**NASA DEVELOP National Program**

**** NOAA National Centers for Environmental Information

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**Short Title: Pacific Water Resources**

**Updated Abstract**

The over 2000 islands in the United States Affiliated Pacific Islands (USAPI) are highly susceptible to extreme precipitation events such as drought and flooding which directly affect their freshwater resources. Precipitation distribution differs by sub-region, and is predominantly influenced by phases of the El Niño Southern Oscillation (ENSO). Forecasters currently rely on ENSO climatologies from sparse *in situ* station data to inform their precipitation outlooks. This project provided an updated ENSO-based climatology of long-term precipitation patterns for each USAPI Exclusive Economic Zone (EEZ) using the NOAA PERSIANN Climate Data Record (CDR) for the purposes of filling the spatial *in situ* station void. This data provided a 30-year record of daily precipitation at 0.25° resolution across the USAPI. Results indicated that while the PERSIANN precipitation accurately describes the monthly, seasonal, and annual trends, it under-predicted the precipitation on the islands. The lowest mean seasonal precipitation during moderate to strong El Niño years occurred from January through April in all of the USAPI except the Hawaiian Islands and American Samoa. During moderate to strong El Niño years, the Inter Tropical Convergence Zone (ITCZ) shifts to the east and lower precipitation occurs in the Federated States of Micronesia, Palau, and the Republic of the Marshall Islands. Providing regional scale precipitation maps using the seven phases of the Ocean Niño Index (ONI) for the USAPI chains will lead to a better understanding of the likelihood of precipitation or drought occurring in their regions.