

SF Examiner follows:

The San Francisco Examiner, June 24, 1994

NEITHER RIOTS NOR FIRES NOR MUDSLIDES NOR EARTHQUAKES NOR O.J. SIMPSON NOR . . . The latest cheerful news for Southern Californians is that they're at risk of tsunamis , giant killer waves.

Traditionally, scientists thought that major tsunamis, sometimes mistakenly called "tidal waves", are caused only by earthquakes far offshore. According to standard wisdom, the quake shakes the ocean bottom, sloshing water about and triggering a wave that grows in size as it passes through the shallower water near coastlines.

Until recently, experts thought Southern Californians had little reason to fear tsunamis, for two reasons: No major faults lay immediately offshore and if quakes struck far away, say, near Alaska, then the waves would take many hours to hit L.A., and Lotuslanders would have plenty of time to head for the hills. So relax, dude!

But . . . recent research hints that Southern California may be more vulnerable to tsunamis than anyone dreamed. For one thing, new evidence suggests the existence of offshore "thrust" faults, which move vertically rather than horizontally, like the San Andreas fault. More recently, University of Southern California researchers have proposed a way that a really devastating tsunami could be triggered by a fault immediately offshore.

Normally one would assume that the worst tsunamis are those triggered by quakes hundreds of miles away; like a snowball rolling downhill, they accumulate energy as they cross the sea. But research on "fluid dynamics" reveals an unusual type of tsunami called a "dipole wave," whose behavior is "counterintuitive. When an earthquake (occurs) near shore, it can produce a freakish wave, a wave that is quite different from, and potentially more destructive than, the waves created by distant earthquakes," says Costas E. Synolakis, an associate professor of civil engineering at USC.

The dipole wave isn't simply theoretical. Synolakis and his colleague, Srinivas Tadepalli, now at Stanford University, cite a real-life example: an 85-foot-high wave

that was triggered by a quake immediately off Flores Island, Indonesia, in December 1992. The death toll: 2,400.

UC-Berkeley Wellness Letter Keay Davidson is The Examiner's science writer. His column appears on Fridays. WHAT'S UP: Venus bright in West at sunset.