Future Changes in Tropical Precipitation

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Changes in Mean Rainfall

2081-2100 - DJF

- Rainfall change in tropical Pacific are coincident with an equatorial peak in SST warming across the Pacific
Tropical Precipitation Changes
Chadwick et al., 2013

(a) $\Delta P$

moisture availability $\Delta P_T$

RH changes $\Delta P_{RH}$

circulation changes $\Delta P_{spat}$

circulation weakening $\Delta P_{div}$

(f) $\Delta P_{NL}$
Extreme El Niños

Do changes in the mean cause changes in ENSO rainfall response or does the ENSO rainfall response rectify the mean?
Changes in Mean Rainfall

• Although the models agree, there are common SST biases in this region. Model agreement ≠ robustness
New CLIVAR Atmosphere-Ocean Climate Dynamics Panel

- 34th WCRP JSC identified a gap in the domain of atmospheric/climate dynamics
- Focus on modes of variability and phenomena in which atmospheric dynamics play a leading role, as well as on local-to-basin scale ocean-atmosphere interactions common to multiple basins
- Discussion on scientific focus during this week, e.g.
  - Storm tracks and weather systems
  - Processes for mid-latitude air-sea interactions
  - Teleconnections and their interactions
  - Climate phenomena and their relevance for regional climate change