



European Commission's 7<sup>th</sup> Framework Programme  
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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:  
M6.3: Decadal prediction experiments Stream 2**

**Lead work package for this milestone: WP6**

**Organization name of lead contractor for this milestone: CMCC**

**Due date of milestone: month 39, July 2012**

**Actual submission date: January 2013**

### M6.3: Decadal prediction experiments Stream 2.

The M6.3 milestone concerns the realization of the second stream of decadal prediction experiments (S2). The design of these experiments follows the same protocol adopted for stream 1 (i.e., CMIP5) but now including the new initialisation schemes and model components developed within WP1-5. The experimental setup for the S2 experiments is reported in Table 1. Most of the planned simulations have been completed, or are in progress. S2 experiments with a well-resolved stratosphere, with EC-Earth (DMI) are expected to be completed by the end of January 2013. A detailed analysis of the impact of the new model components/initialisation procedures on decadal predictions will be reported in deliverable D6.3 (month 54).

Partner	Model	Initialization	Model Component
CMCC	CMCC-CMS(1)		Stratosphere
MPI	MPI-ESM-MR	Ocean initialization	Stratosphere & Dynamical Vegetation
SMHI, KNMI, DMI	EC-Earth	seaice reanalysis (SMHI; from UCL)	seaice albedo (SMHI); land-surface scheme (KNMI; LPJ-Guess); stratosphere (DMI(2))
METO	HadGEM3_DPS (3)		Stratosphere
CNRM	CNRM-CM	Sea-ice thickness and concentration	
CERFACS	CNRM-CM (4)		Stratosphere

1. Simulations with ECHAM5 T63L95/ORCA2L31 (in progress).
2. A high-top T159L91 configuration will be used for the atmospheric component of EC-Earth (delayed).
3. HadGEM3 N96L85
4. Simulations have been performed with a low-top (L62) and a hi-top (L91) versions of ARPEGE T63 model, coupled to NEMO-ORCA1 ocean model.

*Table 1. Experimental set-up for Stream 2 decadal prediction simulations.*