California quake shook up Oregon

Instrument feels distant quakes

By Christopher Blair
Emerald Editor

Photo by Jeff Pasley

University Geology Professor Gene Humphreys plans to use these seismometer recordings, picked up in Oregon June 28, as an aid in his classes.

The ground was shaking in Eugene and all over Oregon on June 28, but it's doubtful anyone in the area felt it.

On that day, more than 1,000 miles to the south, an earthquake rocked the suburbs east of Los Angeles, killing two people, injuring 70 and causing $10 million worth of damage.

Gene Humphreys, a University geology professor, said this earthquake, like all others, sent waves of energy through the earth and around its surface, essentially ringing the planet like a bell.

"Anytime anything five-and-a-half (on the Richter scale) goes off anywhere in the world, we'll get it quite clearly," Humphreys said.

"The whole world moved as a result of this earthquake. There's a worldwide network of seismometers, and they all saw this earthquake. It was the biggest one for the week, probably."

A University-owned seismometer in Eastern Oregon, which records ground motion using a system of suspended weights, detected disturbances from the June 28 earthquake soon after it happened.

Although the energy recorded at the seismometer's Pine Mountain site was less than that of someone walking on the ground nearby, Humphreys said the seismometer's data is important in studying earthquakes, their effects and the structure of the earth.

The earthquake in California measured about 6.0 on the Richter scale, which rates quakes according to their strength. A magnitude 6 can cause severe damage in a populated area, as was the case in Southern California.

Humphreys said every increase in number on the scale, say, from 5 to 6, means the earthquake is 20 times more powerful. Likewise, a magnitude 7 quake would be 400 times more powerful than a 5.

Tremors of 5.5 magnitude happen almost daily somewhere in the world, he said, and 6.0 quakes occur about once a week. Most of these earthquakes happen under the sea or in remote areas of the earth, and as a result, are rarely noticed until one occurs in or near a populated area.

The landscape in Southern California is criss-crossed with a system of faults, the result of two giant sections of the earth's crust moving past each other. As the sections move along the faults, they get stuck and eventually slip, releasing energy and causing an earthquake.

On paper, the seismometer displays the earthquake as a jagged line. The line, from left to right, starts out as flat, then begins to move up and down in peaks and valleys about an eighth of an inch high.

Humphreys said this area of the graph represents the compressional or p-wave, the energy from the earthquake that moved toward Oregon directly through the earth. As the slower shear or s-wave hits, the peaks and valleys move closer together and grow to be an inch high on the graph.

He demonstrated the difference between the two waves

Turn to QUAKE, Page 8