



## Scope

Since the beginning of life on Earth, oceans have influenced the fundamental processes of our planet. From their role in the global carbon cycle to providing the habitats that sustain marine biodiversity, oceans provide the living resources and services upon which humans depend. They create opportunities for economic development, for societal well-being, and for quality of life. But we are changing the World Ocean to an extent that is unprecedented in millions of years. Greenhouse gas emissions are warming the planet, affecting the global carbon cycle, and changing the chemical composition of the ocean. These fundamental changes can have serious consequences for oceanic productivity and species composition. Marine ecosystems are being disrupted by overfishing and pollution at various scales so the consequences for Earth, as we have known it, might become serious.

There is general agreement that our understanding of the role of oceans in the ecology of the planet is in its infancy. While many adverse effects of climate change have been described to date, they are likely a fraction of what will become apparent in the coming years. These changes are described and debated in regional or thematic symposia and workshops, but a comprehensive view of the current state of the global ocean and comparison between regions demands an international symposium program that reaches for that scale.

ICES, PICES and IOC joined forces in 2008 for the first global ocean symposium (Gijón, Spain) and it attracted 400 scientists from 48 countries. This second look at the *"Effects of Climate Change on the World's Oceans"* will lead us through many issues of the role of climate change on the oceans: sea level rise, changes in thermo-haline ocean circulation, acidification, oligotrophy of temperate seas, changes in species abundance, distribution and phenology, loss of biodiversity, all of which will have serious implications for marine living resources, etc. This symposium aims to bring together experts from different disciplines to exchange observations, results, models and ideas at a global scale and to discuss the opportunities to mitigate and protect the marine environment and its living resources

## Outcome

Selected papers (oral and poster) from the symposium will be included in a special issue of the *ICES Journal of Marine Science* ([www.ices.dk/products/icesjournal.asp](http://www.ices.dk/products/icesjournal.asp)) scheduled for publication in 2013. In addition, it is anticipated that selected sessions and workshops will develop their own proposals for special volumes.



## Structure and Scientific Program

A 5-day (May 15–19) symposium will consist of:

- » Morning plenary sessions on Days 1–5, each with 3 keynote speakers to introduce themes for the concurrent sessions to be convened on the same day and to provide overarching presentations focusing on the integration or more general hot topics, and a plenary session in the afternoon of Day 5 (immediately prior to the closing ceremony), to summarize the results and provide a wrap-up of the symposium;
- » Concurrent (2 to 3) theme sessions every day, following a morning plenary session;
- » Workshops on the day prior to and the day immediately after the symposium; the number of the concurrent workshops depends on the capacity of the venue.

Scientific sessions will include invited and contributed papers. Contributed papers will be selected for oral and poster presentation.

Posters will be on display for the entire duration of the symposium. Two evening poster sessions/receptions will take place on Days 2 and 3. At these sessions, poster presenters are expected to be available to answer questions. All coffee breaks and receptions will be held in the poster area to maximize opportunities to view the contributions and to interact with the presenters.

## Registration, Abstracts and Financial Support

On-line registration and abstract submission will open August 1, 2011. Please consult the symposium website for details.

Limited funds are available to assist students, early career scientists and researchers from developing countries to attend the symposium. Application procedures can be found on the symposium website.



## Selected Themes

A set of theme sessions and workshops was identified by the Scientific Steering Committee:

### Sessions:

- » Climate variability versus anthropogenic impacts; analysing their separate and combined effects on long-term physical, biogeochemical and ecological patterns
- » Systematic, sustained and integrated global ocean observations
- » Projections of climate change impacts on marine ecosystems and their uncertainty
- » Climate change effects on living marine resources: From physics to fish, marine mammals, and seabirds, to fishermen and fishery-dependent communities
- » From genes to ecosystems: Genetic and physiological responses to climate change
- » Marine spatial planning and risk management in the context of climate change: The living ocean and coast under changing climate
- » Coastal and low-lying areas
- » Trend and impacts of de-oxygenation in oceanic and coastal ecosystems
- » Marine tipping points in the earth system
- » Changes in the marine carbon cycle

### Workshops:

- » Ocean observation: Strategic framework
- » Climate change projections for marine ecosystems: Best practice, limitations and interpretation
- » Marine spatial planning and risk management

## Additional Themes

The scientific community is invited to propose half-day or full-day workshops to be held on May 14 (Monday immediately prior to the symposium) or on May 20 (Sunday immediately after the symposium). To submit a workshop proposal, please fill out the form on the symposium website. The deadline for submitting proposals is September 15, 2011.



## Venue and Connections

The symposium will be convened as one of the official events related to Expo-2012 Yeosu Korea to be held from May 12 – August 12, 2012, under the theme *"The Living Ocean and Coast: Diversity of Resources and Sustainable Activities"* (<http://eng.expo2012.or.kr/eng/main.asp>). The symposium will take place at the new Multi-purpose Hall located at the Expo-2012 site, close to all other facilities and pavilions.

It is planned that the Symposium be followed by the regular session of the WMO-IOC Joint Technical Commission for Oceanography and Marine Meteorology (JCOMM), an intergovernmental body of experts that provides international coordination of oceanographic and marine meteorological observations, data management and services responding to interdisciplinary requirements of the meteorological and oceanographic communities (<http://www.jcomm.info/>). The proposed workshops on *"Ocean observation: Strategic framework"* and *"Climate change projections for marine ecosystems: Best practice, limitations and interpretation"*, scheduled for May 20, are considered as a natural bridge between the two events.

## Social Events

- » Welcome Reception on Day 1 (May 15)
- » Evening Poster sessions/receptions on Day 2 and 3 (May 16 and 17)
- » Afternoon sightseeing followed by a symposium dinner on Day 4 (May 18)



# Key Dates

March 30, 2011

» Symposium website opens

September 15, 2011

» Deadline for submissions of proposals for workshops

December 15, 2011

» Abstract submission deadline

» Financial support application deadline

» Early registration deadline

January 30, 2012

» Abstract acceptance notification

» Financial support grant notification

May 14–20, 2012

» Symposium and associated workshops

June 15, 2012

» Manuscript submission deadline

## Contact

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Photos courtesy of the National Museum of Korea

## Symposium Convenors

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## Scientific Steering Committee

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## Symposium Coordinators

Alexander Bychkov (PICES)

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Luis Valdés (IOC-UNESCO)

## Local Organizing Committee

The Committee includes representatives from KORDI, NFRDI, Chonnam National University-Yeosu Campus, and the Korean Society of Oceanography.

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WCRP  
World Climate Research Programme

# Second International Symposium Effects of Climate Change on the World's Oceans

Yeosu, Korea

May 15–19, 2012

[www.pices.int/climatechange2012.aspx](http://www.pices.int/climatechange2012.aspx)

