

*Information related to Report on
our activities on Climate Modelling, Scenarios and Downscaling for NWP:*

A national research initiative on climate change projection (KAKUSHIN Program)

Hiroki Kondo

Principal Scientist

Global Warming Projection Research Project for Contribution to AR5 of IPCC
Japan Agency for Marine-Earth Science and Technology
(JAMSTEC)



Innovative Program of Climate Change Projection for the 21st Century (**KAKUSHIN** Program)

- ◆ **A 5-year initiative (FY 2007-2011)** by the **MEXT** (Ministry of Education, Culture, Sports, Science and Technology) was launched in April 2007
- ◆ The Program is to follow-up and develop the **“Kyo-sei” Project (FY 2002-2006)**
- ◆ The **Earth Simulator** (just updated) be further utilized.
- ◆ The Program intends to **contribute to the AR5.**



Participating groups and their studies

◆ **Long-term global environmental projection**

with an earth system model

- Frontier Research Center for Global Change (**FRCGC**) et. al

◆ **Near-term climate prediction**

with a high-resolution coupled ocean-atmosphere GCM

- Center for Climate System Research (**CCSR**) of the University of Tokyo et. al

◆ **Projection of changes in extremes in the future**

with super-high resolution atmospheric models

- Meteorological Research Institute (**MRI**) et. al



KAKUSHIN Program

Contribution → AR5 in 2013

Advancing
Climate Modeling
and
Projection

Comprehensive
IAV Research
Projects by *Ministry
of Environment
(MOE)*

Coordination

Close linkage

Impact assessment
on natural disasters

Quantification &
Reduction of Uncertainty

Earth Simulator



Cooperation activities of the MRI Team

(by *Earth Simulator* computed model outputs for adaptation studies)

Cooperation under the World Bank funds

Collaboration originated in Buenos Aires 2004)

- Adaptation study in Coastal Zones of **Caribbean countries**: Barbados (one, 2005), Belize (one, 2005)
- Adaptation studies in **Colombian coastal areas, high mountain ecosystems**: Colombia (two, 2005; two, 2009?)
- Adaptation to Climate Impacts in the Coastal Wetlands of the **Gulf of Mexico**: Mexico (two, 2006; two, 2009?)
- Adaptation to Rapid Glacier Retreat in the **Tropical Andes**: Peru (one, 2006; one, 2009?), Ecuador (one, 2006), Bolivia (one, 2006)
- **Amazon Dieback**: Brazil (two, 2008)

Cooperation under the JICA (Japan International Cooperation Agency) funds

- Adaptation studies in agriculture in **Argentina**: Argentina (three, 2008)
- Adaptation studies in monsoon **Asia**: Bangladesh, Indonesia, Philippines, Thailand, Vietnam (one each, 2008 & 2009)



KAKUSHIN

Summary

- ◆ **Innovative Program of Climate Change Projection for the 21st Century Projection (KAKUSHIN Program, FY2007-11)** is sponsored by the MEXT as a 5-year research initiative, following up the previous initiative of Kyosei Project (FY2002- 06).
- ◆ **KAKUAHIN Program** is focusing not only on (1) advanced modeling & projection and (2) uncertainty quantification & reduction, but also on (3) impact assessment on natural disasters.
- ◆ **KAKUSHIN Program** is being conducted under close coordination among the above three component themes.
- ◆ **KAKUSHIN Program** is making use of the **ES**.
- ◆ **Major Participating Teams** are targeting Long-term Global Environment Projection, Near-term Prediction and Extreme Events projection.
- ◆ **Model outputs** would be provided for comprehensive IAV studies
- ◆ **KAKUSHIN Program** intends to contribute to the IPCC AR5.

