

Time for an altitude adjustment

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SANTA CRUZ — Did Santa Cruz County elevations rise or fall after the earthquake? Inquiring minds want to know.

The results of a survey by a federal vertical control team will mean an altitude adjustment for the county on future maps.

A four-man "level crew" from the National Geodetic Survey is checking hundreds of points around the county. Their elevations will be calculated and compared with those on earlier maps to determine what vertical changes the earthquake caused the county's topography.

Estimates suggest the land at the summit rose one meter relative to mean sea level during the 7.1 quake that hit Oct. 17, 1989.

The final results won't be known for several months, said geophysicist Grant

Marshall of the earthquake studies group of the United States Geological Survey in Menlo Park. Marshall said the studies are routine following major earthquakes. Similar studies were conducted after the Whittier Narrows and Kettleman Hills quakes.

The survey will show changes within a few millimeters, said survey technician Richard Hattesoehl on Monday. He and his team will have surveyed 600 kilometers in Santa Clara and Santa Cruz counties when they finish this week.

Friday, the group leap frogged its way from point to point up Highway 1, north of Santa Cruz. Hattesoehl and his group are one of three that travel the country surveying altitude points that form the North American Network.

Marshall said he contracts with the National Geodetic Survey, a unit of the National Oceanic and Atmospheric Administration, because "they are the

right people to do it." He convinced Santa Cruz County Public Works officials to use the survey team while it was in the area.

Another portion of the study is a tidal gauge to be mounted at the Santa Cruz Municipal Wharf. Storms destroyed an earlier one, Marshall said. The gauge will be monitored over a three-month period to determine the mean sea level.

Marshall's study covers both Santa Cruz and Santa Clara counties. Santa Cruz County has made separate arrangements for a more detailed survey of the county.

Senior Civil Engineer Kim Vester said the Federal Emergency Management Agency agreed to finance the \$80,000 study. Vester said he pressed for the study because of indications the elevation changed "almost a meter along the rift zone."

An extensive network of points around the county, usually marked with a brass disk, are marked on coun-

ty and federal maps with location and elevation. Vester said the USGS has 100 points in the county. Public Works has some 300 more. Over time some of the survey points are destroyed or lost. They are used to plot county roads, water and sewer projects.

A level crew surveyed parts of South Carolina after Hurricane Hugo destroyed survey points, said Bob Kokesch, project director in South Dakota. Hattesoehl's crew moves from point to point noting the precise elevation differences between each one. The data is sent to Kokesch at the regional office who sends it on to a main office in Rockville, Md., where actual elevation is calculated and compared with current maps.

For the last 13 years, the National Geodetic Survey has been surveying the nation which "will change elevations throughout the United States," Kokesch said.