**NASA DEVELOP National Program**

**** NOAA National Centers for Environmental Information

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**Short Title: Pacific Water Resources**

**Updated Abstract**

There are over 2000 islands in the United States Affiliated Pacific Islands (USAPI), which are highly susceptible to extreme events such as drought and flooding. These extreme events directly affect fresh water resources because of the dependence on precipitation. Precipitation distribution differs by sub-region, and are 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. The PERSIANN CDR provided a 30-year record of daily precipitation at 0.25° resolution across the USAPI. Results indicate that while the PERSIANN precipitation accurately describes the monthly, seasonal, and annual trends, it under predicts 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 will lead to a better understanding of the likelihood of precipitation or drought occurring in their regions.