

Report of the Technical Committee on Data Exchange

The meeting of the Technical Committee on Data Exchange (hereafter TCODE) was held from 18:00 to 20:00 on October 20 and 14:00 to 18:00 on October 23, 2019 in Victoria, Canada. All member countries were represented (*TCODE Endnote 1*). TCODE Chair, Dr. Joon-Soo Lee welcomed members and other participants to the meeting on each day. The agenda was reviewed by members and a revised agenda was adopted (*TCODE Endnote 2*). Ms. Jeanette Gann was appointed rapporteur by the Chair.



TCODE participants at the TCODE meeting during PICES-2019, Victoria, Canada. Back row, from left: Igowanr Shevchenko, Georgiy Moiseenko, Manchun Chen, Toru Suzuki, Daisuke Ambe, Yutaka Michida, Sang-Hwa Choi, Jinkun Yang, Di. Front row, from left: Peter Chandler, Jeanette Gann, Joon-Soo Lee.

AGENDA ITEM 3

Report of POMA 2019

TCODE recommends the inclusion of looking at surplus candidates from previous years from POMA nominees, but disagrees at this time, with the MONITORs addition of the ‘new technology’ clause, as it may dilute the original intent of the award to recognize the often thankless long-term monitoring and data management programs. We will actively (as TCODE members) seek potential candidates for this award to try and ‘get the word out’. We believe that the lack of nominations may just be a case of the scientific community being unaware that the award exists, and we see it as part of our job to remedy that situation.

TCODE – 2019

AGENDA ITEM 4

Review of procedure for Best Presentation Awards

TCODE did not sponsor any sessions or workshops for Best Presentation Awards, so the Committee did not participate in the 2019 sessions.

AGENDA ITEM 5

Election of TCODE Chair and Vice-Chair

Jeanette Gann was elected as the new TCODE Chair, and Peter Chandler agreed to continue as Vice-Chair for one more year.

AGENDA ITEM 6

Status of FUTURE

Dr. Ryan Rykaczewski, FUTURE SSC liaison with TCODE, presented on FUTURE SSC activities and goals. He reported that a FUTURE synthesis paper on developing a social-ecological-environmental system (SEES) framework to address climate change impacts in the North Pacific was published in *Frontiers in Marine Science*, 2019, [Vol. 6, Article 333](#) as a result of FUTURE SSC work. The FUTURE SSC developed new priority SEES (Social Ecological Environmental Systems) Case Studies. In addition to its business meeting, the FUTURE SSC was dedicating its time via a few working groups to gather and work out how the SEES approach might best be implemented through a variety of options: extra-tropical impacts of ENSO, ocean acidification and tsunami impacts, *etc.* A discussion point was made: perhaps TCODE can help the FUTURE program via the NPESR report.

AGENDA ITEM 7

Status of AP-NPCOOS

AP-NPCOOS Co-Chair, Dr. Sung Yong Kim, presented an update on the status of the Advisory Panel. It is continuing to collect information from PICES member countries on essential ocean variables (EOVs), and making AP-NPCOOS efforts accessible on its PICES web page. Topics that AP-NPCOOS will be involved in (motivated by the FUTURE case studies discussion) include a proposal for a Topic Session on “*Applications of artificial intelligence to advance the understanding of North Pacific ecosystems*” at PICES-2020 and a PICES Spring School on “*Coastal ocean observatory science*” in March 2020 at Kagoshima University, Kagoshima, Japan.

Financial support request: \$15K, to be split between on-site costs and travel for attendees, similar to previous PICES Summer School budgets.

AGENDA ITEM 8

Status of NPESR3

Mr. Chandler reported on all ETSOs (ecosystem time series observations) submitted to a third party online submission engine. There are currently over 160 submissions on the site now, but there are decisions to be made as to whether or not TCODE should continue to manage and use this database.

AGENDA ITEM 9

TCODE Action Plan

TCODE will add the evaluation of proposals for working groups submitted to SCOR and ICES into the Action Plan as well as collaborative efforts with the UN Decade of Ocean Science.

AGENDA ITEM 10

Review of PICES data policy and data inventory

Dr. Lee and Dr. Igor Shevchenko led a discussion on the PICES Metadata Catalog which is a searchable database of records that can link to most anything (URLs, technical reports, *etc.*). Many new entities are working to update all metadata records in accordance with FGDC metadata standards, but these standards are not available in the new version of this system.

Mr. Chandler will present the PICES Data Inventory to the Secretariat to confirm whether or not each of the items on the list is in fact still an entity that TCODE has, and that all links are live, *etc.* It was suggested that perhaps the PICES intern, working at the Secretariat, could take care of the annual checking of the inventory. The latest updated version is 3.6. TCODE members discussed where the official inventory list should actually ‘live’, *e.g.*, on the PICES website, and perhaps as a PICES product?

AGENDA ITEM 11

Follow up on the PICES Data Policy

TCODE developed a new PICES Data Policy (see *TCODE Endnote 3* in the [TCODE 2018 Annual Report](#)), based on the outcome of a TCODE workshop (W3) on “*Development of a systematic approach to data management in PICES*” held during PICES-2018 in Yokohama, Japan. TCODE also revised its sixth term of reference: Develop, **review, and update** PICES data policies **and data inventory**. Science Board endorsed the Policy and approved TOR#6, and they were approved by Governing Council.

AGENDA ITEM 12

Relations with specific international organizations/programs

IOC-IODE

Dr. Lee attended the 25th Session of the IOC-IODE Scientific Conference, held February 20–22 in Tokyo, Japan, where he introduced TCODE terms of reference, history and current activities and discussed the potential collaboration between PICES and IODE, and what TCODE could contribute to the UN Decade of Ocean Science (proclaimed by the UN General Assembly at its 72nd Session to begin for a 10-year period beginning January 1, 2021). The OceanObs’19 conference, featuring global ocean observing system functionality over the next decade, was held in Honolulu, USA, in September 2019.

Dr. Yutaka Michida, *ex-officio* member representing IODE, has stepped down as Co-Chair of IODE, but encouraged TCODE to apply for PICES membership as an IODE ADU (Associate Data Unit).

NEAR-GOOS

Dr. Lee was unable to attend the NEAR-GOOS meeting. so was not able report on it.

ODINWESTPAC

A number of items was discussed at a side meeting held during the IOC-IODE Scientific Conference in February, including potential cooperation with IOC-WESTPAC via collaborations between data centers, through meetings and workshops.

ICES

A special presentation and proposal to TCODE was made by Dr. Anne Brusendorff, ICES General Secretary, concerning the UN Decade of Ocean Science. There was an international agreement between nine nations to prevent unregulated high seas fisheries in the Central Arctic Ocean through meetings of scientific experts on fish stocks in the central Arctic Ocean (FiSCAO). She proposed an ICES-PICES collaboration linking to international processes, such as a joint pilot study of the Arctic that would also include NOAA. This pilot project would involve sharing protocols and data hosting. Currently, data with FiSCAO is being pooled for this purpose. Dr. Brusendorff also discussed the importance of finding an appropriate data sharing/holding entity for all. She asked TCODE to consider support of an updated proposal of the pilot study, while using the ‘transparent oceans’ theme designated by the UN Decade of Ocean Science.

TCODE will ask SB for \$5,000 as a placeholder for travel needs, should it be needed in order for a TCODE representative to participate in the ICES/PICES/NOAA pilot study.

AGENDA ITEM 13

Review of proposed topic sessions and workshops for PICES-2020

TCODE gave the highest priority to the following 4 topic session proposals:

- *Applications of artificial intelligence to advance the understanding of North Pacific ecosystems;*
- *Managing for pathways of resilience in a changing climate: recent examples and emerging approaches;*
- *Global warming patterns and multiscale climate variability in the North Pacific;*
- *Using environmental indicators to assess baselines, targets, and risk of plastic pollution in the North Pacific.*

Of the four, TCODE agreed that “*Applications of artificial intelligence...*” was the session the Committee would most like to support. Dr. Lee and Dr. Jinkung Yang agreed to act as co-convenors.

TCODE gave the highest priority to the following 3 workshops:

- *The social-ecological-environmental dynamics of climate extremes in Pacific coastal systems;*
- *How does the Pacific Arctic gateway affect the marine system in the Central Arctic Ocean (CAO)?*
- *The expansion of Harmful Algal Blooms (HABs) from lower to higher latitudes.*

Finally, TCODE gave the highest ranking for 2 inter-sessional workshops:

- Fifth meeting of ICES/PICES/PAME Working Group for Integrated Ecosystem Assessment of the Central Arctic Ocean;
- FUTURE SSC inter-sessional meeting.

AGENDA ITEM 14

TCODE Workplan 2018/2019

TCODE was able to achieve most tasks on the 2018/2019 workplan except for the submission of a nominee for the POMA award. TCODE will work to actively seek out nominees in the future. At the IODE meeting in Tokyo, Dr. Lee described TCODE’s attempts to apply for IODE/ADU or AIU (Associate Information Units) membership and received feedback that perhaps TCODE should apply for AIU membership instead of ADU as it may be better suited to the format of TCODE and PICES data formats.

AGENDA ITEM 15
TCODE Workplan 2019/2020

Was briefly discussed.

AGENDA ITEM 16
Country reports

Dr. Lee briefly presented all reports that were submitted from PICES member countries. TCODE agreed it was not necessary to continue doing submissions annually since most public data outlets from each country are generally static, and that perhaps TCODE should move to a 3- or 5-year update instead (See last year's submissions in the [TCODE 2018 Annual Report](#)).

AGENDA ITEM 17
Other business

Dr. Jennifer Jackson (POC) presented a workshop proposal on “*The social-ecological-environmental dynamics of climate extremes in Pacific coastal systems*” for PICES-2020. She reckoned this important topic could give rise to a working group, but first needed to start as a workshop to develop plans and details. She noted that climate extremes are rising, with a lot more climate variability and extremes, and that coastal systems and communities are most vulnerable to extremes. The science community had some ideas of what happens with marine heatwaves in the open oceans, but not much information for this was known for coastal communities. If a working group were to be formed, it would be under the framework of FUTURE, and would not just be linked to temperature but also to deoxygenation, ocean acidification, and temperature (The big 3).

Gaps found: most representatives at the POC sub-meeting about the workshop were from USA and Canada, and POC is seeking other member countries to get more involved.

Theme #3: “How do human activities affect coastal ecosystems and how are societies affected by changes in these ecosystems?” is most relevant to TCODE. TCODE members discussed if giving a presentation at the proposed workshop to offer advice and potential avenues for data development, *etc.* of data products would be helpful.

AGENDA ITEM 18
Closing

Dr. Lee closed the meeting at 17:30.

TCODE Endnote 1

TCODE participation list

Members

Joon-Soo Lee (Korea, Chair)
Peter Chandler (Canada, Vice-Chair)
Daisuke Ambe (Japan)
Manchun Chen (China)
Sang-Hwa Choi (Korea)
Jeanette C. Gann (USA)
Yutaka Michida (*ex-officio*, represents IODE)
Georgiy S. Moiseenko (Russia)
Igor I. Shevchenko (Russia)
Toru Suzuki (Japan)
Jinkun Yang (China)

Members unable to attend

Canada: Bruce Patten
Japan: Tomowo Watanabe
Korea: Jung No Kwon
USA: Lynn M. deWitt, Hernan Eduardo Garcia

Observers

Jack A. Barth (AP-NPCOOS Co-Chair)
Sonia Batten (Canada)
Anne Christine Brusendorff: (ICES)
Jennifer Jackson (Canada)
Sung Yong Kim (AP-NPCOOS Co-Chair)
Hideaki Maki (Japan)
Ryan R. Rykaczewski (of FUTURE SSC liaison)
Thomas Therriault (Canada)
Di Wan (Canada)

PICES

Robin Brown (Executive Secretary)

TCODE Endnote 2

TCODE meeting agenda

Day 1: 18:00–20:00, Sunday, October 20

1. Welcome and introduction of members (All)
2. Adoption of agenda (All)
3. Report of POMA 2019 (Lee)
4. Review of procedure for Best Presentation Awards (Lee)
5. Election of TCODE Chair and Vice-Chair
6. Status of FUTURE (Rykaczewski, FUTURE SSC liaison)
7. Status of AP-NPCOOS meeting (Kim and Barth, Co-Chairs of AP-NPCOOS)
8. Status of NPESR3 (Chandler)
9. Discussion on updates of TCODE Action Plan (Lee)

Day 2: 14:00–18:00, Wednesday, October 23

10. Review of PICES Data Policy and data inventory (Lee)
11. Follow up on the PICES data policy (Lee, Chandler)
12. Relations with specific international organizations/programs
 - ICES DIG (Lee)
 - NOWPAP/DINRAC, NEAR-GOOS (Lee)
 - ODINWESTPAC (Wan)
 - IOC/IODE (Michida, *ex-officio* member)
 - Others (?)
13. Review of proposed topic sessions and workshops for PICES-2020 (All)
14. Review of progress of TCODE Workplan 2018/2019 (All)
15. Discussion on TCODE Workplan 2019/2020 (All)
16. Presentation of country report (representative of member countries)
17. Other business
18. Closing