

Robotic boats to travel across Pacific Ocean

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On the above-water part of the Wave Glider, solar cells recharge a battery that powers data sensors and transmitters. Underwater fins use wave energy for propulsion. Image credit: Liquid Robotics

(PhysOrg.com) -- Last Thursday, November 17, four unmanned Wave Gliders left the coast of San Francisco and began a 300-day journey across the Pacific Ocean. The vehicles, which are self-propelled and remotely piloted, will travel together to Hawaii and then two will head to Japan and the other two to Australia. The trips will cover about 37,000 miles (60,000 km), setting a Guinness World Record for the longest distance ever traveled by an unmanned ocean vehicle.

The Wave Gliders are the flagship product of Liquid Robotics, which is

headquartered in Sunnyvale, California. The Pacific voyages will not only demonstrate that such a task is feasible for robotic ocean vehicles, but will also be used to collect lots of data on features such as water salinity, temperature, [oxygen content](#), [conductivity](#), depth, crude oil fluorescence, wave features, wind features, and the weather. The Wave Gliders will use only [wave energy](#) for propulsion with the help of underwater fins, so no refueling is required. [Solar cells](#) on the tops of the vehicles will recharge the battery that powers the data sensors and transmitters.

All this data will be transmitted in real-time via satellites and made freely available to anyone who registers with Liquid Robotics. Liquid Robotics and Ocean in [Google Earth](#) are providing a platform for registered users to follow the expedition virtually. To encourage scientists to use this data, the company is hosting the “PacX Challenge.” By submitting a one-page abstract outlining their scientific intentions with the data, researchers have the chance to win six months’ free use of a Wave Glider to collect whatever data they want.



The self-propelled Wave Gliders use wave energy for propulsion. Image credit: Liquid Robotics

The Wave Gliders are named after famous oceanographers and navigators: Piccard Maru (after Jacques Piccard, who explored the Mariana Trench) and Fontaine Maru (after Matthew Fontaine Maury, who wrote the first extensive book on oceanography) are bound for Japan. Benjamin (after Benjamin Franklin, who helped chart the Gulf Stream) and Papa Mau (after Pius “Mau” Piailug, a Micronesian navigator who helped test lost Hawaiian navigational techniques) are bound for Australia.

Liquid Robotics also sells the Wave Gliders to customers including energy companies, who use them to monitor offshore rigs, and

government organizations. The Wave Gliders cost about \$200,000 each. Liquid Robotics predicts future applications could include monitoring currents in shipping lanes, guarding wild fisheries, running offshore fish farms, and understanding of the role of the oceans in the earth's carbon cycle.

“These Wave Gliders are much like small ‘spacecraft’ that open up new opportunities for robotic exploration,” said Ed Lu, chief of innovative applications at Liquid Robotics, in a press release. “I challenge all scientists who are interested in advancing ocean exploration to take advantage of this unique opportunity. What scientific questions can we address with this new and unique data set?”

More information: <http://www.liquidr.com/pacx>
via: [IEEE Spectrum](#)

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