

## BACK TO THE FUTURE: USING HISTORIC CLIMATE ANALOGS TO MAP CLIMATE CHANGE VULNERABILITIES IN THE MARIANA ISLANDS

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The Commonwealth of the Northern Mariana Islands (CNMI) is located in the most prolific tropical cyclone basin in the world, and is subject to extreme fluctuations in sea level and precipitation in response to annual and decadal atmospheric processes. This variability has created an extensive record of climate extremes, while creating challenging conditions for many island communities. The CNMI's Coastal Zone Management Program is utilizing this local climate record as a means of assessing the Islands' vulnerabilities to future climate change scenarios. In 2014, participatory mapping workshops were held in village centers on the islands of Tinian and Rota to capture location-based narrative about the impacts and responses to historic climate extremes. Site-specific impacts from droughts, typhoons, storm surge, and heavy precipitation were identified through extensive interviews with village residents and resource managers, coupled with GPS data collection and digitization using satellite imagery. Corresponding data from weather stations and tide gages throughout the Marianas were joined to these site-specific climate stories, establishing a quantitative basis for comparing past experiences to future climate projections. This presentation highlights the development of these spatially-explicit climate analogs, including the process of data integration, results of climate scenario comparisons, and the creation of web mapping applications to communicate climate stories and vulnerabilities. Emphasis is placed on the central role geospatial technology played in the synthesis of quantitative and qualitative data, and the potential utility of a place-based climate analog approach for other locales.