



European Commission's 7th Framework Programme
Grant Agreement No. **226520**

Project acronym: **COMBINE**

Project full title: **Comprehensive Modelling of the Earth System for Better
Climate Prediction and Projection**

Instrument: Collaborative Project & Large-scale Integrating Project

Theme 6: *Environment*

Area 6.1.1.4: *Future Climate*

ENV.2008.1.1.4.1: *New components in Earth System modelling
for better climate projections*

Start date of project: 1 May 2009

Duration: 48 Months

**Milestone Reference Number and Title:
M6.1 Decadal Prediction Experiments Stream 1**

Lead work package for this milestone: WP6

Organization name of lead contractor for this milestone: CMCC

**Due date of milestone: month 21 (January 2011)
Actual submission date: February 2011**

M6.1 Decadal Prediction Experiments (Stream 1)

One of the major objectives of WP6 is the production of an ensemble of Decadal Prediction Experiments (DPE), covering the period 1960-2035. Specifically, two distinct sets of DPE have been designed: in the first stream of experiments (Stream 1) the state-of-the-art coupled models are initialized using existing initialization techniques and an ensembles of DPE will be performed following the CMIP5 protocol and radiative forcings. In the second stream of DPE (Stream 2) the climate models and the initialization techniques will be appropriately improved according to the results and the findings obtained during the first two years of the project. The Stream 1 DPEs will serve principally as a benchmark to evaluate the impact on the decadal predictions of the new initialisation schemes and new model components that will be implemented in COMBINE. Furthermore, they will be included in the CMIP5 database.

The Milestone M6.1 consists of producing the simulation aimed at providing a set of climate prediction experiments for the 1960-2035 period.

Means of verification: the milestone is reached once the Stream 1 of the predictability experiments have been performed by all of the partners as summarized in Table 1.

Partner	Models	Initialization	No. of ensemble members
CMCC	CMCC	Ocean and Sea-ice from Ocean Re-analyses	4
MPG	COSMOS	Ocean and Sea-ice from Ocean Re-analyses	10
EC-Earth: KNMI,DMI, SMHI, UCL	EC-Earth	Ocean and Sea-ice from Ocean Re-analyses	KNMI: 5 SMHI: 1
CERFACS	CNRM-CM	Ocean and Sea-ice from Ocean Re-analyses	10

Table 1. Summary of the decadal prediction experiments (DPEs), reporting names of the partners involved, names of the models used, initialization techniques and number of ensemble members.

As reported in the first activity report of WP6, during the first 18 months of the project, all of the partners involved in the Stream 1 decadal prediction experiments have worked to achieve the objective of the task. Specifically, they have implemented the model components and the appropriate initial conditions, according to planned design of the experiments. Then, the models and the experimental set-ups have been tested and the experiments completed.

The start of the Stream 1 DPEs has been delayed mainly because of a delay in the availability of the new CMIP5 radiative forcings. This problem has caused a delay of about 6 months in the completion of the experiments with respect to the delivery date originally planned within COMBINE.

The results of the DPEs will be carefully analysed and discussed in the COMBINE deliverable D6.1.