

New earthquake sensors to spot the big one

05:41 AM PST on Tuesday, February 8, 2005

By **GLENN FARLEY / KING 5 News**

SHELTON, Wash. – It's very long and designed to spot the signs of a magnitude 9 earthquake. The device has already proved itself, recording the giant earthquake in South Asia, along with a mini tsunami of its own. One of the largest earthquake detectors ever constructed is all underground at the Shelton airport.



"The actual instrument is over 3000 feet long," said Rex Flake, Central Washington University engineer at Ellensburg. The giant sensor is constructed of a plastic PVC pipe and buried in a trench. There are two of them and each tube is half filled with water. "We have two arms going out," explained Tim Melbourne, a CWU seismologist. "It's mind-bogglingly sensitive."

It's called the long baseline tilt meter. As the Earth flexes, the tubes tilt along with the ground, but the water inside stays level. By measuring this tilting action, scientists can watch what goes on deep underground – even on the other side of the planet.

When the magnitude 9 earthquake occurred off the island of Sumatra just after Christmas, the signal was strong enough to be detected by this giant machine in a big way. "What it actually did, was set off a little tiny Tsunami inside the pipe," said Melbourne. It's an interesting connection, because this machine was constructed to study what may lead up to a magnitude 9 quake in our own backyard.

About five years ago, scientists using GPS discovered that there were long slow earthquakes happening deep under Western Washington, and those earthquakes tie in with the larger subduction zone fault that will give us a great earthquake. "Then we can actually compute what is the impact of these slow earthquakes on the part of the fault that generates the magnitude 9 earthquakes," said Melbourne.

But to do that, they needed a more sensitive instrument – an instrument so sensitive it can monitor tidal effects on terra firma. Central Washington University says finding sites for the tilt meters is difficult. They credit the Port of Shelton with providing the necessary space to set up this one and they are looking at more locations.