



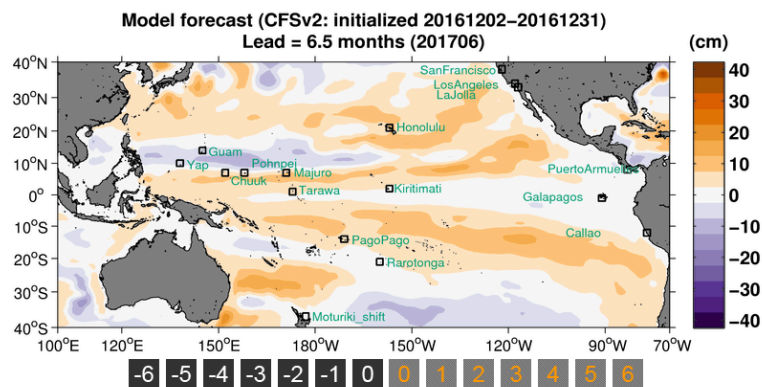
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## Taming the seas, or how a PI-CSC researcher is anticipating sea level extremes using seasonal forecasting

With the global oceans heating up and melting ice adding to their volume, sea level rise is a growing problem for many low-lying islands and coastlines. But the rise of the sea is not a uniform process: climatic phenomena such as the El Niño-Southern Oscillation (ENSO) and the Pacific Decadal Oscillation (PDO) complicate the picture, changing wind patterns and water concentrations across the Pacific Basin through time, and overlaying the regular tidal patterns in complex ways. However, models of these climatic oscillations have improved to the point that their effects can be incorporated into sea level models to produce assessments of the fluctuations they cause in sea level.

**Matthew Widlansky**, a researcher at the University of Hawai'i (UH) Sea Level Center, has led an international effort, partly funded by the Pacific Island Climate Science Center (PI-CSC) at UH Mānoa, to quantify these sea level variations. The group compiled monthly sea level predictions in the tropical Pacific from several models to produce seasonal (up to six-month) forecasts of mean sea level anomalies. Their **results** were recently published in the *Journal of the American Meteorological Society*, and a website has been recently launched to present the ongoing forecasts.

The interactive **website**, housed within the University of Hawai'i Sea Level Center, enables Pacific island communities to access real-time seasonal forecasts for twelve island stations across the Pacific Basin. Among other information, the site displays current sea level and predicted monthly levels for the next half year. Previously, only tables of weekly water levels were readily available, which illustrated the fluctuations associated with daily tides.



Five other stations are also included on the interactive map, along the eastern Pacific coastlines, but Widlansky suggests more information around the basin periphery will be coming soon.

“We hope to use the latest modeling developments to expand our forecasts to more continental coastlines. We find there are more complicated sea level processes along the coasts than around the Pacific Islands,” Widlansky clarified.

These new predictions on a seasonal time-scale help to fill the temporal gap in sea level forecasting, between daily tides and decadal projections. The information will enhance the ability of local decision-makers of coastal and island communities to make appropriate choices in near-term resource management as they strive to reduce the impacts associated with sea level extremes.