

# Communication of DA-TT outcomes

- **What are the products/knowledge/advances generated by the TT?**
  - The DA-TT co-organised an important joint ECMWF/OceanPredict workshop on “Advances in Ocean Data Assimilation” (17-20 May, 2021) with over 170 registered attendees.
  - A combination of 36 plenary talks, 29 poster presentations, 4 working group discussions and informal virtual breaks facilitated the exchange of information and seeding of new ideas.
  
- **How are these advances communicated to the science community, to operational systems, to the public ...**
  - The [workshop web-site](#) includes oral and poster presentations and recordings, plus the working group reports and the final workshop report.
  - An [ECMWF news item](#) was published about the workshop.
  - An article has been written for an upcoming ECMWF newsletter which summarises the workshop and its recommendations.
  
- **What steps could be taken to increase the information and communication flow on TT and OP advances?**
  - An online DA-TT technical seminar series is being planned.

# DA-TT community interactions

- **Please provide information about who uses TT output?**

- Operational ocean forecasting system developers
- Academic research groups

- **What groups does the TT collaborate with?**

- Other OceanPredict TTs: we've previously had joint workshops with MEAP-TT and OSEval-TT, and welcome involvement from other TT co-chairs/members.
- WMO/WWRP Working Group on Data Assimilation and Observing Systems (DAOS) (Andy Moore is a member)
- ECMWF (for the recent workshop)
- Other WMO groups: S2S, WGNE, OMDP (new collaborations via DAOS)

# TT future plans in UN decade context

- **What gaps in knowledge/expertise need to be filled from your TT perspective?**
- Development of operational ***ensemble systems***, how to balance increases in model resolution and number of ensemble members, and how best to make use of ensemble information in the DA.
- Research to consolidate the motivation ***for strongly coupled ocean-atmosphere DA***.
- How best to introduce ***machine learning*** in the operational DA/forecasting process.
- How best to deal with ***model error*** during the DA process and to inform model development.
- Dealing effectively and efficiently with ***observation error correlations*** in DA systems to make best use of upcoming satellite missions (e.g. SWOT).
- How to ***improve collaboration*** between operational centres, and between operational and academic groups, e.g. through improved software infrastructure and cloud solutions.
- ***Training and recruitment*** of the young generation of DA scientists.
- ***Utilization of JEDI infrastructure***
- **What do you see as challenges for the TT in the next 3-5 years? See above.**

## TT future plans in UN decade context (cont.)

- **If available, what is the longer-term outlook in the TT field of expertise (next 10 years)?**
  - Increased use of machine learning.
  - Increased implementation of 4D DA methods.
  - Higher resolution models with larger ensembles.
  - More collaboration through the use of shared DA software infrastructure.
  - Improvements in methods for coupled ocean/atmosphere DA.
  - Ability to run DA software on new HPC architectures (e.g. GPUs).
  - Good use being made of new satellite missions measuring ocean mesoscale dynamics (e.g. SWOT, SKIM, ....)
- **Where do you anticipate benefit in the Decade?**
  - Improved collaborations between operational forecasting groups and observing system groups (in situ and space agencies).
  - Better access to funding to address important DA developments.
  - Expanded use of community infrastructure, such as JEDI.
- **How do you plan to engage with SynObs and/or CoastPredict?**
  - DA-TT members will be heavily engaged in both these projects/programmes.
  - We strongly support these projects/programmes as the DA-TT. Appropriate avenues of engagement should become obvious as both projects evolve (e.g. joint workshops, targeted WGs, etc)