Investigating extremes: droughts and rainfall using biased corrected high resolution datasets in SAM and CAM

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Objective

Use RCMs and a statistical downscaling method to reproduce extremes: drought and rainfall, in the present day and future projections for tropical latitudes (SAM and CAM)

Methods and data

- Observed historical data:
  - Precipitation: CRU, GPCC, CHIRPS, PERSIANN
  - Temperature: NCEP, AGMERRA
- Modelled data:
  - GCM: HadGEM, MPI, CESM1-CAM5
  - RCM: ETA, RegCM, PRECIS
- Method:
  - SPEI and KBDI index to identify drought events
  - 95 Percentile for rainfall
  - Statistical Downscaling Method RCMES using NEX-GDDP

Expected results

- Quantified magnitude and frequency of the extremes

- Quantified Continuous Dry Days (CDD) and number of hot days

- Quantified the spread of the GCMs and the spread of the biased corrected RCMs and statistical downscaled outcomes

- Timeline: 1 year