

Geophysical Research Abstracts,
Vol. 10, EGU2008-A-00277, 2008
SRef-ID: 1607-7962/gra/EGU2008-A-00277
EGU General Assembly 2008
© Author(s) 2008



Relationship between trends in land precipitation and tropical SST gradient

C. Chung and V. Ramanathan

Scripps Institution of Oceanography, USA

- 1 Land precipitation trend from 1951 to 2002 shows widespread drying between 10°S to 20°N but the trend from 1977 to 2002 shows partial recovery. Based on general circulation model sensitivity studies, it is suggested that these features are driven largely by the meridional SST gradient trend in the tropics. Our idealized CCM3 experiments substantiate that land precipitation is more sensitive to meridional SST gradient than to an overall tropical warming.**
- 2 Various simulations produced for the IPCC 4th assessment report demonstrate that increasing CO₂ increases SST in the entire tropics non-uniformly and increases land precipitation only in certain latitude belts, again pointing to the importance of SST gradient change. Temporally varying aerosols in the IPCC simulations alter meridional SST gradient and land precipitation substantially. Anthropogenic aerosol direct solar forcing without its effects on SST is shown by the CCM3 to have weak but non-negligible influence on land precipitation.**