

# Evaluation of the LMDZ model in a weather-forecast mode

Journées MISTERRE

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# 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

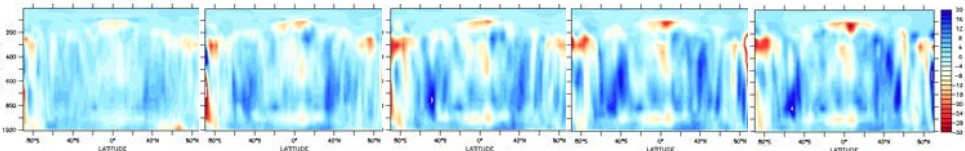
day1-fc

day2-fc

day3-fc

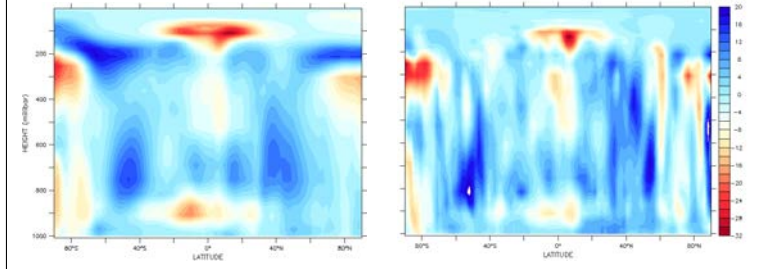
day4-fc

day5-fc

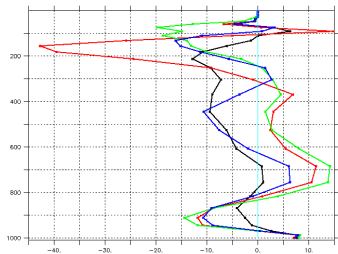


10yr. Clim.

day5-Fc.

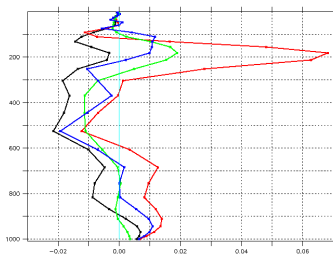


## Relative Humidity Bias

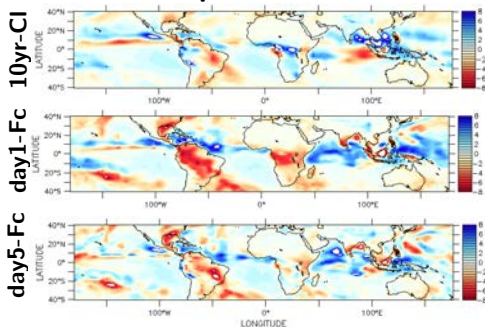


→ day1-Fc  
 → day3-Fc  
 → day5-Fc  
 → 10yr-Clim

## 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 !**