

A1: Changing patterns

Michela Biasutti, Sandrine Bony, Jean-Louis Dufresne, Qiang Fu, Sandy Harrison, Isaac Held, Brian Hoskins, Camille Risi, Ted Shepherd, Adam Sobel, Bruce Wielicki

- Land-sea contrast (tropics vs extratropics?)
 - Consistency with paleo record of hydrological cycle over land
 - Monsoons in particular?
- East-west Pacific SST gradient (El Nino-like vs La Nina-like)
- Latitudinal shifts of jets, widening of tropics
 - Role of moisture fluxes?
- Linearity of pattern changes with global-mean surface temp?
- Seasonal as well as spatial “patterns”, e.g. delay of monsoon onset
- Effect of diabatic heating on blocking
- Brewer-Dobson circulation in the stratosphere
- ITCZ shift, including in paleoclimates (emergent constraints)
- Persistent jet regimes

- Are there patterns that relate to climate sensitivity?
 - Maybe focus on land-ocean contrast or latitudinal gradient
- MJO, self-aggregation, relation between variability and mean biases
 - How to group the different convection schemes?
- Different circulation responses to different forcings?
- Need to focus on robust as well as non-robust behaviour; robust still needs to be understood in terms of mechanisms
- Need to focus on synoptic aspects of model behaviour, including circulation-related extremes
- Need to mimic the space of CMIP5 models within a more controlled modelling framework, to understand parameter sensitivity
- How to relate paleo differences in models to modern differences (emergent constraints)