

On the relationship between dynamics and tropospheric radiative heating in the tropics: observational analysis and evaluation of climate models



Romain Roehrig^{1,2} and Sandrine Bony¹

¹Laboratoire de Météorologie Dynamique, IPSL, CNRS, Paris, France.

² contact: romain.roehrig@lmd.jussieu.fr

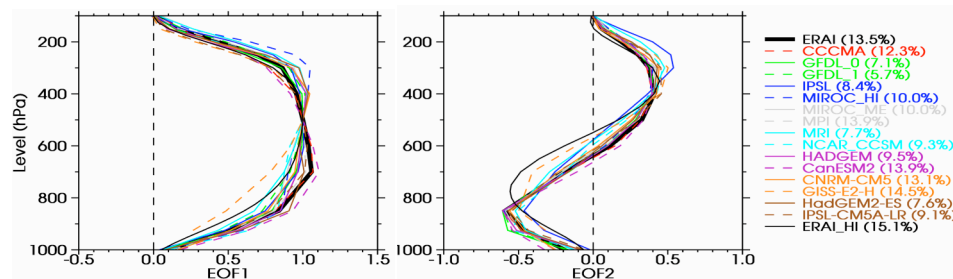


Motivation

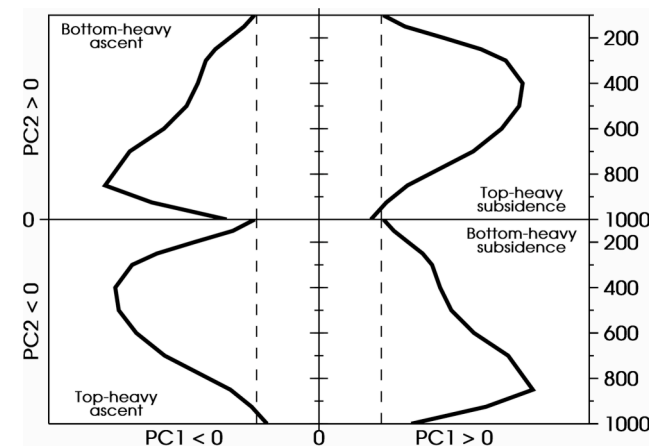
- Characterization and understanding of relationships between cloud properties, tropospheric radiative heating and local/large-scale atmospheric circulations and climate variability are key to improve GCMs.

Objective: elaborate a framework to diagnose GCM biases in their representation of **tropospheric** radiative heating and its relationship with cloud properties and local dynamics.

Decomposition of vertical velocity (Yuan and Hartmann 2008)...



... and composite in this 2D space:



Application to “observations” and CMIP3/CMIP5 model outputs