

CASE STUDY: Using Climate Forecasts to Save Money and Protect Human Health

When we leave the house in the morning, we often check the local weather forecast and make some quick decisions: *Should I bring an umbrella? How about a sweater?* By assessing the risks and taking action, we are effectively mitigating our vulnerability to weather-related impacts. While most people do not think twice about weighing uncertain weather information and taking action based on their best estimate of risk, it has proved much more difficult for community members, policymakers, and natural-resource managers to integrate climate forecasts into their decision-making processes. By definition, climate risks have longer-term consequences, which make them easier to ignore in the short term. Yet a landfill on the island of O‘ahu in Hawai‘i demonstrated that climate information can be used to make management decisions that save time, money, jobs, and the health of our communities and natural environment.

Each year, the Weather Forecast Office (WFO) in Honolulu uses national El Niño and La Niña outlooks from NOAA to create island-level forecasts for Hawai‘i. In conjunction with the Pacific ENSO Applications Climate (PEAC) Center, the WFO uses television, radio, and print and electronic newsletters to inform policymakers, managers, and communities about the potential seasonal impacts of an El Niño or La Niña event. In October 2010, the Honolulu WFO gave its winter wet-season (October to April) briefing, indicating that due to a moderate-to-strong La Niña (Figure 2.20) developing in the Pacific, O‘ahu could expect above-average winter rainfall.

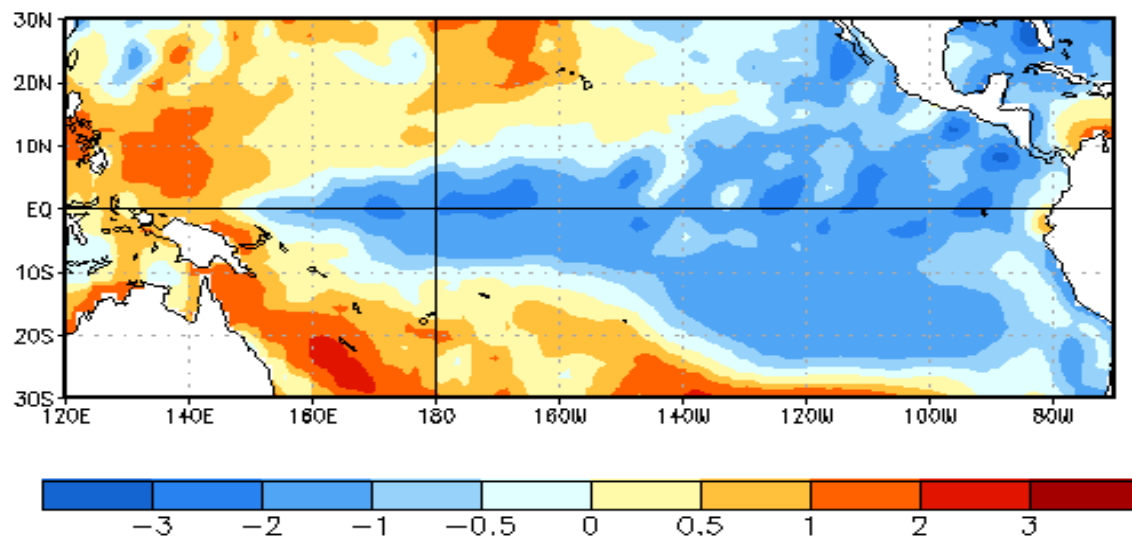


Figure 2.20. The NOAA Climate Prediction Center released a seasonal ENSO outlook indicating La Niña conditions, or colder than average sea-surface temperatures in the equatorial Pacific Ocean. Here, in December of 2010, the plume of cold (blue) water is visibly extending westward along the equator. Image courtesy of NOAA CPC, “December 2011 Sea-surface Temperatures”.

When the Vice-President of an O‘ahu commercial landfill, PVT Land Company in Nanakuli, learned from the WFO outlook that the winter season would be much wetter than usual, his company immediately took steps to mitigate the climate risks. The company’s managers decided to move quickly to upgrade infrastructure that would divert and hold large amounts of storm water. By the end of November, PVT had finished upgrading its storm drainage system and retention ponds.

The dry Nanakuli area usually receives a total of 10 to 14 inches of rain annually, on January 13, 2011, the area received about 10 inches in a single storm. Other local landfills were not prepared to handle the intense rainfall and ended up closing down. They also released hazardous untreated water and waste onto local beaches. But due to their good use of climate forecasts, PVT Land Company was open for business the next day.



The PVT Land Company (left) is O'ahu's only landfill for construction-site waste, and receives over 200 truckloads of construction debris per day. If it were unable to receive waste, construction and trucking jobs on O'ahu would have to slow or cease. In making a fast decision using a seasonal climate forecast, PVT upgraded their storm water drainage system and retention pond (right) to be able to accommodate increased volumes of water received quickly. Photo at left, courtesy of Dr. Victoria Keener; photo at right, courtesy of Bill Lyon, TerraPac, LLC.

By not closing like impacted local landfills, PVT estimates that they saved about one million dollars in gross sales, potential damage to infrastructure, and lost salaries. This estimate does not include the additional financial impacts from the construction and trucking jobs across the island that would have had to slow down or stop had they not been able to properly dispose of their on-site debris, or the savings from avoiding potential litigation had the storm-water system failed.

More importantly, this case demonstrates the actual and potential savings associated with taking an active role in making planning and management decisions based on the best available climate information, as well as the type of successful adaptations that can be accomplished when adaptive capacity in a region and institution is very high. It is often difficult to quantify long-term negative consequences that are associated with failing to act on or make a decision earlier in time; however, the PVT case provides an excellent shorter-term example with quantifiable benefits for policy-makers, scientists, communities, and businesses who are willing to work together to make and act upon climate forecast-based decisions. The PVT landfill continues to use seasonal climate forecasts to inform their mid-range planning process, and is interested to learn about what longer-term local climate projections can assist them with in their goals of continuing a safe and efficient business.

For more information on the PEAC Center or to receive their free regional ENSO forecast newsletter, please visit: <http://www.prh.noaa.gov/PEAC/>