

# **International Workshop**

## **Development and Application of Regional Climate Models**

### **General Information**

Both global and regional numerical climate models are important tools in understanding physical mechanisms involved in and controlling climate change and variability at multiple spatio-temporal scales. They may also provide the unique possibility to construct physically based future climate projections, the starting point for many socio-economic impact and adaptation considerations to future climate change. Global and regional modellings complement each other. While the global coupled general circulation models (GCMs) may be capable of capturing the large-scale mean climate behavior, especially those related to anthropogenic forcing, they often cannot be directly used for assessing regional climate impacts mainly due to their coarse spatial scale. Furthermore, they are usually not successful in capturing regionally important physical processes and reproducing higher order statistics and extreme events. Regional climate modeling has been introduced to fill the gap between the GCMs and the growing demand of climate predictions and scenarios on highly-resolved spatio-temporal scales. Various approaches and parameterizations have been adopted in existing regional climate models (RCMs). This two-day workshop will provide a platform to discuss various aspects of regional coupled or ocean climate modelling such as different approaches, downscaling, parameterizations, and coupling to the GCMs. It will also encompass the coupling of RCMs to ecosystem models.

### **Dates and venue**

The workshop will be held on October 11 – 12, 2011, at Mayfield Hotel, Seoul, Korea.

### **Abstract Submission**

All workshop participants giving either oral or poster presentations are requested to submit extended abstracts of 5 up to 10 pages including figures. There is no specific format for the abstracts, but they should be produced using MS Word so that we can edit the abstracts. We may also need to request original figure files.

Send your abstract to [kichan@snu.ac.kr](mailto:kichan@snu.ac.kr) (Kyung-II Chang).

The deadline for abstract submission is **September 16, 2011**.

## **Conveners**

Kyung-Il Chang (POC/PICES)

School of Earth and Environmental Sciences, Seoul National University

E-mail) [kichang@snu.ac.kr](mailto:kichang@snu.ac.kr)

Michael Foreman (POC/PICES)

Fisheries and Oceans Canada, Institute of Ocean Sciences

E-mail) [mike.foreman@dfo-mpo.gc.ca](mailto:mike.foreman@dfo-mpo.gc.ca)

Chan Joo Jang (POC/PICES)

Korea Ocean Research & Development Institute

E-mail) [cjjang@kordi.re.kr](mailto:cjjang@kordi.re.kr)

Myron Peck (ICES)

Institute for Hydrobiology and Fisheries Science, University of Hamburg

E-mail) [myron.peck@uni-hamburg.de](mailto:myron.peck@uni-hamburg.de)

Angelica Pena (BIO/PICES)

Fisheries and Oceans Canada, Institute of Ocean Sciences

E-mail) [Angelica.Pena@dfo-mpo.gc.ca](mailto:Angelica.Pena@dfo-mpo.gc.ca)

## **Sponsors**

Ministry of Land, Transport and Maritime Affairs, Korea

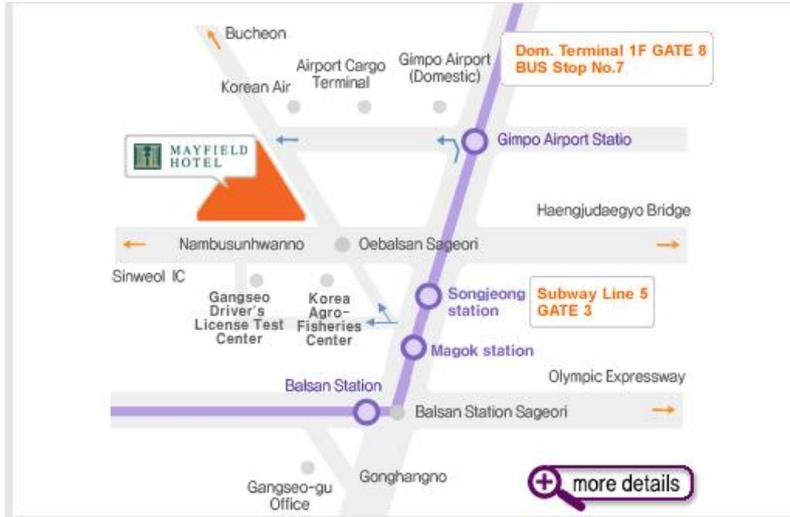
North Pacific Marine Science Organization

International Council for the Exploration of the Sea

Seoul National University

## Location

How to get to Mayfield Hotel (<http://www.mayfield.co.kr>)



ADDRESS : 426 Balsan-dong, Gangseo-gu, Seoul, Korea 157-290  
TEL : 82-2-2660-9000  
FAX : 82-2-2660-9001

### i) From Incheon International Airport to Hotel

[KAL Limousine Bus](#)

### ii) From Gimpo Airport to Hotel

[Hotel Shuttle Bus](#)

## Visas

Citizens of some countries are required to obtain a visa before visiting Korea. Please visit the [Ministry of Foreign Affairs and Trade, Republic of Korea](#) website for information, embassy and consulate (visa offices) locations and links to their sites. If you require an official letter of invitation to obtain a visa, please contact Kyung-Il Chang ([kichang@snu.ac.kr](mailto:kichang@snu.ac.kr)).

# Program

## October 11 (Tuesday), 2011

08:30-09:30 **Registration**

09:30-10:00 **Opening**

*Prof. Kyung-Ryul Kim (President, RIO/SNU)*

*(Director General for Marine Environment Policy, MTLM)*

### **Session I. Global and Regional Coupled Models**

*Chan Joo Jang, Presiding*

10:00-10:30 *Hiroyasu Hasumi (invited)*

Development of a coupled climate model with a two-way nested ocean component

10:30-11:00 *Hyun-Suk Kang (invited)*

Global and regional climate projections based on the RCP emission scenarios for IPCC AR5

11:00-11:20 *Tea/Coffee Break*

11:20-11:50 *Tianjun Zhou (invited)*

Air-sea interaction and northwestern summer monsoon variability: A comparison of AGCM and regional ocean-atmosphere coupled model simulations

11:50-12:20 *Hyodae Seo (invited)*

Regional coupled downscaling: mesoscale air-sea interaction and regional climate change

12:20-14:00 *Lunch Break*

### **Session II. Regional Ocean Projections**

*Kyung-Il Chang and Angelica Pena, Presiding*

14:00-14:30 *Bjorn Adlandsvik (invited)*

- Dynamical downscaling of future climate in the Barents and North Seas
- 14:30-15:00 **Gianmaria Sannino (invited)**  
PROTHEUS: The regional climate model for the Mediterranean region
- 15:00-15:20 **Cheo-Ho Kim**  
Comparison of North Pacific ocean circulation between different grid-resolution circulation models
- 15:20-15:40 **MinHo Kwon**  
Two types of North Pacific variability of ocean: a future projection
- 15:40-16:10 **Dong-Hoon Kim (invited)**  
Steric and nonsteric sea level rise projections in northwestern Pacific Ocean
- 16:10-16:30 *Tea/Coffee Break*
- 16:30-17:00 **Michael Foreman (invited)**  
A regional climate model for the British Columbia continental shelf
- 17:00-17:30 **Enrique Curchitser (invited)**  
Regional and global effects of eastern boundary upwelling using a multi-scale climate model
- 17:30-17:50 **Yang-Ki Cho**  
Development of a regional ocean climate model for northwestern Pacific marginal seas
- 18:30-20:30 Welcoming Reception

### **October 12 (Wednesday), 2011**

#### **Session III. Analysis of Climate Models**

*Kwang-Ryul Kim, Presiding*

- 09:00-09:20 **Inkweon Bang**  
Climate change in the Northwestern Pacific seen in the CSEOF analysis of the SRES A1B simulations of AR4 models
- 09:20-09:40 **Chan Joo Jang**  
Evaluation of regional ocean simulation from CMIP3 models: a case for

the North Pacific Ocean mixed layer depth  
09:40-10:00 **Hyoun-Woo Kang**  
Indonesian throughflow transport change in the warming climate

#### **Session IV. Ecosystem Modeling**

*Kyung-Il Chang and Corinna Schrum, Presiding*

10:00-10:30 **Myron Peck (invited, ICES)**  
New ICES working group on integrative physical, biological and ecosystem modeling: An overview and an invitation

10:30-11:00 **Icarus Allen (invited)**  
Regionally downscaled climate modeling: physics to fisheries

11:00-11:20 *Tea/coffee break*

11:20-11:50 **Angelica Pena (invited)**  
Development a regional plankton ecosystem model for the pacific coast of Canada

11:50-12:20 **Corinna Schrum (invited)**  
Climate change downscaling to marine ecosystems, lessons learnt from downscaling exercises of AR4 and AR5 GCM scenarios

12:20-14:00 *Lunch Break*

14:00-16:00 Poster Presentations

#### **16:00-18:00 Wrap-up and Recommendations**

*Myron Peck and Michael Foreman, Presiding*

What are the big questions in the regional downscaling ?

- Parameterizations
- Boundary conditions
- ??

How to tackle those questions ?

Establishment of ICES/PICES Joint WG

Regular workshop, 2012 Yeosu Sympo. (S3), 2013 Seoul ?

## **Poster presentations**

- Qionggiong Cai: The assessment of MJO simulation in the NCEP climate forecast system reanalysis
- Chan Joo Jang: North Pacific Ocean circulation modeling for future climate projection
- Sung-Tae Jang: Comparisons of experiments for a nested grid regional forecast model
- Hera Kim: Mixed layer depth variability and its associated chlorophyll-a concentration changes in the North Pacific
- Jingwei Liu: The extreme summer precipitation over East China during 1982-2007 simulated by LASG/IAP regional climate model
- Gyundo Pak: The Japan/East Sea circulation in the MIROC-hires climate model
- Taewook Park: Interannual variability of sea surface salinity in the Yellow and East China Seas in response to ENSO
- Ok Hee Seo: Sensitivity of typhoon intensity change on a warmed ocean using a coupled typhoon-ocean model
- Jiheon So: Mixed layer depth variability & its associated chlorophyll-a concentration changes in the East sea
- Dan Sun: Simulation of the East Asian Intraseasonal Oscillation in 1998 with the variable-resolution model LMDZ
- Liwei Zou: Development and evaluation of a regional ocean-atmosphere coupled model with focus on Western North Pacific summer monsoon simulation: Impacts of different atmospheric components

## **Affiliation/Country of Presenters**

### **Invited Speakers**

Bjørn Ådlandsvik

Institute of Marine Research, Norway (bjorn@imr.no)

Icarus Allen

Plymouth Marine Laboratory, UK (jia@pml.ac.uk)

Enrique Curchitser

Rutgers University, USA (enrique@marine.rutgers.edu)

Mike Foreman

Institute of Ocean Sciences, Canada (mike.foreman@dfo-mpo.gc.ca)

Hiroyasu Hasumi

University of Tokyo, Japan (hasumi@ccsr.u-tokyo.ac.jp)

Hyun-Suk Kang

Korea Meteorological Administration, Korea (hyunsuk@korea.kr)

Dong-Hoon Kim

Korea Meteorological Administration, Korea (mail@dhkim.info)

Myron Peck

Institute for Hydrobiology and Fisheries Science, Germany

(myron.peck@uni-hamburg.de)

Angelica Pena

Institute of Ocean Sciences, Canada (Angelica.Pena@dfo-mpo.gc.ca)

Gianmaria Sannino

Italian National Agency for New Technologies, Energy and Sustainable Economic  
Development, Italy (Gianmaria.sannino@enea.it)

Corinna Schrum

University of Bergen, Norway (Corinna.Schrum@gfi.uib.no)

Hyodae Seo

Woods Hole Oceanographic Institution, USA (hseo@whoi.edu)

Tianjun Zhou

Chinese Academy of Science, China (zhoutj@lasg.iap.ac.cn)

## **Contributors**

Inkweon Bang

Seoul National University, Korea (Inkweon.bang@gmail.com)

Qiongqiong Cai

Chinese Academy of Science, China (qiongqiongcai@mail.iap.ac.cn)

Yang-Ki Cho

Seoul National University, Korea (choyk@snu.ac.kr)

Chan Joo Jang

Korea Ocean Research & Development Institute, Korea (cjjang@kordi.re.kr)

Sung-Tae Jang

Geosystem Research, Corporation, Korea (stjang@geosr.com)

Hyoun-Woo Kang

Korea Ocean Research & Development Institute, Korea (hwkang@kordi.re.kr)

Chel-Ho Kim

Korea Ocean Research & Development Institute, Korea (chkim@kordi.re.kr)

Hera Kim

Korea Ocean Research & Development Institute, Korea (herassemu@gmail.com)

MinHo Kwon

Korea Ocean Research & Development Institute, Korea (mhkwon@kordi.re.kr)

Jingwei Liu

Chinese Academy of Science, China (liujingwei@mail.iap.ac.cn)

Gyun-Do Pak

Seoul National University, Korea (gdpak@snu.ac.kr)

Taewook Park

Korea Ocean Research & Development Institute, Korea (twpark.kr@gmail.com)

Ok Hee Seo

Korea Ocean Research & Development Institute, Korea (okioki9941@kordi.re.kr)

Jiheon So

Korea Ocean Research & Development Institute, Korea (sojhwlgus@gmail.com)

Dan Sun

Chinese Academy of Science, China (sundan@lasg.iap.ac.cn)

Liwei Zou

Chinese Academy of Science, China (zouliwei@gmail.com)