9ᵗʰ Annual meeting of the

GODAE OceanView Science Team (GOVST)

(in future OceanPredict Science Team – OPST)

2019
OPST Meeting Notes

10 May 2019

HCC, Halifax, Canada

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Content

1 Symposium feedback

Members of the GOVST provided brief feedback on the symposium, and suggestions for improvements. In general, all were very positive about the running and outcome of the symposium. Some proposals for changes to the splinter session structure, forum, etc. were provided and are listed below:

- Splinter were a bit short, maybe 20 min per slot would have been better
- More time for discussion in splinters would be beneficial, even though that might mean reducing the number of talks
- Too many parallel splinter sessions, some people struggled to get to all talks they were interested in

Many attendees were asking for us to organise symposia more frequently, e.g. every two years. Due to the high organisational and financial effort this was seen as too ambitious, but there is demand among the GOVST to have more exchange at the international stage.

Suggestions to accommodate this included:

- Have more focused/smaller events (e.g. with TTs)
- Make sure GOV/OceanPredict is represented at other related events, such as GEO Blue Planet or GOOS

Future OceanPredict symposia should better address the user focus (collaboration with Blue Planet is anticipated) and provide agendas more directed towards application themes. It was agreed, that it is difficult to link in users, and to build good relationship with user communities, but this should not hold us back from making an effort to achieve this.
An alternative to holding symposia could be to extend TT meetings, by setting up joint TT events, or collocate with external research groups, e.g. GOOS or ET-OOFS, for OceanPredict to engage more widely and interact better to fill gaps.

Other comments about the symposium/ lessons learnt:

- Better introduction to symposium themes at the beginning would have provided a useful context for attendees to navigate the event
- Ending with an overview / advances / outlook could have allowed all to go home with a future focus and a better understanding of what OceanPredict wants to achieve
- The closing of the symposium was too short/abrupt

One of the comments given at the symposium "Ocean is boring" came from an end-user of ocean products (Shawn Allen, MetOcean). Although most people in the room disagreed with his statement, it was understood, that more exciting news about Ocean forecasting would help raise the profile of OceanPredict. Therefore, it was proposed to think about generating high-level, exciting news, publish new discoveries, develop boarder outreach, provide examples of use cases, education, and even open up to new branches, such as artists, etc. We need to be well organised, update website, and show better presence for which we might need a communication team.

The symposium finances look healthy. We have not made any losses. We need to agree what to do with any surplus funds. Suggestion to use it to build the new OceanPredict website.

2 Crosscutting projects

Plans for crosscutting projects[1] will be informed by the outcome from the town hall and forum discussion, and the symposium survey[2]. Raw discussion notes from the symposium town hall and forum are were collected during the symposium on Fraser's google drive.

In the next months we need to finalise the strategy for the long-term evolution of OceanPredict (OP) and develop a plan for its implementation, identifying how projects or themes should fit in. The OP strategy (and implementation plan) should consider how crosscutting projects should be aligned with the TTs work plans. Also, latest scientific challenges should be identified and used as a basis to decide which crosscutting project or theme is relevant for OP, with TTs being central to informing this process. In addition, the OPST could consult with the OP national groups on which crosscutting projects and themes could be set up with operational centres. Outreach to national groups could be coordinated after the OceanObs '19 conference.

OPST-IX-1:	**Co-chairs** to send draft of OP strategic plan to science team for feedback and revision by end of June 2019.

For now, emerging project proposals will tell us where and how OceanPredict should evolve. This should also help to identify where to find (internal and external) project resources and how to address funding problems. The OPST should look towards exploiting existing collaborations and projects, before setting up new ones. We also need to understand our interfaces with partner organisations, so that collaborations are possible and useful.

There are currently no plans to change or restructure the OceanPredict Task Teams. However, there is consideration to rethink the silo structure of the TTs and to encourage more *crosscutting* TT working relationships. Joint TTs meetings/workshops are already helping to facilitate this approach.

It was proposed to address crosscutting projects via umbrella themes. This approach means developing plans for projects without strong initial prioritisation, but with an overarching direction. The TTs would be central to this effort by defining theme criteria & objectives, and what this can provide to the community at large. It was proposed to appoint champions or drivers (OP and/or PG) once a project is better defined (one for each project), to keep the connection between the project and the high-level direction of OP. Co-chairs confirmed that they plan to support the effort of finding funding for the projects.

An external partner to carry out crosscutting projects could be the *GOOS Regional Alliances (GRA).* There is a lot of interest and need in developing modelling capabilities and supporting ocean monitoring at regional level, which the OP could support. OP could help to identify requirements and solutions to achieve better progress by offering best practice

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[1] *Appendix C: Targeted outcomes from the symposium on crosscutting projects*
[2] *Appendix D*

approaches, for example in collaboration with ET-OOFS. OP could try to establish links (observations contacts) with groups we currently do not have access to, providing support for regional modelling communities and capacity building. Linking OP to the GRA forum could provide a good way forward (including collaborating with IOC/GOOS).

3 Task Teams

3.1 IV-TT

The IV-TT is organising regular class-4 intercomparison activities since 2012, comparing the operational systems in real time. This effort has been resting on the good will of IV-TT members and their organisations and needs to be better sustained. It was proposed that this activity could be transferred into the responsibility of ET-OOFS, requesting dedicated and regular support from the organisations involved in the effort (also about sharing the data).

The IV-TT intercomparison activities are very valuable, so that they should become part of an international framework, which should be funded at the national centre level. This could be combined with an intergovernmental mandate to implement the IV-TT activity as a long-term project by linking it with WMO/IOC (e.g. via JCOMM), which would also put OceanPredict in a high-level intergovernmental landscape.

We need Patrons' support to move this forward, and to by get approval for this plan. A best effort approach is no longer sufficient, as this activity now needs implementing long-term to be of ultimate benefit.

OPST-IX-2:	The **OPST** to provide statement to the IV-TT co-chairs on the proposal to transfer the responsibility for the class-4 intercomparison to ET-OOFS and requesting dedicated, regular support from the organisations involved in the effort (also about sharing the data).

Another IV-TT meeting is planned in 12-18 months between June-Dec 2020.

3.2 DA-TT

The DA-TT organised a few joined TT meetings with the other TTs (MEAP-TT and OSEval-TT) in the past years and has established a thriving community. However, there has been limited progress in the planned activities of the TT, e.g. single observation experiments. This is mostly down to people's workloads and funding, with and not many groups able to contribute.

The DA-TT has provided DA training at the symposium which was extremely popular. More than 70 people took part. Most of the participants were not students, as originally anticipated, but people in the field who wanted to learn more about new methods.

Collaboration with the other TTs will continue.

The next DA-TT meeting is planned for Jan/Feb 2020 and will be a DA-TT only event.

3.3   MEAP-TT

The MEAP-TT will organise a next workshop soon, after having come together with some of the MEAP-TT members for a brief catch-up at the symposium. MEAP-TT meetings are generally very well attended, underlining the interest in the community.

Two specific topics are currently of interest to the MEAP-TT, BGC Argo assimilation and the impact of physical DA on BGC models. The MEAP-TT plans to update its strategy, highlighting the issue of degradation of BGC due to physical DA.

The TT likes to get involved in model intercomparisons and metrics, and could develop activities as a contribution to the crosscutting projects. With multiplatform observations becoming available, observing system experiments and observing system design could be another item the TT could adopt in their strategy.

3.4   OSEval-TT

A brief meeting of the OSEval-TT was set up at symposium where various items were discussed, including SWOT (setting targets for SWOT), white paper for OceanObs'19 (community background), TPOS2020 and SSS OIS (recent ESA project). The TT would like to know more about the OceanPredict expectations and the overall future vision of OP, when it is talking to the observing system agencies. This would help the TT to develop focused approaches in achieving outcomes. One of which is the production of Observation Impact Statements (OIS) which allows to compare the impact of various observations on the outcomes of different OP model systems. However, such experiments are expensive and require a lot of effort, which many of the OP partners are not able, or not willing to provide. A long-term vision and plan for this effort might make it easier to achieve this, especially when it is supported by the OP patrons. Observation agencies want to know about impact of observations (sat, or in-situ).

It was suggested that the OSEval-TT could work more with the DA-TT (or other TTs e.g. IV-TT) on new methods or could work more on relevant science questions to identify crosscutting project themes. The OSEval-TT is also interested in moving towards seasonal forecasting.

Proposals from the group included to run parallel hindcast tests to measure impact of new observation platforms. The BoM does impact checks systematically and could provide advice. Any experience on use of new observations could be shared within OP, e.g. a look at the innovations and residual for all systems could be a simple way to show impact.

3.5   CP-TT

The CP-TT has been relatively quiet in the past year, as there is some uncertainty about the groups' scope. This meant activities were kept at a minimum and plans for new activities were not moved forward, apart from learning and exchanging on what other groups are doing. Hal gave talks at WGNE meetings and the Global Coupled Modelling Committee.

However, as more operational centres now implement coupled systems, the CP-TT could get stronger involved, e.g. by looking at the impact of coupling. However, many of the other TTs are already looking at coupled system as part of their work, and so it has to be decided whether the CP-TT should continue. A Modelling -TT may be created instead. Hal has stepped down as co-chair and Chris is concerned that he might not have the time to continue.

Apart from concerns about continuations, it was proposed for the TT to consider looking at:

- Potential to develop new metrics with the DA and IV to look at the benefits of coupling
- Studies on diurnal impacts

Exchange with international groups we raised as an important aspect of the TT.

3.6 COSS-TT (statement received after the meeting, which none of the COSS-TT co-chairs could attend)

The COSS-TT has been active, following a successful meeting in Madrid (September 2018), the 6th international coordination meeting of the TT. The 7th meeting is being planned for spring 2020.

The COSS-TT deals with scientific issues in support of multidisciplinary analysis and forecasting of the coastal transition zone, shelf/open ocean exchanges, and adding value to larger-scale efforts.

Its main goal is to:

- *foster international collaboration to advance science and expertise in support of regional/coastal ocean forecasting*
- *help achieve a seamless transition framework from the global to the coastal ocean forecasting.*

Based on the COSS-TT strategy to bridge several communities and subcultures, there is interest in collaborating with other TT's to address priorities, such as: improving global/regional ocean forecasts in the coastal and shelf seas; determining and adopting best downscaling approaches; and supporting international ocean observing programs with a coastal component (e.g. facilitating synergistic studies of observational networks with coastal modelers, toward observing system evaluation and added value on coastal forecasts).

4   International collaborations

Collaboration with partner groups is strongly supported by the team members. Possible areas were working together could be useful includes:

- Impact of extreme events

- Impact of the Ocean prediction on utility
- Ocean forecasts accuracy… learn about the impact in sub-seasonal to interannual models

There are many groups out there, which the OPST should be aware of, e.g. WSI for sub-seasonal to interannual and interdecadal prediction in WCRP.

Once the **OceanObs white paper** is completed it could be published on the OceanPredict website (this website does not yet exist – preparation to develop a plan for setting up the website is in progress)

The OceanObs white paper has gone through a substantial revision in the past weeks, and the new version is now in press *(added after the meeting)*. A break-out lead by OceanPredict at OceanObs '19 has been confirmed, but it will be important to invite other groups, weather & climate to show impact.

5   Publications

If we like to publish the symposium results in BAMS, it needs to be done quickly, no more than one or two months after the event.

Vinay has been tasked to prepare a brief paper draft and Fraser will share the documents from the town hall and forum discussions to support this effort.

OPST-IX-3:   Vinay to prepare brief paper draft for BAMS publication and share with co-chairs for revision

6   Next science team meeting (OPST)

The next OceanPredict science team meeting will be hosted by our new member from Korea. Do-Seong Byun will explore the options of holding the meeting in Busan in spring next year. The science team will be informed about the possible dates very soon.

Appendices

Appendix A: Attendance list

Co-chairs:	Fraser Davidson, DFO, Canada,	(FD)
	Eric Chassignet, FSU, USA	(EC)
	PN Vinayachandran, Institute of Science, India	(PNV)

GOVST members:	Laurent Bertino, NERSC, Norway	(LB)
	Gary Brassington, BoM, Australia	(GB)
	Do-Seong Byun, KHOA, Korea	(DSB)
	Katja Fennel, Dalhousie University, Canada	(KF)
	Yosuke Fujii, MRI/JMA, Japan	(YF)
	Marion Gehlen, IPSL/LSCE, France	(MG)
	Chris Harris, Met Office, UK	(CH)
	Fabrice Hernandez, IRD, France	(FH)
	Pat Hogan, NRL, USA	(PH)
	Guimei Liu, NMEFC, China	(GL)
	Matthew Martin, Met Office, UK	(MM)
	Elisabeth Remy, Mercator Ocean, France	(ER)
	Hal Ritchie, Environment Canada	(HR)
	Gregory Smith, ECCC, Canada	(GS)
	Andreas Schiller, CSIRO, Australia	(AS)
	Clemente Tanajura, UFBA, Brazil	(CT)
	John Wilkin, Rutgers University, USA	(JW)
	Kirsten Wilmer-Becker, Met Office, UK	(KWB)

| Patrons' Group: | Mikhail Entel, BoM, Australia | (ME) |

Guests:	Eric Baylor, NOAA, USA
	Guoqi Han, DFO, Canada
	Derrick Snowden NOAA-IOOS, USA
	James Todd, NOAA-CPO, Program Manager OceanSITES

Appendix B: Meeting agenda (1st OceanPredict Science Team meeting)

Proposed by Eric Chassignet and Fraser Davidson

09:00-09:30	Welcome
	General impressions of symposium
	Checking meeting objectives against summary report from symposium panels and forums **(co-chairs)**
09:30-10:45	Review of proposed cross-cutting projects
	Do they meet our needs?
	Prioritization of the cross-cutting projects **(all)**
	Implementation process/plans/structure to ensure project success **(Fraser)**
10:45-11:00	Break
A11:00-11:30	International collaboration (**summary by Fraser, then all)**
	Links to other meetings (OceanObs '19 ….)
11:30-12:30	Task Teams elaborate on Ocean Predict evolving with Task Teams and Cross cutting projects **(TT's chairs)**
12:30-13:30	Lunch
13:30-15:15	GOV ⬜ Ocean Predict Transition
	Strategic plan development, Implementation Plan, Review
	International partnerships way forward.
	Next OPST meeting
	Calendar of activities over next 3 years
15:15-15:30	Summary

Appendix C: Targeted outcomes from the symposium on crosscutting projects

1. **Enhancing end user engagement**

2. **Common picture of future development in GOVST 10-year plan (a.k.a. Vision)**

   a. Name change
   b. Task Team activities / Goals
   c. Better fitting in with /complimenting other groups (WMO)
   d. Understanding of observation developments (altimetry, ocean color, … in –situ
   e. Future applications of ocean forecasts and reanalysis

3. **Motivating further research in operational oceanography**

4. **Motivating discussion/exchange within all elements needed for an ocean forecast systems (observations, data management, end users, ocean modellers, data assimilators, evaluation, space agencies, weather agencies**

5. **Promoting and highlighting GOV member forecast systems /capabilities (i.e. FOAM, MERCATOR, BlueLink, CONCEPTS, REMO, HYCOM, NAVOceanO….)**

6. **Generate white papers and other strategic documents for providing input and responding to input from other important meetings (OSTS, OceanObs, JCOMM)**

Here are the crosscutting projects that the co-chairs highlighted from yesterday's breakout. Any others that should be considered? Listed in no specific order of priority

   a. **Air Sea Interaction and Upper Ocean Processes**

   Wind stress, waves, coupling, vertical shear/stress in upper water column, application of new surface satellites (SKIM, SWOT), skin temperature, sea ice

   Benefits: Improved lagrangian prediction in upper water column, ocean color prediction….

   b. **Better communication of knowledge and information and ideas (Promotion/Advertising/Marketing/Communication):**

   Colocate set of GOV outputs

   Reduce accessibility threshold

   Webpage/portal of available products and where to interface/get them

   Marketing/Advocacy, literacy/ strategy

   c. **Ecological and biogeochemical applications (Higher trophic levels /fisheries / HABS)**
   d. **Seamless transition from short term to seasonal time scales**

   e. **Seamless transition from Coastal to basin/global scales**

Benefit of coastal systems on basin/global and vice-versa, especially biogeochemistry

f.   Regional Alliances (aka OceanPredict a la GOOS/IOOS's)

For example: Europe CMEMS;   Gulf of Mexico; Eastern North American Seaboard Similar application to Indian Ocean, Africa, etc.
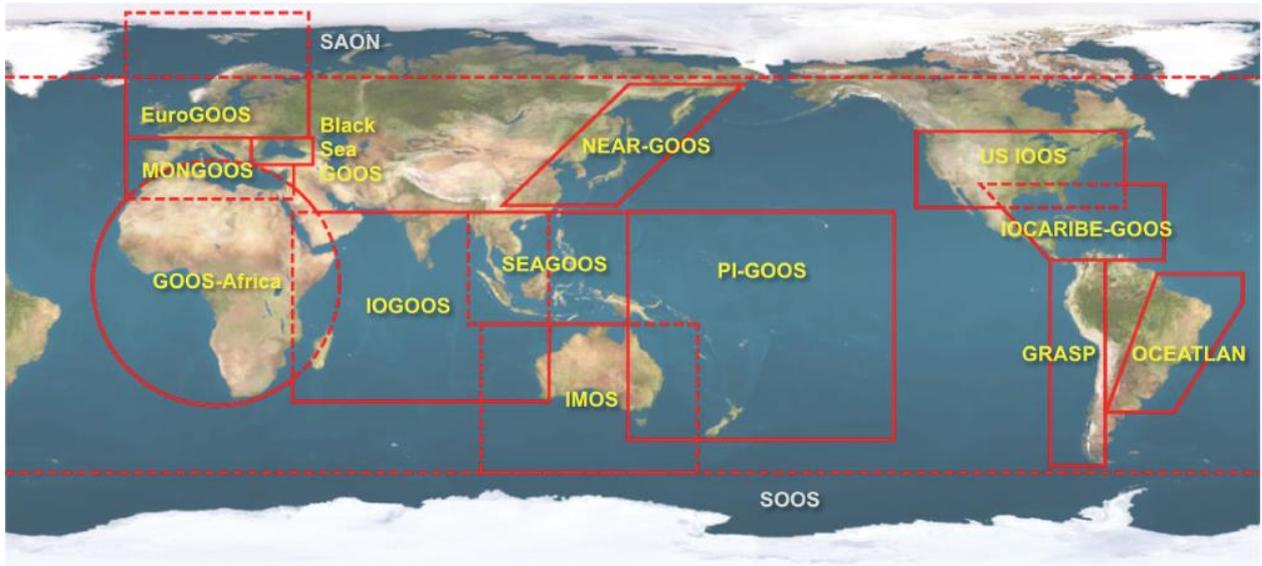
g.   OSSE-VAL ⇒ Focused Projects

h.   Tropics ⇒ Improving processes and prediction performance

i.   Lagrangian representation, oil spill etc.

Appendix D: Symposium survey results

Summary

The survey was sent by our event organisers just after the end of day 3 of the symposium and received 63 replies. It covered questions on

-	Oral sessions (plenary and splinter) structure and quality	Q 1 – 3
-	Poster session format and organisation	Q 4 – 6
-	Forum discussion topics and organisation	Q 7, 8
-	General experience, logistics and technical support	Q 9 – 17
-	Interest in contributing to symposium special issue	Q 18
-	Comments	

Overall, participants were very happy with the organisation and the outcome of the symposium, specifically with the venue, food and networking opportunities. However, some people highlighted some shortfalls, e.g.

- Large plenary room too big for small splinter sessions
- Pointers were not available
- Some of the smaller rooms were too bright, screen size not ideal
- Too many parallel splinter sessions
- Abstract notifications, programme, and so on were sent relatively late, which was inconvenient for some
- Some splinter sessions didn't keep the time

More feedback can be viewed in the "Comments" paragraph at the end of this document.

Most questions in this survey use a ranking system on a scale from 1 to 5, were 1 means "unfavourable" and 5 means "very favourable". Distribution graphs and average marks are provided below. Answers that were returned as "N/A" are not included in average rating.

Oral sessions

Q1: Were the plenary sessions informative and appropriate given the topic area?

Q2: How did you find the split between plenary and splinter sessions?
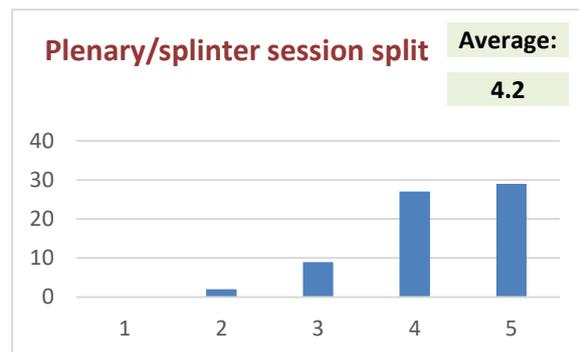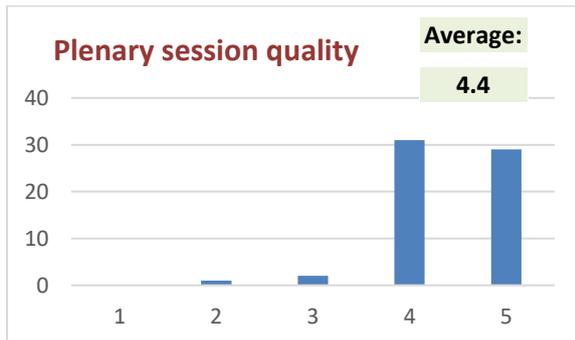
Q3: Was there a session you hoped to see that was not covered at the conference?

13 out of 63 attendees answered this question with "Yes". The areas those people would have liked to have seen included:

- More talks on user perspective/uptake and user applications (several people)

- Data assimilation
- GOV Task Team reports
- Data driven models and products
- NEAR-coast sensing and modelling
- Discussions with WMO and IOC for instance to strengthen OceanPredict participation in the international community
- Ocean monitoring and prediction systems in developing areas
- Model intercomparisons
- Was hoping to see more technical talks focused on software engineering approaches to ocean data management, visualization, and dissemination. There were a few, but not many
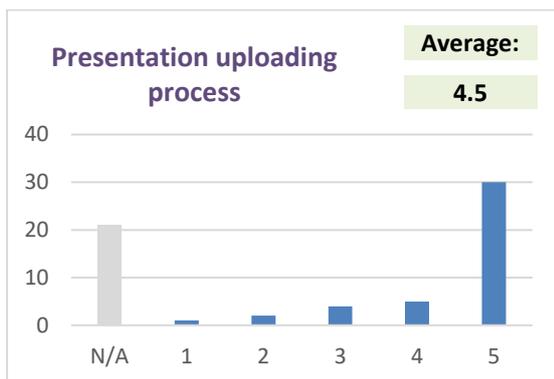
Poster session/presentation uploads

Q4: Was it easy to find where you needed to put your poster? (N/A if you did not have a poster)

Q5: Was the presentation equipment easy to use?

Poster set-up

Average: **4.7**

Use of presentation equipment (oral)

Average: **4.4**
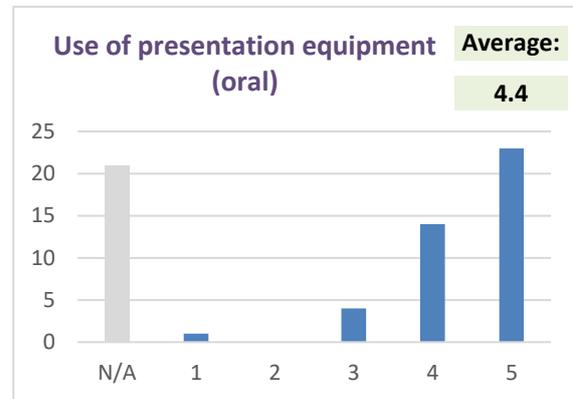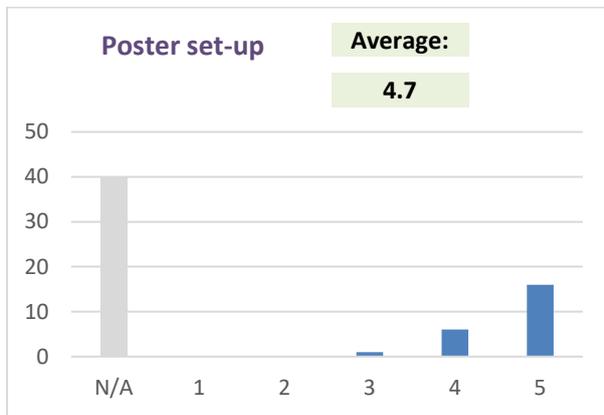
Q6: Was it clear where you needed to go to upload your presentations?

Presentation uploading process

Average: **4.5**

Discussion sessions

(Townhall and forum)

**Q7: Were the topics for discussion suitable?**

Q8: How did you find the moderation of the town halls?

Discussion topics suitability — Average: 4

Town hall disucssion moderation — Average: 3.9
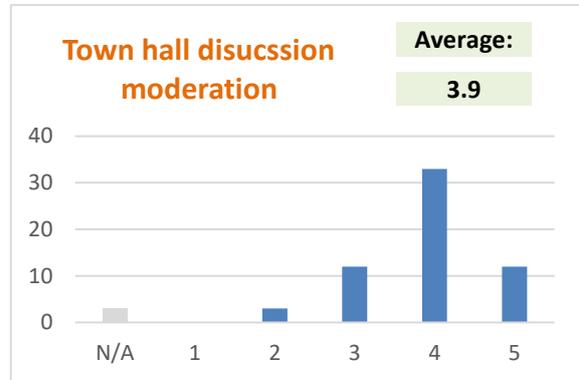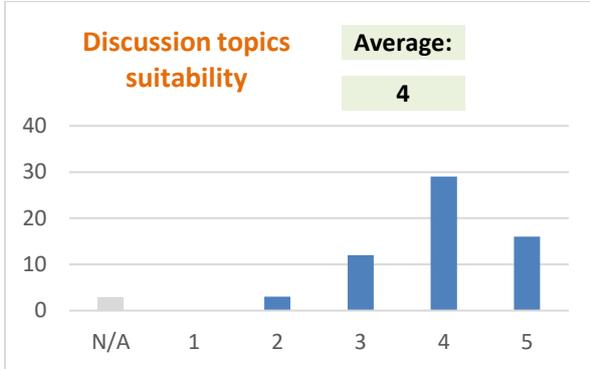
Logistics

Q9: How did you find the set-up and atmosphere of the plenary room and splinter sessions?

**Q10: Was it straightforward to navigate between plenary and splinter sessions?**

Event atmosphere and set-up — Average: 4.5

Navigate splinter/plenary sessions — Average: 4.7
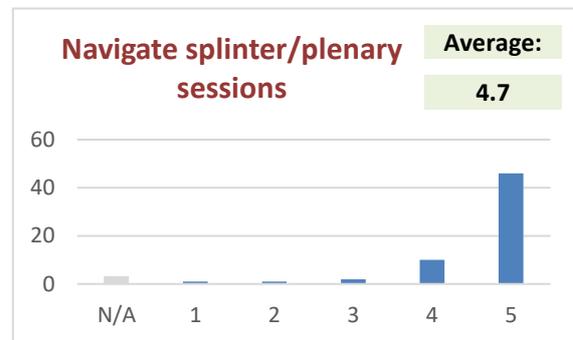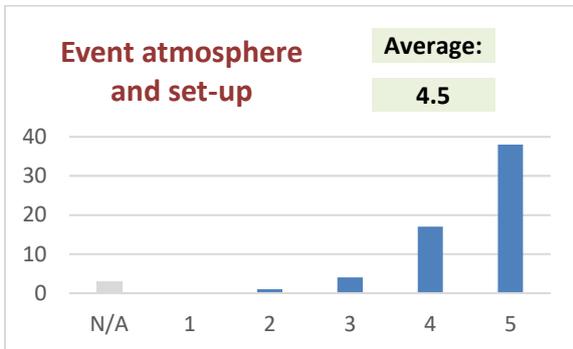
Q11: Was registration straightforward and efficient?

Q12: If you used the printed program, was it useful? (N/A if you did not use it)

Registration experience — Average: 4.8
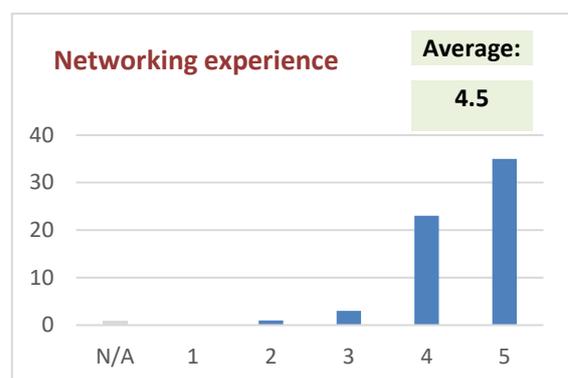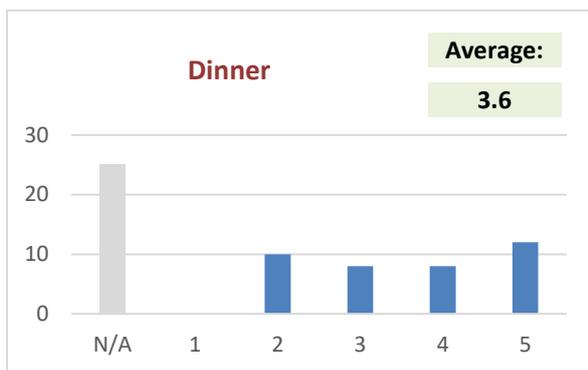

Printed programme — Average: 4.4
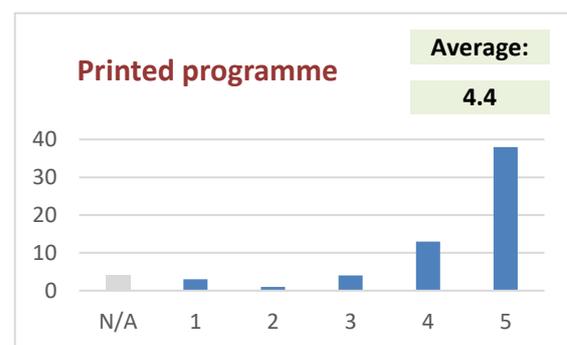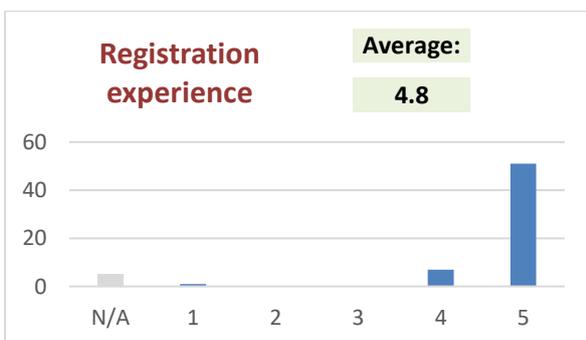
Q13: If you used the app, was it straightforward and useful? (N/A if you did not use it)

Q14: How would you rate the catering at the convention centre? (N/A if you did not use it)
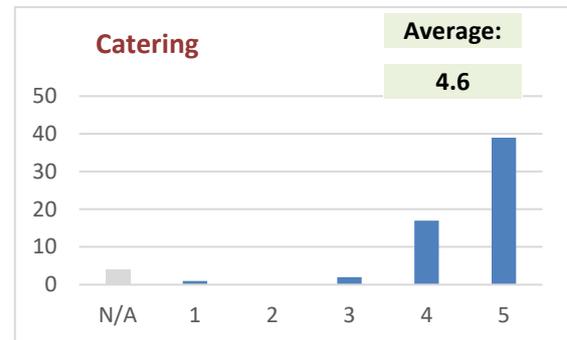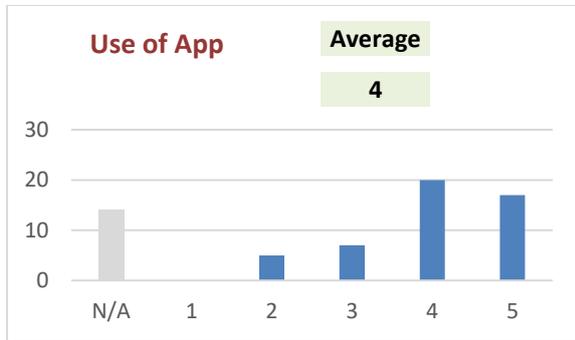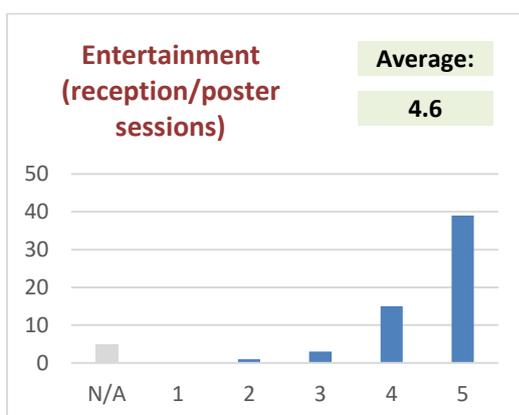

Q15: How would you rate the banquet dinner? (N/A if you did not take part)

Q16: Overall, how would you rank your networking experience at OceanPredict'19? (N/A if you did not use it)
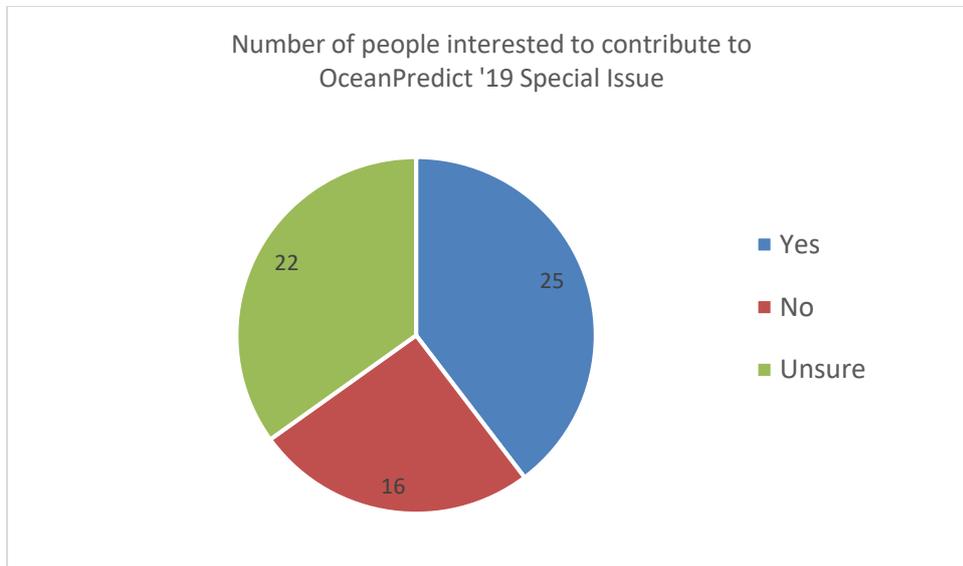

Q17: Did you enjoy the entertainment during the reception & poster session?

OceanPredict '19 Special issue

Q18: Would you consider publishing your work (as presented at symposium: oral or poster) as part of a symposium collection of papers (special issue – electronic only)?

Number of people interested to contribute to
OceanPredict '19 Special Issue

- Yes
- No
- Unsure

List of tentative titles for OceanPredict '19 Special Issue

- Small-scale coupled atmosphere-ice-ocean interactions in the Canadian Arctic Prediction System (ECCC)

- Combined evaluation of surface drifters trajectories and oil spill modeling results as support to offshore Oil & Gas emergencies (Prooceano)

- Monitoring and prediction of marine coastal environments: the OGS regional operational system for the Northern Adriatic Sea (OGS)

- Towards Seamless Prediction at NCEP: Operational Oceanography Applications (NOAA/NWS)

- Validation of the NCEP WAVEWATCH III Global Wave Model (EMC/NOAA)

- 2-D Class-1 and Class-4 Verification Metrics and Methods for the Global Real Time Ocean Forecast System (NOAA)

- Dynamic wave-ice modeling in the marginal ice zone (Dalhousie University)

- Coastal Acoustic Tomography under Stratified Conditions in Lake Biwa, Japan (Ritsumeikan University)

- Preliminary SMOS SSS Assimilation into the REMO Ocean Data Assimilation System in the South Atlantic (UFBA & REMO)

- Change of hydrography and currents due to sea ice formation in the Bohai Sea and the Northern Yellow Sea (Chonnam University)

- Monsoon-induced surge during high tides at the Central and Southeast coast of Vietnam – a numerical modeling study (NCHMF)

- Ocean surface drift and the search for MH370 (CSIRO)

- Model-data assessment of Scotian Shelf carbon dynamics: A spatially varied and biologically active system (Dalhousie University)

- An intercomparison of regional versus global biogeochemical models in Atlantic Canadian shelf waters (Dalhousie University)

- Tradeoffs between satellite surface and Argo profile observations when optimizing a biogeochemical model for the Gulf of Mexico (Dalhousie University)

- Hindcasting the subsurface oil plume after the Deepwater Horizon spill in the Gulf of Mexico (DFO)

- An Assessment of the Brazil Current Structure and Variability based Ocean Prediction Systems and In-situ Measurements along the NOAA High-Density XBT Transect (UFRJ, FURG, NOAA/AOML and CIMAS)

- The Canadian Integrated Ocean Observing System: Current Status and Potential Contributions to Ocean Prediction (Dalhousie University)

- Multi-resolution modeling and assimilation applied to the South Atlantic Ocean (Indian National Center for Ocean Information Services, Tendral LLC Miami FL, USA)

- Multivariate assimilation of BGC-Argo floats in Mediterranean Sea biogeochemistry simulations (OGS)

Comments

- The presentation room should have a pointer with slide changer in one equipment and a wireless microphone to allow the presenters more freedom to walk over the platform.

- 3 parallel splinters would have been better. Many people commented on difficulty of navigating 4 parallel sessions...division of talks between 4 parallel splinters could have been better to avoid conflicts

- My talk was in the big room, with two screens. It was a challenge to present without a pointing device. (I thought that PowerPoint normally allows us to use the cursor to point?)

Though not (yet) a practitioner, I found the DA training on final day perfectly pitched to my interests and understanding. However, I overheard comments from a young researcher that it was not "training".
The Mercator training, which I attended Thursday afternoon, was fun and informative.
Many thanks to Marie and David for their enthusiasm!
Offering lunch, and quite delicious at that, was extremely helpful for facilitating networking, including meeting new folks.
Thanks to all the organizers for a great job!
After successful download, I failed to work the app on my Win10 computer; maybe I was missing something? (Coming from Japan had no smartphone working...) As I tried to say at the end of my talk, I hope your community's tools could be applied to lakes (and bays and estuaries) sooner rather than later. Conversely, I am trying to figure out how lake observations and simulations might help you. For example, helping to ground-truth RS-based measurements, or for better understanding orographic effects? RE a special issue, would it be indexed by SCI ?

- I found the screen in the splinter sessions quite small and in some the sunlight or the room light was degrading the quality of the projection. I could not see a lot of information in the presentations because of that.

- The plenary sessions could have been shorter and conversely the splinter sessions could have been shorter; there were too many interesting presentations in parallel...
The quality of the food during the banquet was very ordinary and did not up the mark of the rest of the food, especially considering the quality of the catering proposed at the convention centre for lunches.
Many thanks for this almost perfect organization!

- Excellent conference. I enjoyed connecting with national and international colleagues. Great conversations about moving to the next step of delivering robust ocean services.

- Printed version of the programming, for the Splinter Sessions, could be split by time and not only by topic (like in the app), because it made it a little difficult to match the times between rooms if you did not stay in the same room.
Should be specified that the lunch was included.

- Live demos using web browser was not possible because of the presentation setup in room 503.
Some rooms had too much light for presentations.

- Room B3 was too big for the number of people

- The catering and service was the best till now. Thanks to all the staff for being friendly and doing their job perfectly. This is one of my best organised symposiums till date. This sets a very high benchmark. Canadian hospitality is the BEST.

- Though I uploaded my presentation, it did not make it to the proper splinter session computer, so I had to copy it from USB at the beginning of my session. There was no time allotted for set-up of presentations or walking between splinter session rooms, and some speakers did not adhere to the time requirements.

I encountered a bug with the Whova app where half of the splinter sessions on Tuesday disappeared, so I had to rely on the printed schedule.

- It was a great idea to provide generous food and drink. It made the networking effortless. Also, the printed program was the perfect size, small enough to fit in a bag, hard enough to write on.

- The splinter rooms were great but the widely spaced screens in the plenary were inferior. It divided the room. Speakers who wanted to point at their slides were ineffective. But the audio was excellent.

- The organization before the meeting was far from good. The abstract acceptance notification was sent too late (not before the initial deadline for early registration, which was then prolonged). Only 6 weeks before the conference the information was sent that on Friday there are only closed sessions and Thursday are only trainings and discussion. The final program was made available much too late (just half a week before the meeting). Also, the organizers mixed up the change of my poster into a talk (I learned about it when I looked into the program the Wednesday before the conference).   Due to the splinters there were far too many interesting presentations in parallel. Overall, I would have preferred a 4-5 day conference with keynotes and short presentations (15-20 minutes), but all in one room and no splinters. E.g. the WMO Symposium on Data Assimilation has this format with around 250-300 participants and it works very well.

- I acknowledge the difficulty in this, but many splinter session moderators were not strict with the timing. That meant people were often leaving early or arriving late. In one case, a session was a full 15 minutes behind. Sometimes an effort *was* made to get the timing back on track, but that meant some of the presenters didn't really get a question period. It would have also been useful to have a very obvious signal when breaks / lunches were over and it was time to move back to the splinter and plenary sessions. (I'm told there was something, but I didn't hear it.)

- Plenary sections appropriate, but not exciting. Maybe would be interesting to propose not just general themes, but provocative questions or statements to motivate the panel.

- It would have been better if the event organisers had made an official plan for networking on Wednesday evening.