Coupled Models and Climate Change

Marat Khairoutdinov   *Climate during the Paleocene-Eocene Thermal Maximum (PETM) as simulated by the SP-CAM*

Rachel McCrary   *The West African Monsoon in SP-CCSM*

Cristiana Stan   *Preliminary results from 4xCO2 SP-CCSM*

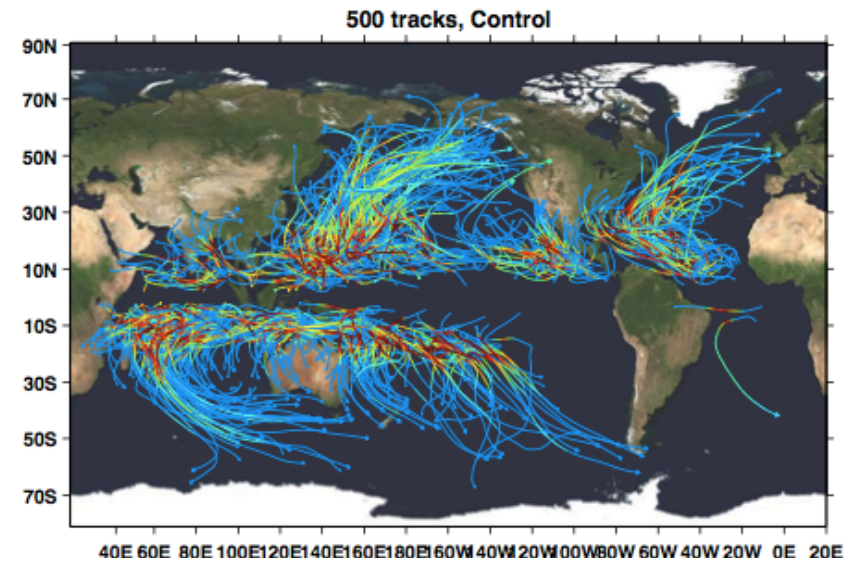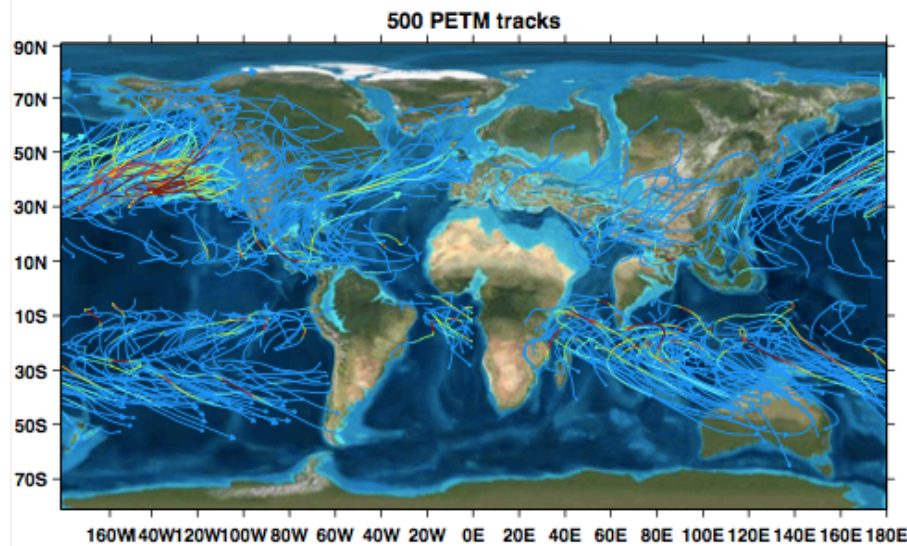Charlotte DeMott   *The Monsoon Intercomparison Project*

All   *Future Plans/Strategy*

Marat Khairoutdinov

Climate during the Paleocene-Eocene Thermal Maximum (PETM) as simulated by the SP-CAM

Kerry Emanuel's Downscaled Hurricane Climatology

TC possible tracks

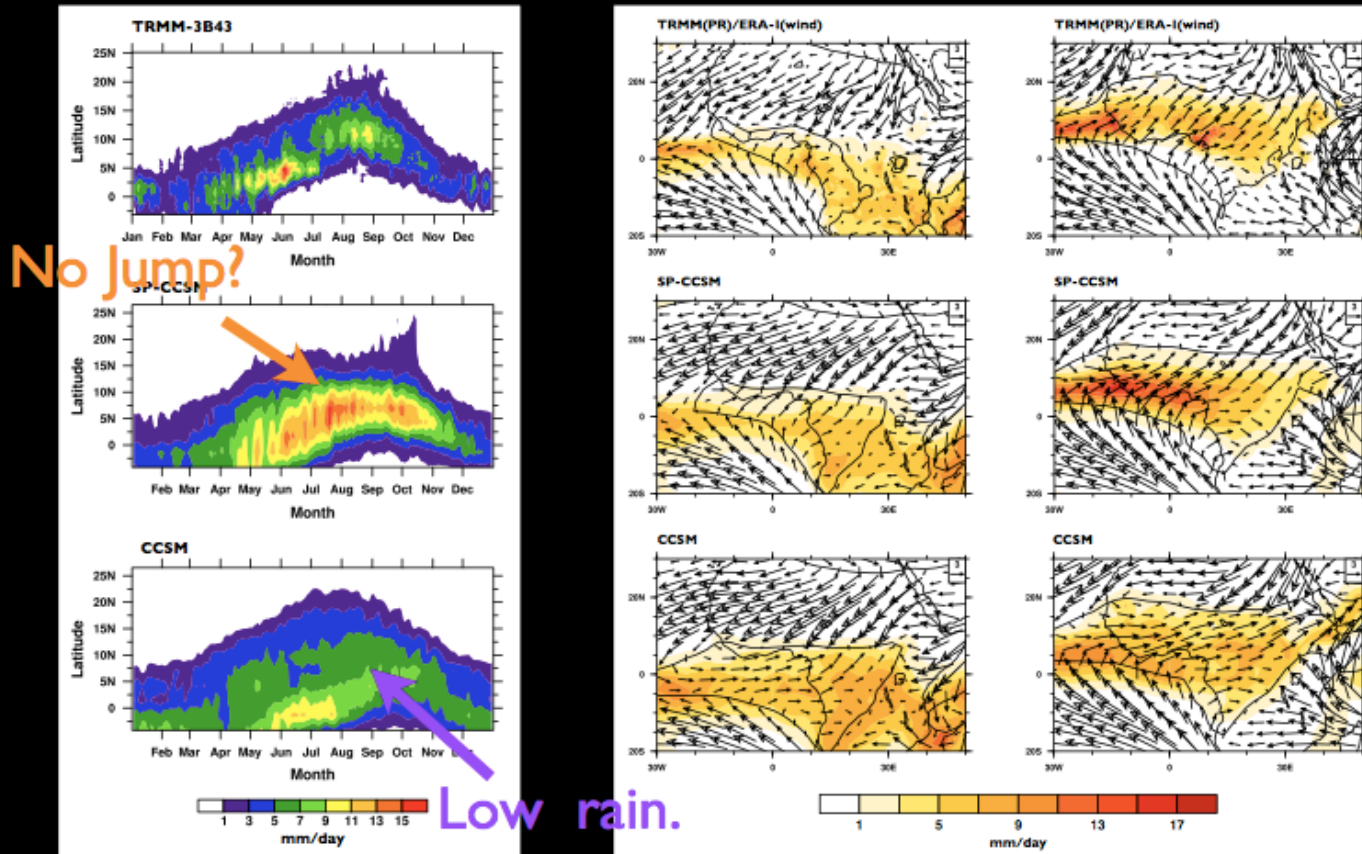
During the PETM, the location of TC activity was shifted towards higher latitudes than in the current climate and the intensity is weaker.

Rachel McCrary   *The West African Monsoon in SP-CCSM*

The amplitude of seasonal cycle of precipitation associated with the West African Monsoon is larger than observed.
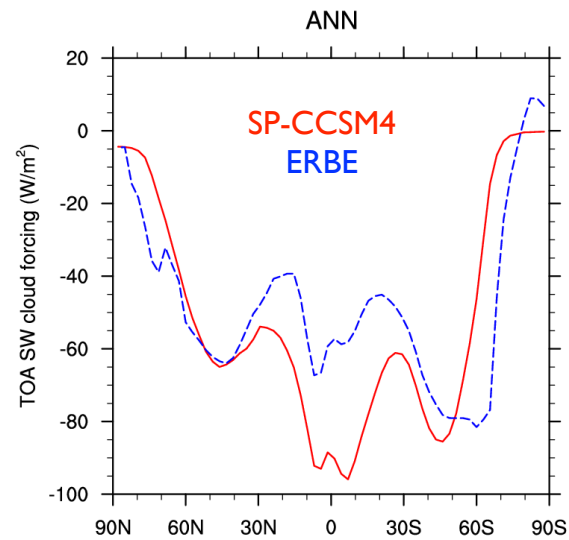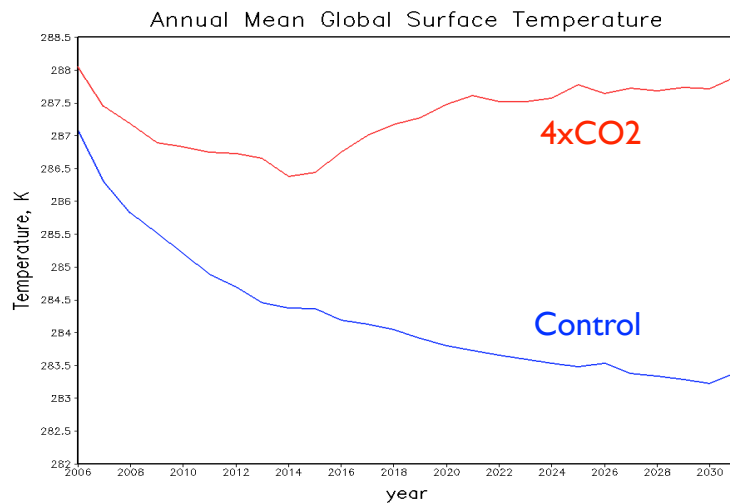The observed jump is not captured by the model.

Cristiana Stan *Preliminary results from 4xCO2 SP-CCSM*

30 year 4xCO2 run with SP-CCSM4
30 year 1xCO2 run with SP-CCSM4 (control)

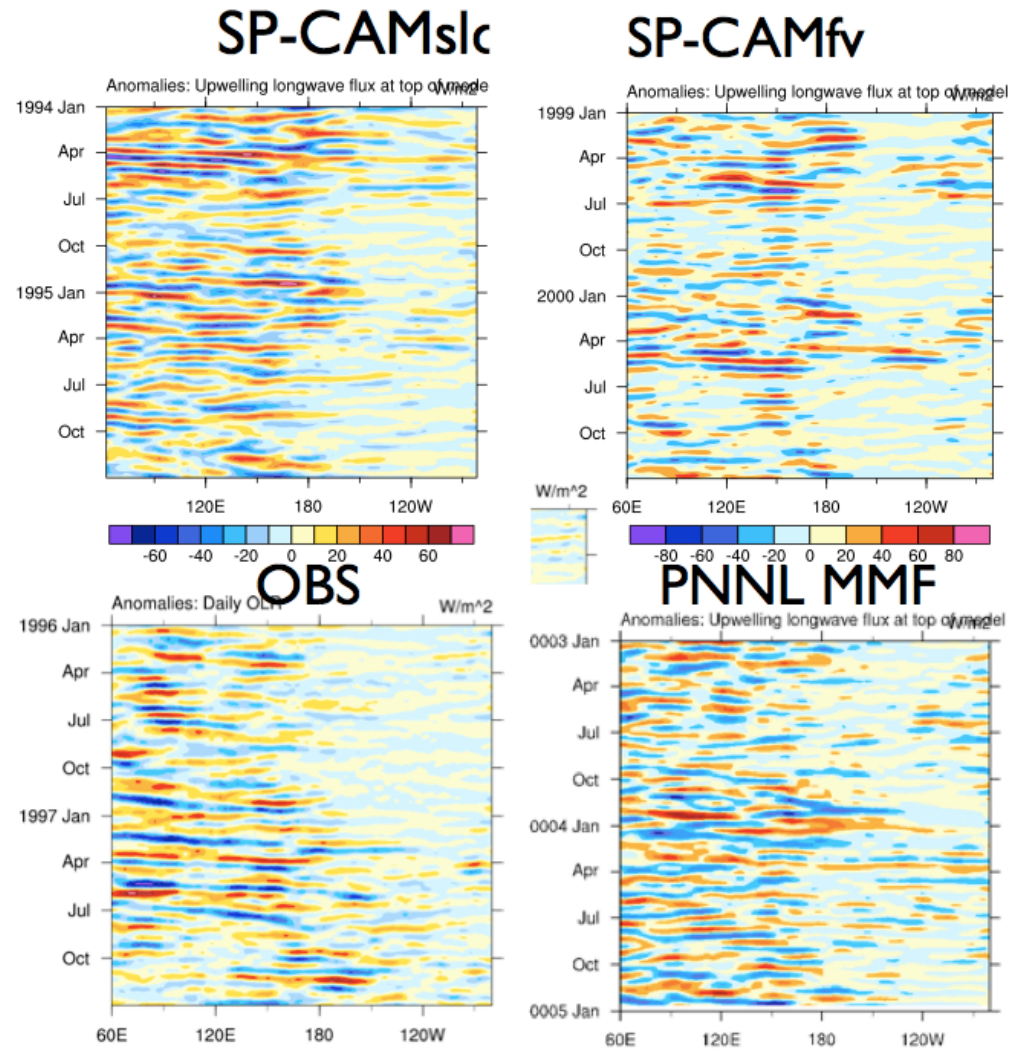# Control run has ~4.5K cold surface temperature bias

Primarily influenced by SWCF bias in tropical high clouds

Charlotte DeMott   *The Monsoon Intercomparison Project*

20-100 day OLR HovMueller

SP-CAMslc

SP-CAMfv

OBS

PNNL MMF

SP-CAMfv does not simulate sustained ISO variability.
PNNL MMF does not simulate coherent ISO variability.

- Analyze SP-CCSM4 for feedbacks, intraseasonal variability
- Work on tuning of SP-CAM4.0(fv)
- Wait for "new" dynamical core or <u>proceed with fv</u>?
- Use fv, but with 1D or 2D microphysics?