

WAVE BREAKING DURING STORMS AT THE PACIFIC MARINE ENERGY CENTER

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Breaking waves impart intense loads on wave energy converters (WECs). Therefore, it is important to characterize the probability and intensity of breaking waves at a given site prior to deployment. However, few wave measurement systems exist that are also capable of detecting breaking waves.

In this study, Surface Wave Instrumentation Floats with Tracking (SWIFTs) were deployed by helicopter ahead of large storms at the Pacific Marine Energy Center's South Energy Test Site (PMEC SETS). The SWIFTs house an inertial measurement unit that records buoy orientation and acceleration at 25 Hz. Breaking wave impacts were identified in the acceleration data, and verified using images from an on-board camera that records an image every four seconds. A key advantage of this new system is the ability to remotely detect breaking waves 24 hours per day during the largest and most dangerous storms.

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