP with the wider community on building better connection with partner programmes and organisations.
- It is challenging to organise a workplan given the little resources OP has available so we need to **be realistic** of what can be achieved and maybe focus more on how OP can **leverage** and contribute to external activities.
- Important to take into account similar initiatives, other workplans and road maps of other groups we collaborate with **to avoid duplication of effort**.
- MOi transition to an IGO will be helpful to OP, but it is unlikely that it would impact the OP workplan laying out the ideas for the coming years.
- Consider our **collaboration with the OP-DCC** which would strengthen OP, broaden OP's scope for example into regional areas.
- There should also be plans of **how to move OP forward beyond the Ocean Decade** (OP legacy) and how this can be leveraged as partner of the OP-DCC, particularly looking at the effort of the operational systems and user engagement.
- Clearly **define the scope, role and interfaces of OceanPredict** to stake our claim and prevent confusion with other ocean decade efforts.
- Consider the workplan as a means of achieving OP aims, including remaining the science expertise behind ocean prediction, and in parallel support the OP-DCC to develop the infrastructure for ocean prediction to serve societal benefits.
- The MOi IGO would be an enabler of these efforts and could be a role model for other countries to adopt.
- **OPST co-chairs will start developing a rough timetable for the plan, including an early list of items to be included.**
- **A first draft could be ready by next OPAS meeting**.

6. Preparation of publication on Class 4 intercomparison

- Rough draft/outline circulated last year.
- Full draft nearly complete
- To be circulate soon….
- Comments on structure, content and suggested additions most welcome!

7. Ocean verification seminar series

- No existing forum to focus on ocean verification methods
- Many developments in recent years
  - E.g. new data types, user-relevant metrics, spectral methods, ensembles, uncertainty, …
- Bi-monthly seminar series proposed.
- On hold for now.

8. Opportunity for new co-chairs

- Fabrice and Greg stepping down as co-chairs of IV-TT
- Discussions underway with several candidates
- Open for nominations!

9. Any other business?