



Role of 20th tropical precipitation on ENSO amplitude changes due to greenhouse warming in CMIP5

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This study examines the relationship between the intermodel diversities of the present-climate climatology and those of ENSO amplitude change under global warming in the Coupled Model Intercomparison Project phase 5 (CMIP5) models. The models with increased ENSO amplitude under greenhouse warming (i.e. 'ENSO-amplified models') tend to simulate a 20th century stronger climatological ITCZ and SPCZ over the central-eastern Pacific that are located further away from the equator during boreal spring. Moisture budget analysis indicates that those climatological differences lead to stronger positive climatological precipitation change over the off-equatorial central-eastern Pacific under greenhouse warming. The stronger positive climatological precipitation change enhances the air-sea coupling strength over the central-eastern Pacific, which leads to increase the ENSO amplitude.