

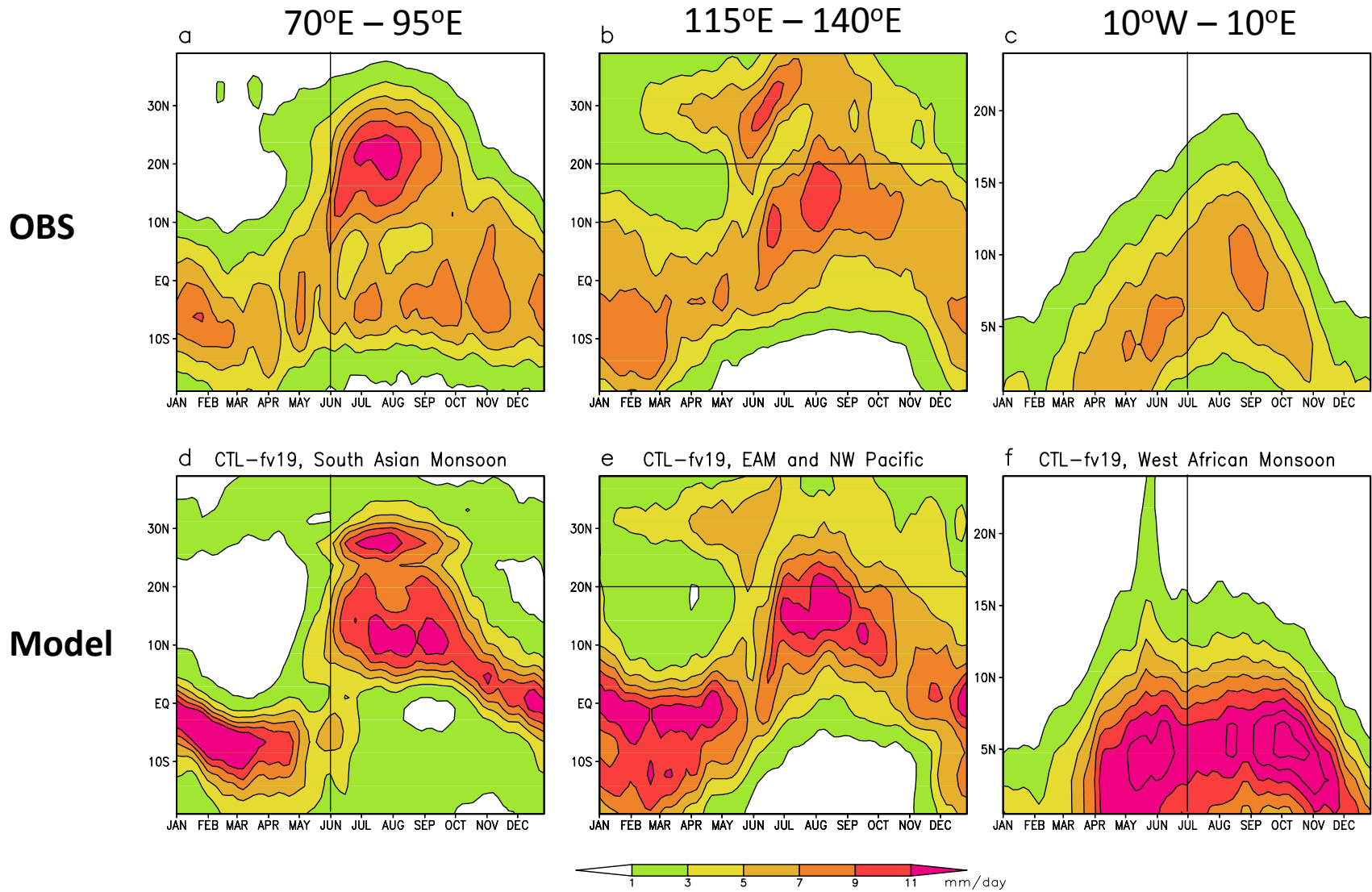
Evaluation of Climate Variability Simulated by SP-CCSM4

Cristina Stan
George Mason University and COLA
and
Li Xu, COLA

Status of Runs

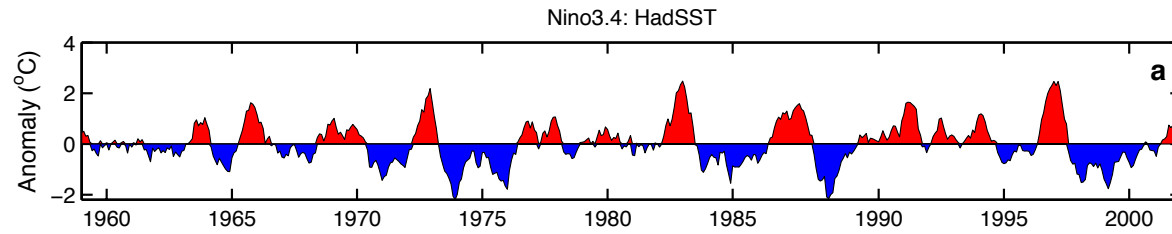
- Control present-day simulation: 2006-2110
- 4xCO₂ abrupt increase simulation: 2006-2012
- Model configuration:
 - 2deg horizontal resolution in the atm and lnd
 - 1 deg horizontal resolution in the ocn and sea-ice
 - CRM horizontal resolution: 4km
 - CRM microphysics: SAM1MOM

Seasonal Variability

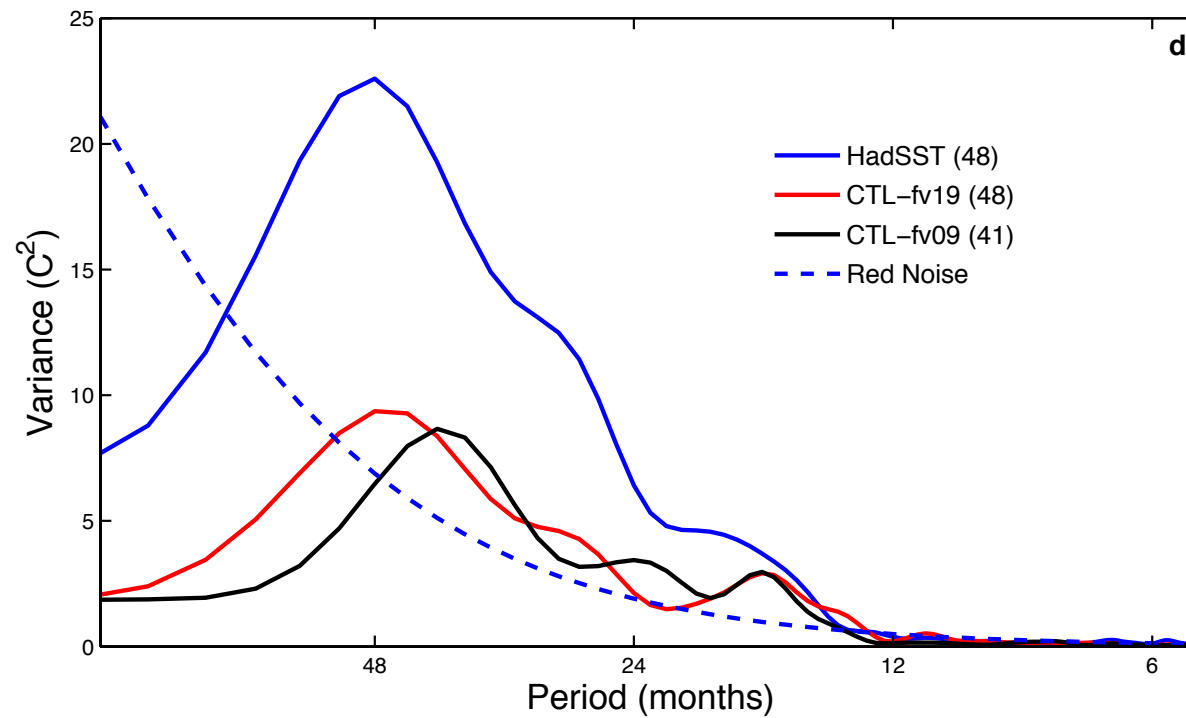
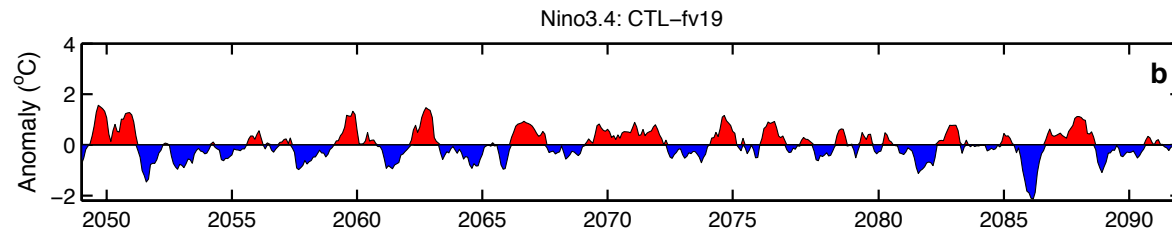


ENSO Simulation

OBS



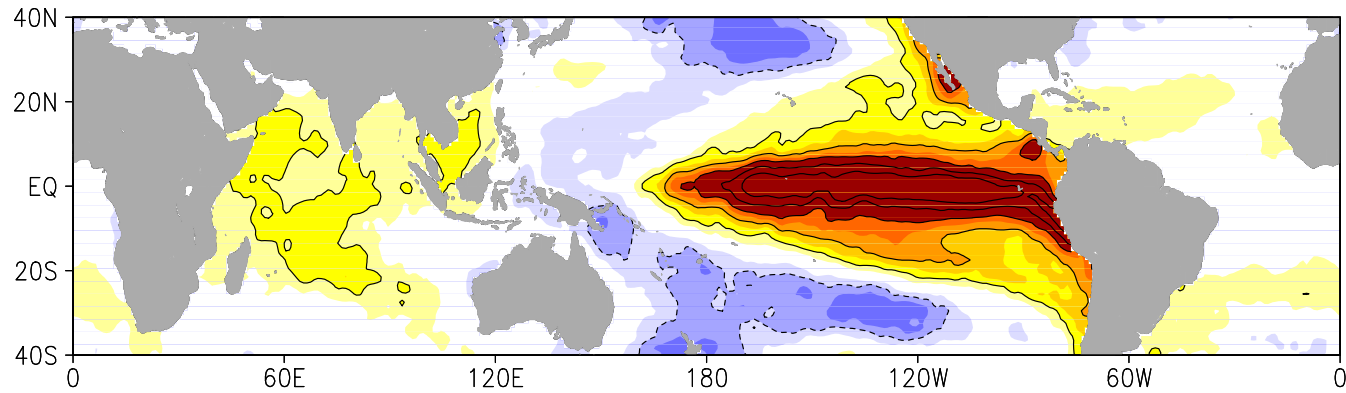
Model



ENSO Simulation

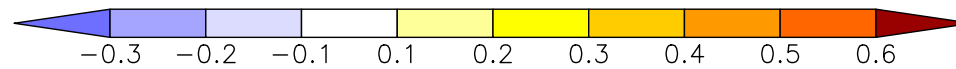
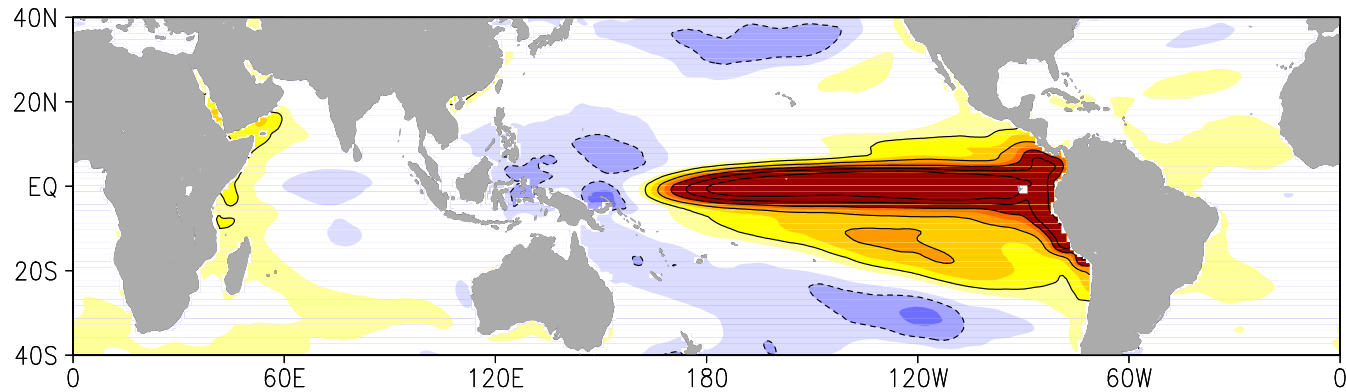
SSTA Regression with NINO3.4: HadISST

OBS

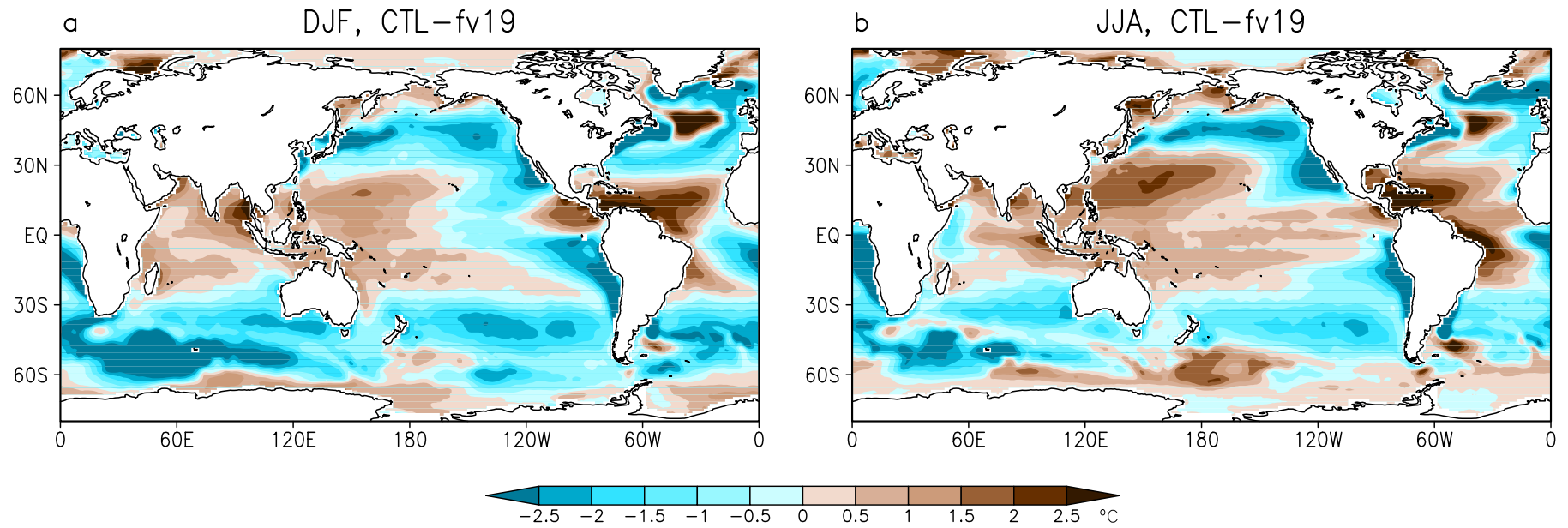


SSTA Regression with NINO3.4: CTL-fv19

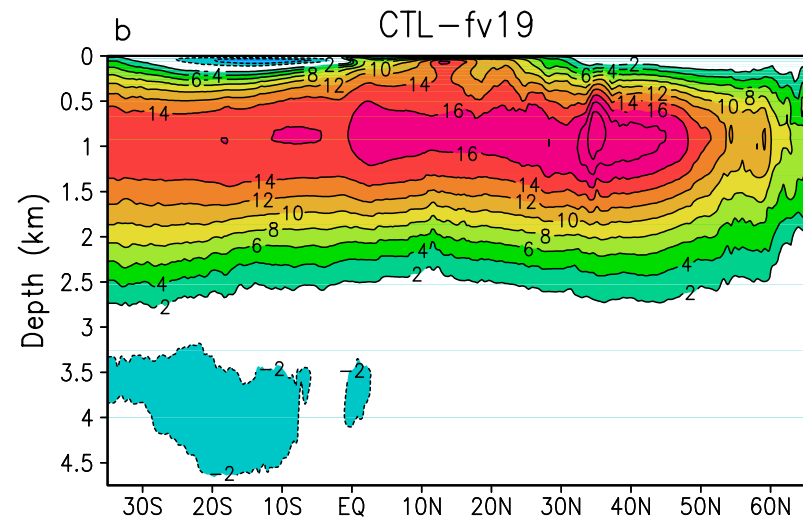
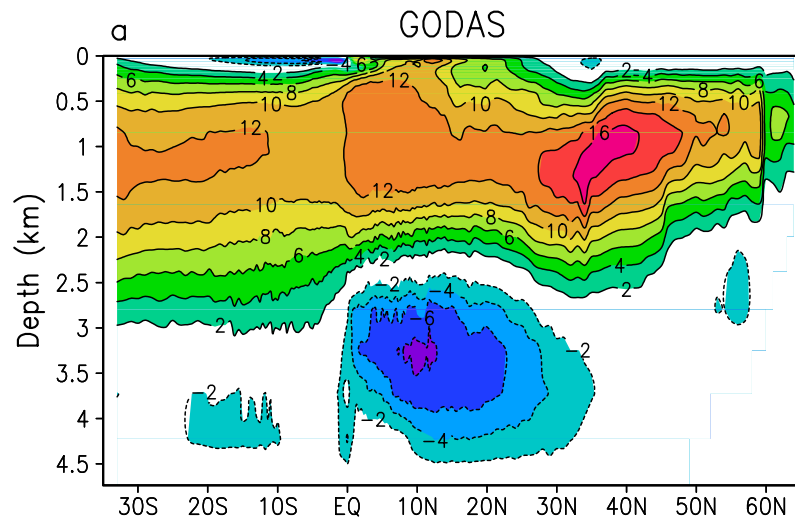
Model



SST Bias (OBS-Model)

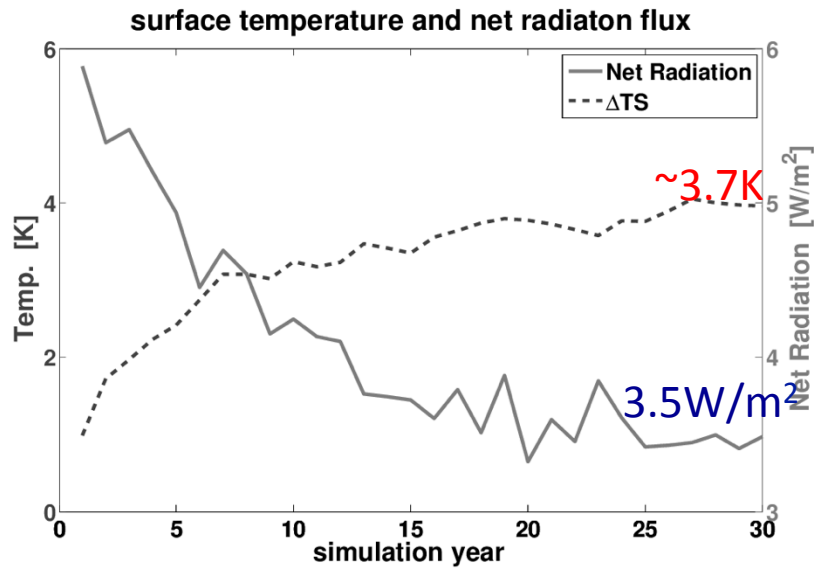


Atlantic Meridional Overturning Circulation



Update on Model's Climate Sensitivity

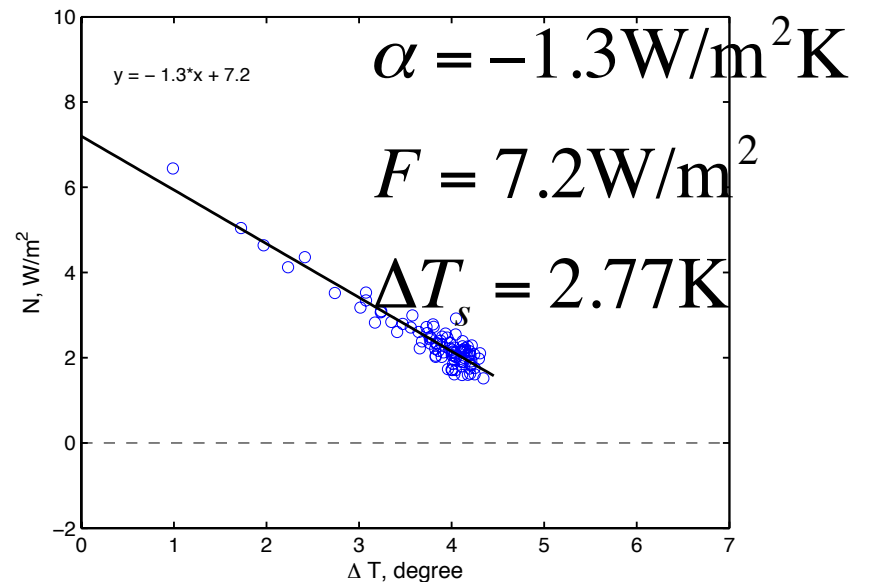
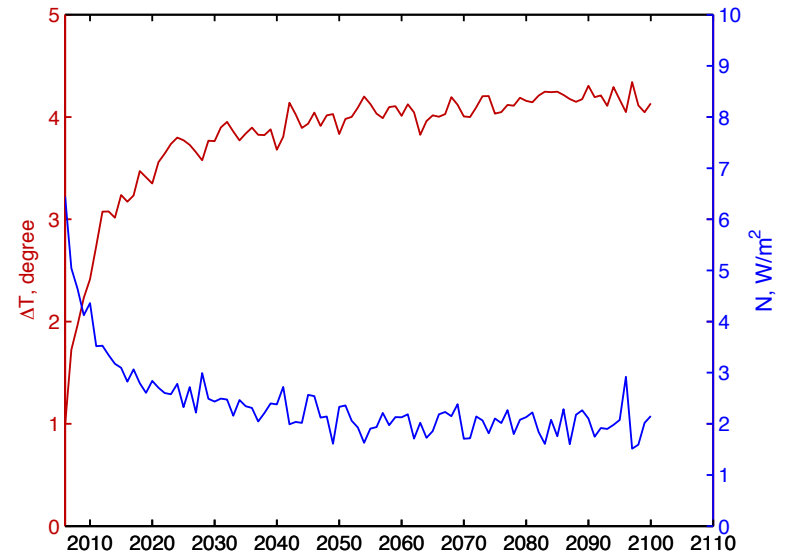
CMMAP Team Meeting , August 2012
Fort Collins, Colorado



$$\alpha = -0.92 \text{ W/m}^2 \text{ K}$$

$$F = 7.07 \text{ W/m}^2$$

$$\Delta T_s = 3.84 \text{ K}$$



Courtesy of Li Xu

Climate Simulations and Projections with the Super-Parameterized CCSM4, JAMES.
Lead Author: Cristina Stan

East Asian Summer Monsoon in the Super-Parameterized CCSM4.
Lead Author: Yan Jin

The Influence of Climate Change on the East Asian Summer Monsoon.
Lead Author: Yan Jin

Cloud Change and Cloud Radiative Feedback to an Abrupt Quadrupling CO₂ in Super-Parameterized CCSM4, GRL.
Lead Author: Li Xu

Land Surface Processes in the Super-Parameterized CCSM4.
Lead Author: ?