

Climate change is real threat to Hawaii

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Today, most Pacific island communities have stories of beaches eroding, droughts worsening, streams drying up, storm surge inundating crops or homes, and native species being harder to find — and Hawaii is no exception.

In contrast to the deafening silence regarding climate change during the recent U.S. presidential campaign and the lack of interest from Washington in the United Nations climate talks in Doha, Pacific islanders are hollering about indicators and impacts of the changing climate.

Their concerns are supported by the findings of a report we released this week from the Pacific Islands Regional Climate Assessment (PIRCA), a collaborative effort of more than 100 scientists and other experts from around the region.

Research in the report tells us that average surface air temperatures have increased significantly, especially at high altitudes in Hawaii. Rainfall has decreased significantly, as has groundwater discharge to streams — by 20 percent to 70 percent over the past 100 years at eight out of nine long-term streamflow gauges in Hawaii. Global mean sea level is rising and ocean acidity is increasing.

Warmer and drier conditions mean that there will be less fresh water on some islands. Reduced rainfall means less groundwater storage, which has serious implications here because 99 percent of Hawaii's drinking water comes from groundwater. Atolls and low-lying islands are especially vulnerable to fresh water shortages due to their small size and limited resources.

Rising sea levels, exacerbated by storms, will increase coastal flooding and erosion, damaging coastal infrastructure and affecting tourism, defense, agriculture and other industries. Flooding and erosion will also reduce shoreline resting areas for endangered species such as Hawaiian monk seals and green sea turtles.

Over the past 30 years, periods of elevated sea surface temperatures have correlated with coral bleaching, which is often followed by coral death and habitat loss for other species. Increasing ocean acidification reduces the availability of minerals, such as aragonite, which are essential building blocks for corals. Scientists estimate that if global carbon dioxide emissions continue at current levels, by 2030 growth conditions will be marginal at best.



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The very heart of Pacific island communities is at risk. Traditional lifestyles of indigenous communities are threatened when coastal sites are destroyed, traditional food crops such as taro are inundated with seawater and the land base that supports unique customs, beliefs and languages is lost.

Pacific islands attract millions of tourists every year and support a large U.S. military presence, both being especially vulnerable to sea level rise and other climate effects. The islands and surrounding ocean are home to some of the most pristine habitat and tremendous biodiversity in the world, which are now at increased risk.

The scientific findings highlighted by the PIRCA report emphasize that leaders have difficult choices to make. Many of the projected impacts of climate change on Pacific islands and their communities are now unavoidable. Timely responses are necessary to improve resilience, and they can be achieved if:

>> Policy-makers and resource managers use existing knowledge about climate variability and change.

>> Researchers work in interdisciplinary teams to ensure that new knowledge provides a comprehensive understanding of how social and ecological systems are responding to atmosphere and ocean changes.

>> Communities partner with scientists and government officials to develop, implement and evaluate climate adaptation strategies across all sectors.

The task for decision-makers is to integrate complex technical information with socioeconomic data and other considerations about what local communities value most. Fortunately, local and regional communication and collaboration provide a strong foundation for adapting to current and future climate challenges. The tradition of “paddling the canoe together” is a clear sign of resilience in Pacific island communities that we should all pay close attention to.

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