

REPORT OF WORKING GROUP 20 ON EVALUATIONS OF CLIMATE CHANGE PROJECTIONS

A Working Group 20 meeting was held in Jeju, Korea on October 25, 14:00–18:00 hours. After introductory formalities by the Co-Chairmen, Drs. Michael Foreman (Canada) and Yasuhiro Yamanaki (Japan), and Dr. James Christian (Canada) agreeing to act as rapporteur, the meeting of participants (*WG 20 Endnote 1*) began according to the agenda (*WG 20 Endnote 2*) with a recap of the Terms of Reference (*WG 20 Endnote 3*).

AGENDA ITEM 3

Updates on work related to Terms of Reference

Dr. Foreman stated that the CFAME final report was nearing completion and had received input from WG 20 members Yasuhiro Yamanaka, Emanuele Di Lorenzo, Muyin Wang, Michael Foreman and Dr. Wang's collaborators, James Overland and Nicholas Bond. The report will include chapters, each on the California Current, Kuroshio/Oyashio, and Yellow/East China Seas ecosystems. It was also noted that WG 20's request for a one-year extension of its lifetime to collaborate with the new PICES/ICES Working Group on *Forecasting Climate Change Impacts on Fish and Shellfish* (WG-FCCIFS) was endorsed by Science Board.

AGENDA ITEM 4

Update on FUTURE and its new Advisory Panels

A discussion of FUTURE was moved to the top of the agenda, and Dr. Foreman gave a brief introduction to them and discussed outstanding issues about their structure and function. He gave a brief summary of the final version of the FUTURE Implementation Plan and the roles of its three new Advisory Panels. As Dr. Lorenzo was named a member of COVE (Advisory Panel on *Climate, Ocean Variability, and Ecosystems*) and POC members Drs. Steven Bograd, Shin-ichi Ito, Vyacheslav Labonov and Zhanggui Wang were named to AICE (Advisory Panel on *Anthropogenic Influences on Coastal Ecosystems*) and SOFE (Advisory Panel on *Status, Outlooks, Forecasts and Engagement*), it was felt that physical/geochemical oceanographic and climate issues would be well represented in FUTURE.

AGENDA ITEM 3, CONTINUED

Updates on work related to Terms of Reference

Brief updates on research progress relevant to the Terms of Reference were given by Drs. Elena Ustinova, Vadim Navrotsky, Enrique Curchitser, and Yamanaka, Christian, Lorenzo and Foreman. Dr. Muyin Wang had given an update of her work the preceding day in Workshop 8 on "*Exploring the predictability and mechanisms of Pacific low frequency variability beyond inter-annual time scales*". It was felt that these summaries demonstrated good progress against the first four Terms of Reference.

Dr. Foreman outlined the status of collaborations of WG 20 with WG-FCCIFS. They included his being named a Working Group member and his co-chairing (with Dr. Jason Holt of the Proudman Oceanographic Laboratory, Liverpool, UK) the Theme Session "*Downscaling variables from global models*" at the WG-FCCIFS workshop [later changed to an International Symposium] on "*Climate change Effects on Fish and Fisheries: Forecasting impacts, assessing ecosystem responses, and evaluating management strategies*" planned for Sendai, Japan in April 2010. Dr. Muyin Wang has agreed to give an invited presentation in this session. Given the relevance of both this session and another entitled "*Contemporary and next generation climate and oceanographic models, technical advances and new approaches*" to the WG 20 objectives, other Working Group members were encouraged to attend the Sendai workshop. An informal Working Group meeting might be convened there if there are enough members present.

WG 20-2009

AGENDA ITEM 5

WG 20 final report

Given that WG 20 will end after PICES-2010, discussions on the structure and content of its final report were initiated. The following rough outline of possible chapters was put forward:

1. Introduction, TOR, overview of progress and relevance to FUTURE,
2. Contributions to CFAME and WG-FCCIFS,
3. Wang/Overland/Bond: statistical downscaling in NEP, PDO representation,
4. Curchitser: dynamical downscaling,
5. Di Lorenzo and Miller: NPGO and ENSO representations and projections in GCMs, ...
6. Foreman *et al.*: BC statistical and dynamical downscaling,
7. Yamanaka *et al.*: Kuroshio/Oyashio dynamical downscaling and ecosystem modeling,
8. Korean work?
9. Chinese work: Fan Wang will summarize various national efforts,
10. Russian work: Elena Ustinova and Vadim Navrotsky will contribute with help from Yury Zuenko,
11. Recommendations for FUTURE work.

Dr. Foreman agreed to send out emails in 1–2 months requesting more complete outlines of respective chapters from individual members. Though this report need not be finished by PICES-2010, it was agreed that there was no desire to continue much beyond that date.

AGENDA ITEMS 6 AND 7

Future WG 20 workshops/meetings

It was decided that WG 20 would propose a workshop entitled “PICES *Working Group on Evaluations of Climate Change (WG 20): Progress and FUTURE*” for PICES-2010. No invited speakers would be requested and presentations and discussions would concentrate on:

- progress related to the WG 20 Terms of Reference,
- status of, and future work on, the final report,
- follow-up activities that conform to FUTURE objectives and needs.

The possibility of submitting at least one oral presentation summarizing WG 20 activities to the Science Board Symposium at PICES-2010 was also discussed, and will be finalized via email as the deadline abstract submissions for that meeting comes closer.

AGENDA ITEM 8

Other business

No other business was discussed and the meeting was adjourned at about 17:30 hours.

WG 20 Endnote 1**WG 20 participation list**Members

James Christian (Canada)
 Enrique Curshitser (U.S.A.)
 Emanuele Di Lorenzo (U.S.A.)
 Michael G. Foreman (Co-Chairman, Canada)
 Arthur Miller (U.S.A.)
 Vadim Navrotsky (Russia)
 Elena Ustinova (Russia)
 Fan Wang (China)
 Muyin Wang (U.S.A.)
 Yasuhiro Yamanaka (Co-Chairman, Japan)

Observers

Heui Chun An (Korea)
 Stewart (Skip) McKinnell (PICES)
 John E. Stein (PICES)
 Yury Zuenko (Russia)

WG 20 Endnote 2**WG 20 meeting agenda**

1. Welcome, introductions, opening remarks
2. Changes to, adoption of, agenda and appointment of rapporteur
3. Updates on work related to WG Terms of Reference
 - a. Brief individual research summaries
 - b. CFAME final report
 - c. Collaboration with WG-FCCIFS:
 - i. Sendai workshop, April 26–29, 2010
 - d. Individual research summaries (Curchitser, *etc.*)
 - e. other
4. Update on FUTURE and its new Advisory Panels:
 - a. Discussion on roles for WG20 & possible successor WG(s)
5. WG 20 final report:
 - a. organization and content
 - b. chapter assignments
6. Future WG 20 workshops/meetings
 - a. Informal meeting at Sendai workshop?
 - b. Final meeting and/or workshop/session at PICES 19, Portland, October 2010
 - c. Other?
7. Items with financial implications
 - a. Travel support requests
 - b. Other items
8. Other business
9. Adoption of report for presentation at POC committee meeting

WG 20 Endnote 3

Terms of Reference

1. To analyze and evaluate climate change projections for the North Pacific and its marginal seas based on predictions from the latest global and regional models submitted to the Inter-governmental Panel on Climate Change (IPCC) for their 4th assessment report;
2. To facilitate analyses of climate effects on marine ecosystems and ecosystem feedbacks to climate by, for example computing an ensemble of the IPCC model projections for the North Pacific and making these projections available to other PICES groups such as CFAME;
3. To facilitate the development of higher-resolution regional ocean and coupled atmosphere-ocean models that are forced by, and take their boundary conditions from, IPCC global or regional models;
4. To facilitate the development of local and regional data sets (*e.g.*, SST, river flow, sea ice cover) incorporating information from climate model projections as well as observations and historical re-analyses;
5. To ensure effective two-way communication with CLIVAR;
6. To convene workshops/sessions to evaluate and compare results;
7. To publish a final report summarizing results.