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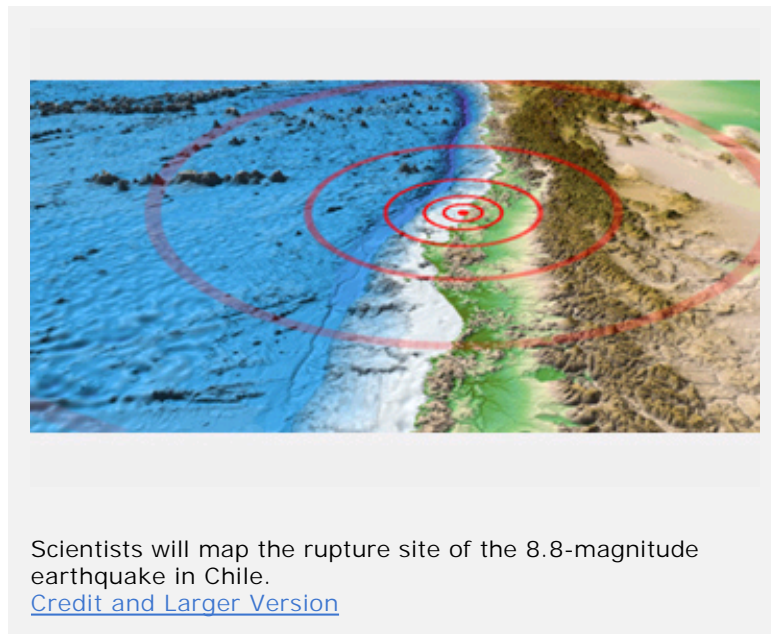
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Press Release 10-042

NSF Dispatches Rapid Response Oceanographic Expedition to Chile Earthquake Site

Scientists seize rare opportunity to map one of largest quakes in recorded history



Scientists will map the rupture site of the 8.8-magnitude earthquake in Chile. [Credit and Larger Version](#)

March 18, 2010

Scientists funded by the National Science Foundation (NSF) and affiliated with the Scripps Institution of Oceanography (SIO) at the University of California at San Diego are undertaking an expedition to explore the rupture site of the 8.8-magnitude Chilean earthquake.

The quake is one of the largest in recorded history.

The scientists hope to capitalize on a unique scientific opportunity to capture fresh data from the event. They will study changes in the seafloor that resulted from movements along faults and submarine landslides.

The "rapid response" expedition, called the Survey of Earthquake And Rupture Offshore Chile, will take place aboard the research vessel *Melville*.

The *Melville* was conducting research off Chile when the earthquake struck.



The research vessel *Melville* will take advantage of an unprecedented opportunity. [Credit and Larger Version](#)



Melville's location off Chile when the 8.8 quake struck on February 27th. [Credit and Larger Version](#)



Melville underway on an oceanographic expedition. [Credit and Larger Version](#)

"This rapid response cruise is a rare opportunity to better understand the processes that affect the generation and size of tsunamis," said Julie Morris, NSF division director for Ocean Sciences. "Seafloor evidence of the quake will contribute to understanding similar earthquake regions worldwide."

An important aspect of the rapid response mission involves swath multibeam sonar mapping of the seafloor to produce detailed topographic maps. Data from mapping the earthquake rupture zone will be made public soon after the research cruise ends, Morris said.

The new data will be compared with pre-quake data taken by scientists at Germany's Leibniz Institute of Marine Sciences (IFM-GEOMAR).

Several years ago IFM-GEOMAR researchers conducted a detailed multibeam mapping survey off Chile. Their data will be valuable for comparisons with the new survey to expose changes from the earthquake rupture, say researchers.

"We'd like to know if the genesis of the resulting tsunami was caused by direct uplift of the seabed along a fault, or by slumping from shaking of sediment-covered slopes," said Dave Chadwell, an SIO geophysicist and chief scientist of the expedition.

"We will look for disturbances in the seafloor, including changes in reflectivity and possibly shape, by comparing previous data with the new [rapid response] data."

The rapid response cruise is possible because the vessel *Melville* is currently in Chilean waters, where a research team has been conducting an investigation of the geology and biology of the Chilean margin.

"This is a unique case in which we have the shipboard assets, the scientific agenda and the funding all in place," said Bruce Appelgate, associate director for Ship Operations and Marine Technical Support at SIO. "The earthquake was a tragedy for the people of Chile, but we hope this opportunity enables important new discoveries that can help us plan for future events."

The logistical details of undertaking the expedition are enormous and constantly evolving due to uncertainties regarding transportation infrastructure in Chile.

Port facilities are limited due to widespread earthquake devastation, making fueling and provisioning the ship difficult.

Chadwell and SIO scientist Peter Lonsdale, along with graduate students Jared Kluesner and Ashlee Henig, and Scripps Geological Data Center analyst Aaron Sweeney, will be aboard *Melville* for the eight-day expedition.

The scientists, along with Scripps researchers Mike Tryon and Mark Zumberge, also will deploy depth sensors on the seafloor to record possible abrupt vertical motions over the next year.

The U.S. scientists will be joined by Chilean researchers Juan Díaz and Matias Viel González from Universidad Católica in Valparaíso, as well as scientists from IFM-GEOMAR.

-NSF-

Media Contacts

Cheryl Dybas, NSF (703) 292-7734 cdybas@nsf.gov

Mario Aguilera, SIO (858) 534-3624 maguilera@ucsd.edu

Related Websites

Blog: Research Expedition Off Chile: <http://www.siosearch.com/>

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The National Science Foundation, 4201 Wilson Boulevard, Arlington, Virginia 22230, USA
Tel: (703) 292-5111, FIRS: (800) 877-8339 | TDD: (800) 281-8749
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Last Updated:
March 19, 2010
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