Data and Products Fri Mar 29 01:30:21 HST 2024

Name	21st Century Rainfall Projections for Hawaii
Capability Area	- Understanding Climate Variability and Change
Focus Area	- Fresh Water Resources and Drought - Coastal Inundation/Sea Level Rise, Extreme Weather, and Community Resilience
Regions	- Central North Pacific - State Of Hawaii
Products/Physical	- Products - Physical - Outloooks (monthly to annual) - Impacts - Drought - Spatial Scale - Location/Site - Time Scale - Future - Methodology - Obs/In-situ - Model/Dynamical - Projections (intrannual to multi-decadal) - Atmospheric (e.g., Air Temperature, Rainfall, Wind Speed and Direction)
Sectors	- Fresh Water Resources - Community Planning and Development - Agriculture and Fisheries - Ecosystems

Description	This project uses climate diagnostics to analyze past and recent variability and trends in regional climate over the Hawaiian Islands. Priority is given to the analysis past and future changes in the rainfall pattern including seasonal mean changes, low and high rainfall anomalies and frequency changes in heavy/extreme rainfall events. Station observations are used to derive empirical statistical relationships between the large-scale Pacific climate modes and regional changes. Building upon these diagnostic studies, statistical downscaling methods are deployed to estimate future climate changes over the main Hawaiian Islands for the mid and late 21st century. Seasonal rainfall, daily variability, frequency of dry/wet spells, and the frequency of extreme storm events are estimated from recent CMIP5 climate change scenarios. This project compliments dynamical modeling research in Hawaii. The statistical methods are developed to address Hawaii's unique geographic and climatic features. It makes use of the updated Rainfall Atlas of Hawaii data products, the HaleNet high-resolution climate monitoring array, and next-generation climate data sets currently under development in other research projects. Products from the statistical downscaling contain high-resolution seasonal mean rainfall scenarios for the mid and late 21st century which can be implemented within GIS applications and standard statistical software tools.
Lead Agencies	UH/SOEST, IPRC, PICCC
Contacts	Oliver Elison Timm, timm@hawaii.edu