



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:

M8.4

Offline NPP model (agriculture and nature) runs with new forcings completed

Lead work package for this milestone:

WP8

Organization name of lead contractor for this milestone:

Wageningen University

Due date of milestone: 30 October 2013

Actual submission date: 30 October 2013

Within COMBINE a series of model experiments using the LPJmI model was performed using different combinations of Earth System models, RCPs and model settings.

Climate forcing from six Earth System Models of the Combine project were used, for the historical period (1960-2006) and a RCP 4.5 and 8.5 scenario until 2100. LPJmI was forced with daily temperature, precipitation, longwave and shortwave radiation. All these climate model variables were first bias corrected using as described in Deliverable 8.2

Before the historical runs, a spin-up of the carbon and water pools was done by 1000 year repeating the first 30 year of climate data.

Both historical and future simulations were done for 'natural' conditions (no irrigation, no human build reservoirs, but including crop land) and 'human alterations' (with irrigation extractions and reservoir operations).

Finally, one series of model runs was made with all climate models, with human alterations, RCP 8.5, and using a constant CO2 concentration at the level of the year 2000.

Figure 1 gives a schematic overview of all the performed runs.

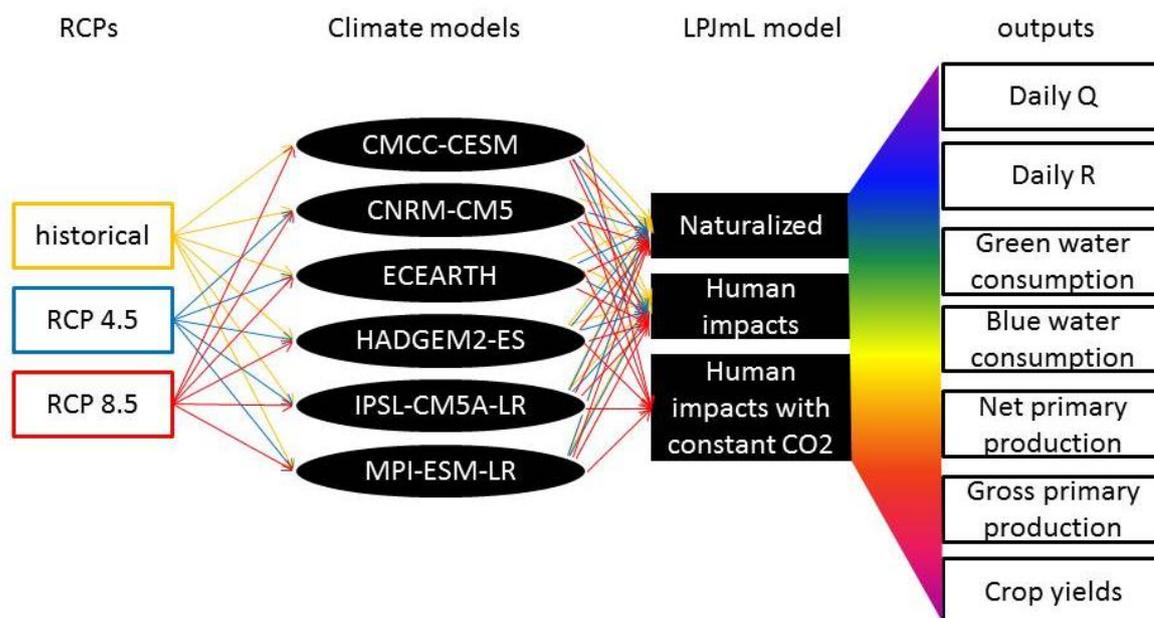


Figure 1. Schematic overview of the performed series of model runs. (R = run-off and Q = river discharge)

Model output data are stored at the Wageningen UR server and are available upon request.