

Evaluation of the LMDZ model in a weather-forecast mode

Journées MISTERRE

Solange Fermepin, Sandrine Bony and Laurent Fairhead

LMD/IPSL

June 2011

Motivation

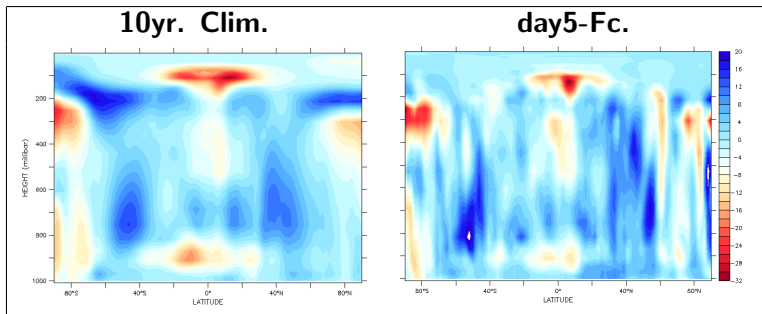
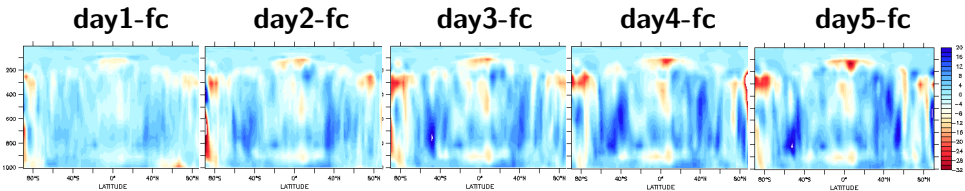
- 1 To improve our confidence on long-term climate simulations.
- 2 To understand the systematic errors in the models' physics.
- 3 The need for model evaluation in configurations where the dynamics is well constrained (e.g., SCM simulations).



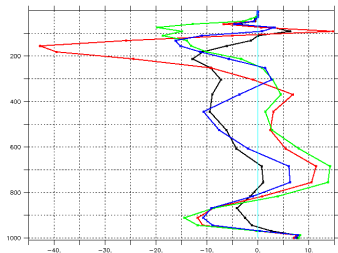
Transpose AMIP

- Global short-term integrations (1-5 days).
- GCM initialized from a well defined state (Reanalyses).
- Premise: as long as the dynamical state of the forecast remains close to the real atmospheric state, systematic errors are due to errors in fast physics parametrizations.

Relative Humidity Bias

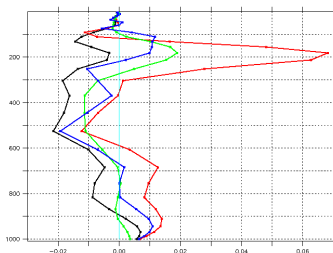


Relative Humidity Bias

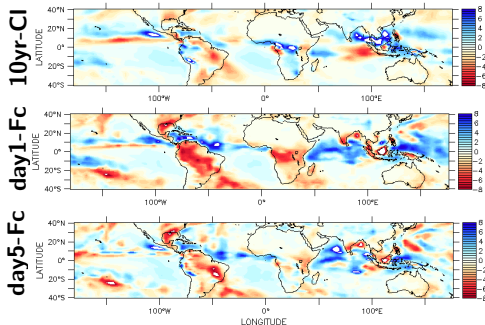


→ day1-Fc
 → day3-Fc
 → day5-Fc
 → 10yr-Clim

Vertical Velocity Bias



Precipitation Bias



Perspectives

- Initialize the SCM with ERA Interim Reanalyses in order to estimate the errors in Transpose AMIP simulations due to “imperfect” initialization.
- Use Transpose AMIP to evaluate the influence of clouds parametrization on the errors of large scale dynamics
- Use Transpose AMIP to evaluate the sensibility to resolution of the parametrization of convection
- Aquaplanet experiments

Merci !