

Tsunami observed by radar

August 16 2011

The tsunami that devastated Japan on March 11 was picked up by high-frequency radar in California and Japan as it swept toward their coasts, according to U.S. and Japanese scientists. This is the first time that a tsunami has been observed by radar, raising the possibility of new early warning systems.

"It could be really useful in areas such as south-east Asia where there are huge areas of shallow continental shelf," said Professor John Largier, an [oceanographer](#) at the University of California, Davis, Bodega Marine Laboratory, and an author of a new paper describing the work. The paper appears this month in the journal *Remote Sensing*.

Largier and his colleagues have been using a high-frequency radar array at the Bodega Marine Lab to study [ocean currents](#) for the last 10 years. The Bodega lab is part of a network of coastal radar sites funded by the State of California for oceanographic research.

Largier, together with collaborators from Hokkaido and Kyoto universities in Japan and San Francisco State University, used data from radar sites at Bodega Bay, Trinidad, Calif., and two sites in Hokkaido, Japan, to look for the tsunami offshore.

The scientists found that the radar picks up not the actual [tsunami wave](#) — which is small in height while out at sea — but changes in currents as the wave passes.

The researchers found they could see the tsunami once it entered

shallower coastal waters over the continental shelf. As the waves enter shallower water, they slow down, increase in height and decrease in wavelength until finally hitting the coast.

The [continental shelf](#) off the California coast is quite narrow, and approaches to the coast are already well-monitored by pressure gauges, Largier noted. But he said radar detection could be useful, for example, on the East Coast or in Southeast Asia, where there are wide expanses of shallow seas.

Provided by University of California - Davis

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