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LiDAR unveils new fault near Truckee, CA; mangrove swamps dampen effects of earthquakes and more in BSSA June 2011 Issue

Please cite the *Bulletin of the Seismological Society of America* (*BSSA*) as the source of this information.

The Table of Contents for the June issue is here.

Buried mangrove layer dampens seismic shaking along Caribbean coasts

Engineers have long used a soft flexible layer, often made of rubber bearings, between a rigid building and the soil to reduce the impact of ground shaking on the structure. Now French scientists have determined that a buried mangrove layer along the coasts of Guadeloupe Island, close to the Caribbean subduction zone, serves a similar purpose. The mangrove swamps limit the effects of seismic waves on the uppermost sandy layer, reducing the potential of liquefaction from shaking caused by earthquakes.

This observation by scientists at the Belleplaine vertical array test-site may have broad implications for many sub-tropical regions that have similar soil composition and seismic hazard risk.

"*A Natural Seismic Isolating System: The Buried Mangrove Effects*," by Philippe Gueguen, Mickael Langlais and Julie Maury of University Joseph Fourier in Grenoble; and Pierre Foray and Christophe Rousseau of Institut National Polytechnique in Grenoble.

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New active fault identified near Truckee, CA

Using a radar-like lasar imaging technology, known as LiDAR, scientists have identified a previously unrecognized active fault near the Martis Creek Dam just outside of

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Truckee, California, possibly representing a significant seismic risk to the greater Lake Tahoe area.

Named after a 19th century town site that was located along the Truckee River, the Polaris Fault was identified during an evaluation by the U.S. Army Corps of Engineers, which owns and operates Martis Creek Dam.

The approximate 22-mile fault may yield an estimated maximum earthquake magnitude of 6.4 to 6.9. The estimate could increase should the fault connect with, or rupture at the same time as, other faults in the area.

LiDAR, the aerial mapping technology, emits laser pulses from an instrument mounted in an airplane. Some of these near vertical laser pulses penetrate dense vegetation, allowing for the vegetation to be removed in data processing to yield high-resolution images of the Earth's surface. LiDAR is especially useful for analyzing rugged, poorly accessible, forested terrain.

"LiDAR Assisted Identification of an Active Fault near Truckee, California," by authors Lewis E. Hunter and Ronn S. Rose of the U.S. Army Corps of Engineers and James F. Howle and Gerald W. Bawden of the U.S. Geological Survey.

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