

Pacific Islands Climate Change Cooperative



The Big Picture: mapping land cover in the Mariana Islands to help track future changes

The Mariana Islands currently lack basic information about the distribution of vegetation and ecosystem types, known as land cover, which is foundational for many ecological studies. In particular, land cover serves as a baseline from which change can be measured, whether natural or as a result of human activity.

The Mariana Islands Archipelago encompasses 14 islands of the U.S. Commonwealth of the Northern Mariana Islands (CNMI), the U.S. Territory of Guam, and numerous offshore banks spread over 290 kilometers in the western Pacific Ocean. The islands are often divided into two groups: a northern and a southern island region.

Baseline land cover data are essential for measuring change

Land cover data is available for most, if not all, of the continental U.S. and underpins capabilities for representing complex habitats and ecological systems, assessing the impacts of climate change, and understanding the conservation practices that help to preserve vital ecosystem functions and benefits. This baseline information is currently lacking for most of the Mariana Islands.

Obtaining reliable baseline data is a necessary and important step toward developing and refining predictive tools that can help guide the conservation of native species, communities and ecosystems in rapidly changing island environments. These baseline data are an important starting point for

evaluating the potential impact of climate change on native ecosystems and invasive plant species, which are a [noted threat to terrestrial systems](#) throughout the Marianas.

Recognizing both the importance of baseline information and the physical challenges of working in the Mariana Islands, the [Pacific Islands Climate Change Cooperative](#) is supporting a project to develop and disseminate this baseline land cover data. It will be high resolution, based on satellite imagery, and will cover each of the main Mariana Islands (Guam, Rota, Saipan, Tinian, and Aguiguan). If imagery is available, land cover will also be developed for the smaller northern Mariana Islands (Farallon de Medinilla, Anatahan, Sarigan, Guguan, Alamagan, Pagan, Agrihan, Asuncion, Maug [3 islets] and Uracas).

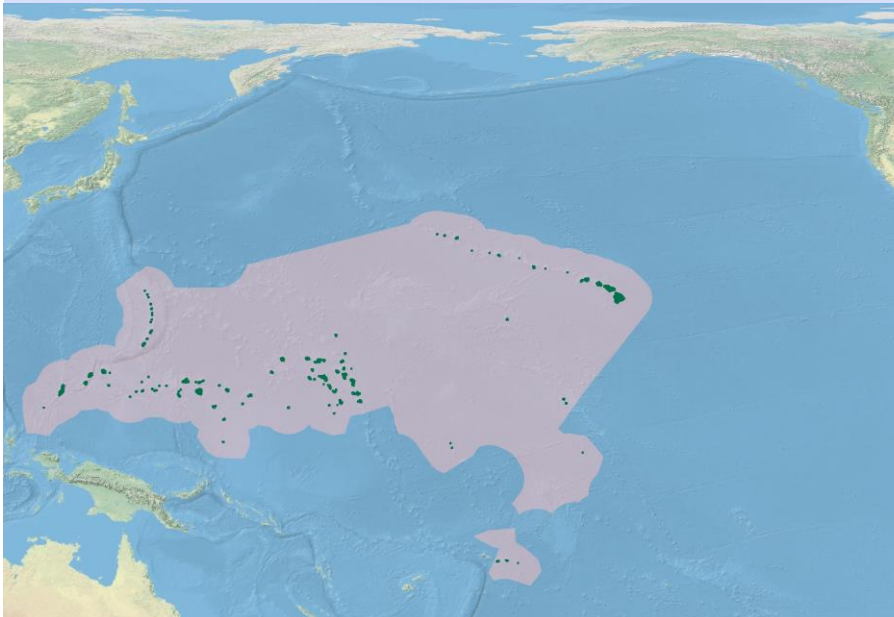


Engaging resource managers for maximum utility

To the extent feasible, classification and delineation of land cover types will incorporate previously developed vegetation and freshwater system classification schemes available for these islands. Project scientists will engage the Commonwealth Department of Lands and Natural Resources through co-participation in field work, briefings on potential product uses, and reviews of preliminary products to ensure accuracy and maximum utility to resource managers. Final products will be made freely available to the Department and other resource managers and researchers. To assure an accurate assessment, scientists will focus on selected areas to ground truth and adjust the land cover analysis. For more details about this project, visit the PICCC projects page: piccc.net/our-projects.



The map below depicts the PICCC geography, which includes Hawai‘i, American Sāmoa, Guam, the Northern Mariana Islands, the Marshall Islands, the Federated States of Micronesia, Palau and 4 Marine National Monuments.



Banner photo of taro by Starr Environmental; Tinian Island from the air by US Pacific Air Forces; Guam by NASA Earth Observatory - all on Flickr

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Project Partners

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[US Geological Survey](#)

The Pacific Islands Climate

Change Cooperative (PICCC) was established in 2009 to assist those who manage native species, island ecosystems, and key cultural resources in adapting their management to climate change for the continuing benefit of the people of the Pacific Islands. The PICCC provides a range of services and tools to help managers in Hawai‘i, the Mariana Islands, American Sāmoa, and other Pacific Island groups make informed decisions for conservation of natural and cultural resources including climate models at the scale of islands and archipelagos, ecological response models, and implementation and monitoring strategies for island species, resources, and communities. Our goal is to help managers reach explicit biological and cultural conservation objectives in the face of climate change and ongoing threats such as fire, land conversion, and invasive species.

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