



## WATER RESOURCES RESEARCH GRANT PROPOSAL

**Project ID:** 2003GU19B

**Title:** Development of Annual Rainfall Distribution Map for Island of Pohnpei State, Federated State of Micronesia

**Project Type:** Research

**Focus Categories:** Non Point Pollution, Hydrology, Management and Planning

**Keywords:** Rainfall, Soil Erosion, Water Resources Development

**Start Date:** 03/01/2003

**End Date:** 02/29/2004

**Federal Funds:** \$31889.00

**Matching Funds:** \$0.00

**Congressional District:** N/A

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**Abstract:** Existing annual rainfall maps for most of the islands of Micronesia are incomplete, inaccurate, and/or non-existent for many areas. This has created problems in many areas such as; 1) difficulty in estimating the rainfall erosivity factors that are being used for erosion protection and identification of land slide areas, 2) difficulty in developing infrastructure for storage and distribution of surface water, 3) difficulty for disaster managers to better understand the processes that lead to slope failure and local stream flooding and, 4) difficulty in planning and design of hydro electrical power plants for future power production. The objective of this project is to acquire, compile, and analyze rainfall data from a transect of manual and electronic recording rain gages to produce accurate annual rainfall maps for Pohnpei. Also to be determined are any differences in short-term rainfall distribution as a function of wind direction and precipitation event type. The network of manual and electronic rain gages in the highlands of Pohnpei will determine whether fog drip is an important contributor to water quantity in the higher elevations of the island. To accomplish the objective of this project a site will be selected in the central high island of Pohnpei. The following activities will be implemented:

1. Manual rain gages that include four-foot tall, 6-inch PVC pipes will be designed and a unit assembled within the confines of the already existing WERI dense rain gage network.
2. The manual rain gages designed for Pohnpei, and the tipping bucket gages intended for use at Pohnpei, will be evaluated by comparison to known accurate rain readings obtained at the WERI site.
3. The WERI project investigators will travel to Pohnpei to locate and assemble the rain gage transect.
4. The WERI project investigators will travel to Pohnpei at least once every three months to perform maintenance on the rain gages and to collect data.
5. After the third data collection (~ 9 months into the data collection effort), the WERI project investigators will begin to assess the differences among rain collection along the transect.
6. A map (such as Figure 1) of the annual rainfall at Pohnpei will be produced.
7. The contribution of fog drip to the water budget of the highlands will be assessed.

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