Projects and ActivitiesThu Mar 28 00:07:17 HST 2024

Name	Water Resources on Guam: Potential Impacts and Adaptive Response to Climate Change for Department of Defense Installations
Capability Area: Variability/Changes	- Understanding Climate Variability and Change - Projections (modeling and downscaling)
ECV	- Surface (e.g., temp, precip, wind) - Upper-Air - Surface (e.g., SST, SSH, salinity, ocean color) - (e.g., surface water, glaciers and ice caps, land cover, biomass)
Timeframe	- Intra-annual to Decadal - Multi-decadal (scenarios)
Capability Area: Impacts/Adaptations	- Understanding Climate Impacts and Informing Adaptation - Climate Impacts - Research/Development - Projections (modeling and downscaling) - Climate Adaptation - Training and Capacity Building, Education, Outreach - Decision Support Tools - Assessment and Evaluation
Sectors	- Public Health and Safety - Fresh Water Resources - Transportation/Communication and Commerce - Agriculture and Fisheries
Status	- Planned
Focus Area	- Fresh Water Resources and Drought - Marine and Terrestrial Ecosystems
Regions	- Western North Pacific - Guam

Description	A grant from the Department of Defense (DoD) will support a four-year evaluation of potential adverse climate change impacts on DoD installations that rely on Guam's surface water and groundwater resources. A diverse team of investigators from the U.S. Geological Survey, the East-West Center Pacific RISA program, the University of Hawaii International Pacific Research Center, the University of Texas, and the University of Guam will be concerned with the following questions: 1) How will streamflow, sediment loads, and turbidity be modified and how will this affect surface water availability?; 2) How will groundwater recharge and salinity be modified?; 3) What are climate change impacts to DoD infrastructure supplying surface water and groundwater, and what are the adaptive strategies to maximize the water resources?; and 4) How will information about potential climate change impacts be communicated to water managers evaluating and implementing adaptive strategies?
Objectives/Outcomes	Following quantitative assessments of groundwater recharge and the evaluation of climate change-induced modifications, climate change information generated by this study will be linked to water resource managers in Guam, and support the development and evaluation of hydro-climatology information tailored to stakeholders. The range of possible future scenarios will also be considered so that an appropriate adaptive management strategy can be implemented as information on climate change is refined in the future. Information generated by this research will yield practical benefits to the DoD by characterizing the efficacy of different management strategies and adaptations to projected climate change on Guam. Furthermore, the approach used for this study can be transferred to other islands where water resources are critical for military operations.
Lead Agencies	USGS - Pacific Islands Water Science Center, East-West Center - Pacific RISA program, University of Hawaii - International Pacific Research Center, University of Texas, University of Guam
Contacts	Stephen Gingerich, sbginger@usgs.gov Stephen Anthony, santhony@usgs.gov Melissa Finucane, finucanem@eastwestcenter.org Victoria Keener, keenerv@eastwestcenter.org
Projected Timelines	2014-2018