

UCLA scientists attempt to rupture levee in test

Matt Weiser, Sacramento Bee, 8-30-11

SHERMAN ISLAND -- A test of the seismic safety of Delta levees failed to rip a hole in the earth this morning, but it may yield a wealth of data to help prevent floods during an earthquake.

Scientists from the University of California at Los Angeles erected a shaking machine on top of a test levee about the size of a two-car garage. Their aim was to see if the peat soil on Sherman Island would rupture underneath, thereby causing the "levee" to fail.

Peat, composed of decaying plants rather than mineral soil, is known to be a poor thing to build a levee on. But the Sacramento-San Joaquin Delta, with 1,100 miles of levees, is all peat. A debate has raged for years about whether the peat and the levees will liquefy in a quake, potentially causing a monumental flood.

Today's experiment was the first of its kind. In the morning tests, the machine generated ground motions equivalent to a local quake in the "high 6" range on the Richter scale.

Waves could be seen in the ground nearby, as though from ocean swells. A 3-ton panel truck full of computers rocked on its springs. Ducks, in a marsh nearby, squawked in complaint and took flight. The shaking machine, a pair of spinning weights powered by an electric motor, eroded its mounting holes.

But there was no evident damage to the island's peat soil.

"Our research very well could show that peat is stronger than we thought," said research professor Bob Nigbor, an earthquake engineer.

That will depend on the results of data analysis from about 40 sensors installed at the site. Among other things, it may show that the flexible peat ground surface compressed and settled enough to damage a levee, or to cause a high tide to spill over. The settling could take weeks, so sensors will be kept in place to watch for that.

The team planned to repair the machine's mounts and run more tests this afternoon.