

Model calibration

Generation of 600 parameter sets
with 19 parameters varied



Spin up 600 simulations with the
parameter sets for 10 000 years, with
prescribed pre-industrial $p\text{CO}_2$
284.3 ppm



Applying a likelihood-based cost
function for selection of the 20
best parameter sets
(lowest cost function values).
Each of these spun-ups is then
used as the initial condition for the
ensemble simulations



Model Experiment

Set up 24 boundary conditions with
combinations of Physical (4) X
Biogeochemical (6) conditions

Physical (4):

- Plctl
- LGMatmctl
- LGMatmws
- LGMatmpi

Biogeochemical (6):

- Plallbgc
- LGMallbgc
- LGMFedep
- LGMFesed
- LGMPO₄
- LGMbdeni



20 best parameter sets X
24 boundary conditions
= 480 simulations



- Spin up time > 10 000 years
- Radiative forcing prescribed:
 - Pre-industrial $p\text{CO}_2$ = 284.3 ppm
 - LGM $p\text{CO}_2$ = 190 ppm
- Feedback between atmospheric CO_2 and
radiative forcing switched off
- Atmospheric $p\text{CO}_2$ evolves freely with the
global carbon cycle