

# EARTH-SYSTEM INITIALIZATION for DECADAL PREDICTIONS Workshop

4-6 November, Utrecht, the Netherlands

Designing mitigation and adaptation strategies to respond to the consequences of global climate are some of the world's greatest challenges. The decision support that is essential to meet this challenge requires high-resolution regional climate predictions over the next 10 to 30 years. In the next decades, climate changes due to natural causes and anthropogenic activities are expected to have similar amplitude. There is a commitment to climate change due to the increase emissions of greenhouse gasses and the related radiative forcing that we have already made and that needs to be quantified with initialized climate change projections. Natural variability may strengthen or damp the climate response due to anthropogenic activities these potential impacts need to be accurately quantified. Aspects of the natural climate variability may be predictable on decadal time scales. The advance of the earth system observation network, the ARGO in situ ocean measurements in particular, the increased knowledge on decadal modes of variability and the improvement of earth system models has led to numerical experimentation on decadal predictions. Recent studies have shown that predictability can be obtained in complex numerical climate models, based on the long-term memory that resides in the ocean.

The World Climate Research Program has realized the potential of decadal predictions. In the next Coordinated Model Intercomparison Project (CMIP5), which will feed into the IPCC 5<sup>th</sup> Assessment, a protocol has been set up to provide decadal predictions. It is expected that the ensemble of decadal predictions will be used in the process to develop adaptation strategies, as many investments on infrastructure and in industry are paid of in decades.

In this workshop we will make an inventory of best practices and discuss the scientific aspects of generating decadal predictions. This will lead to future directions of initialization of earth system models. The initialization procedure is essential for prediction experiments. There is ample experience in weather and seasonal prediction, but decadal predictions pose new challenges. In this workshop we will address this.

## The main goal:

The workshop aims to Exchange best practices and provide future directions for earth-system initialization for decadal predictions

## Specific goals:

- To make an inventory of initialization and perturbation techniques in earth system models; compare and contrast, where possible, forecast made with these different initialization strategies.
- To discuss the effectiveness of initialization and perturbation techniques
- The review the observing system and available data for initialization: ocean, soil moisture, ice, snow, atmospheric composition (including aerosols).

The outcome will be a report and/or a series of papers that contains an inventory of best practices of earth system initializations and advice on future directions.

## Program Committee:

Wilco Hazeleger, Ben Kirtman, Detlef Stammer, Magdalena Balmaseda, Axel Timmermann, Laurent Terray, Bernadette Sloyan

## Format and Registration:

The workshop will be limited to 60 persons of which 30 will be invited. If needed, a selection of interested participants will be made by the Scientific Steering Group. In plenary presentations and working groups, best practices and future directions will be discussed.

More details on the workshop will be available at the following website:

<http://www.knmi.nl/samenw/easyinit.html>

Deadline for registration is **1 August 2009**  
Abstracts should be submitted by sending an email to: [Brigitta.Kamphuis@knmi.nl](mailto:Brigitta.Kamphuis@knmi.nl)

