USGS
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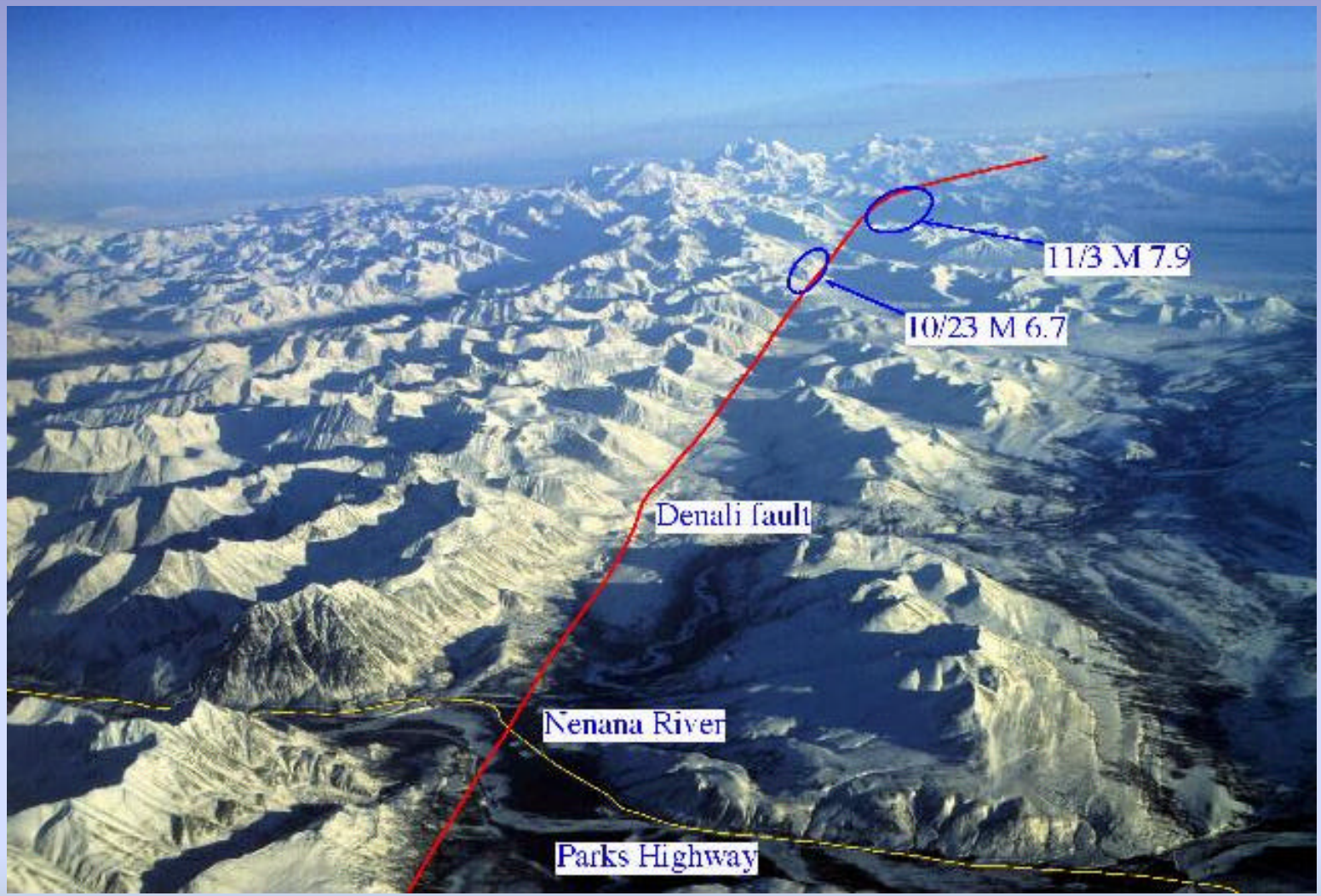
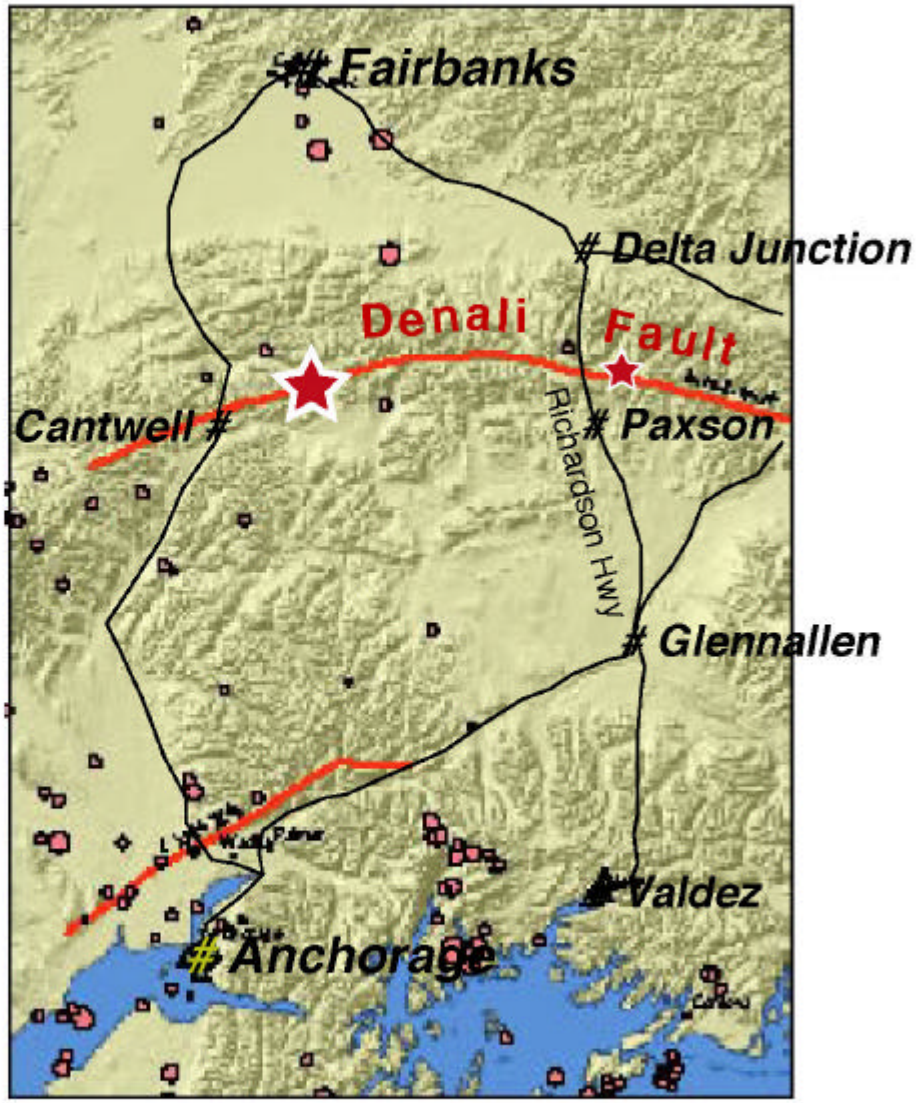
Earthquake Hazards Program

Preliminary report on the Great Alaskan Earthquake of November 3, 2002

Event Summary

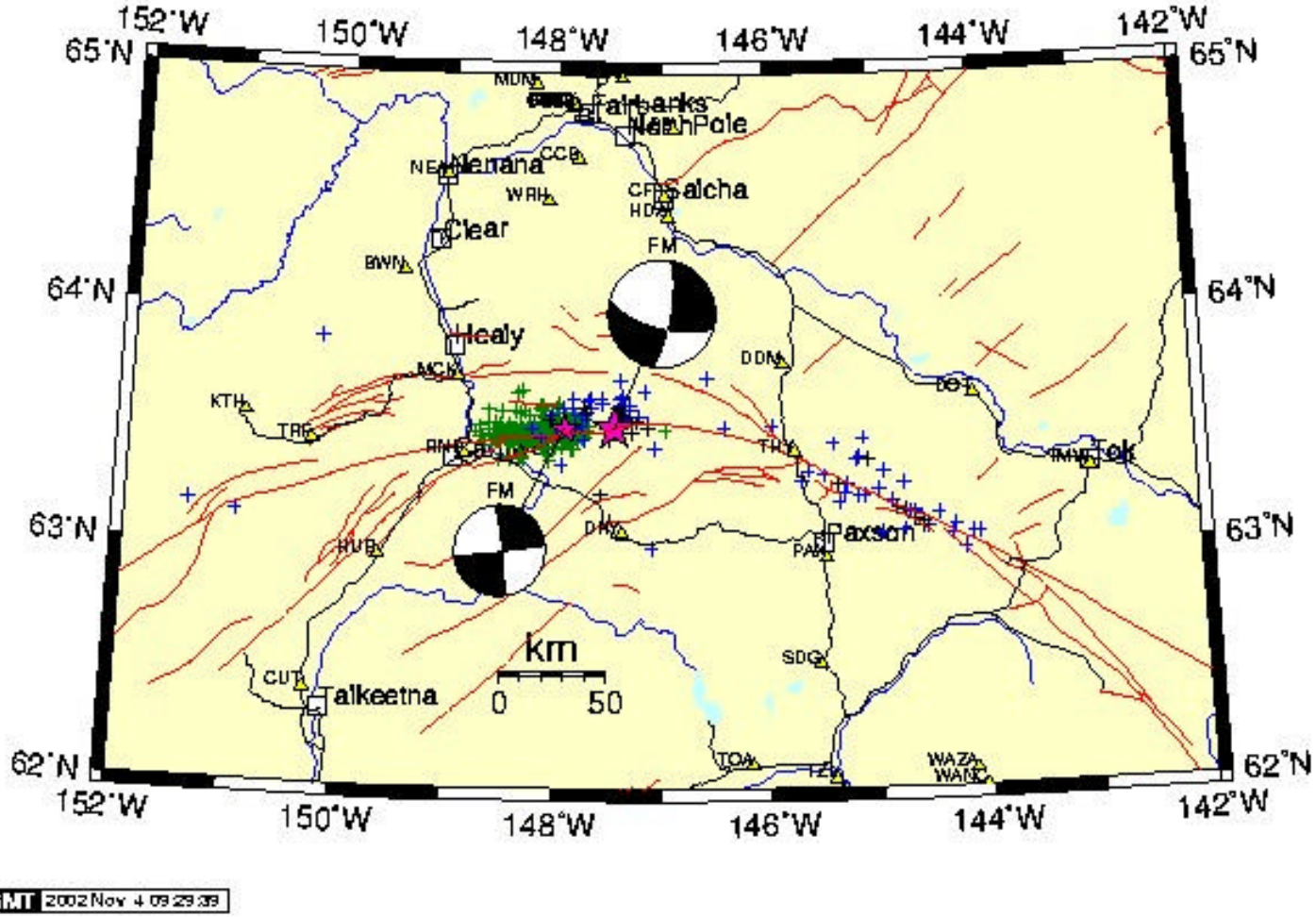
- Moment Magnitude 7.9
- Strike slip rupture of the Denali and Totschunda faults
- Rutpure length ~ 240 km (or more)
- Rupture in very remote region of Alaska
- Some damage to Alaskan pipeline
- M 6.7 foreshock on October 23, 2002
- Penultimate event several centuries ago
- Far-field triggering of earthquakes


11/3 M 7.9
10/23 M 6.7
Denali fault
Nenana River
Parks Highway



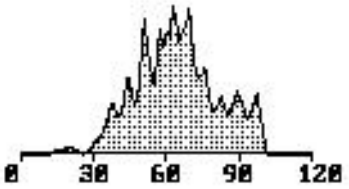
Location of 11/3/02 M7.9 Denali Fault earthquake (large star) and M5.1 aftershock (smaller star to east). Pink symbols show epicenters of recent crustal earthquakes.

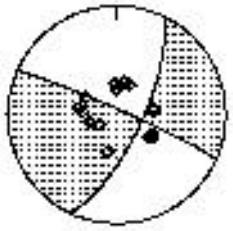
Aftershocks of M7.9 Denali Fault event



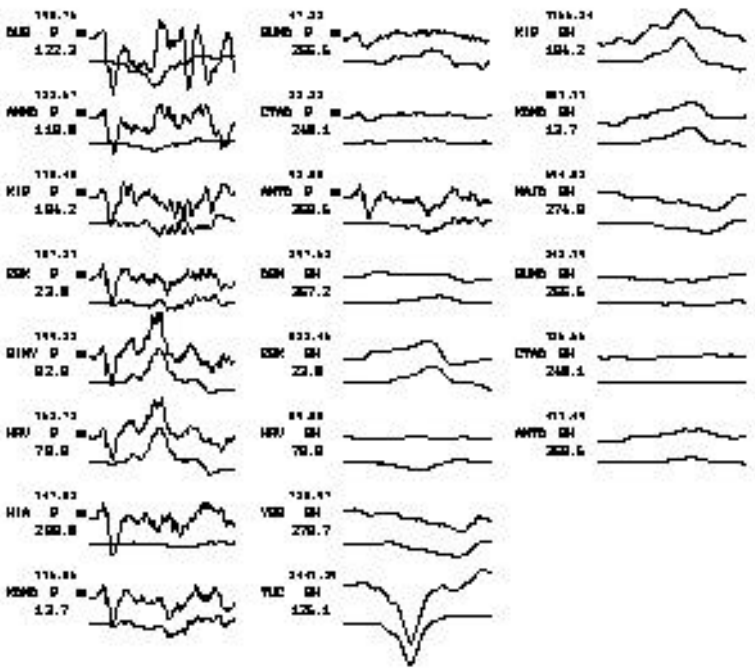
Mo = 7.8e+20 Nm Mw = 7.9

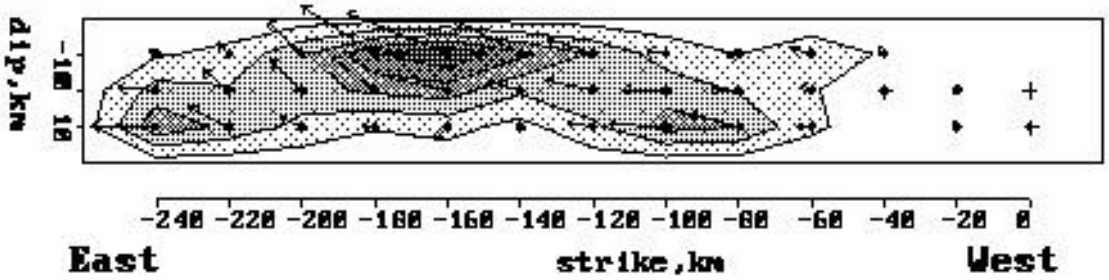
H = 15. km T = 70 s var. = 0.364Z





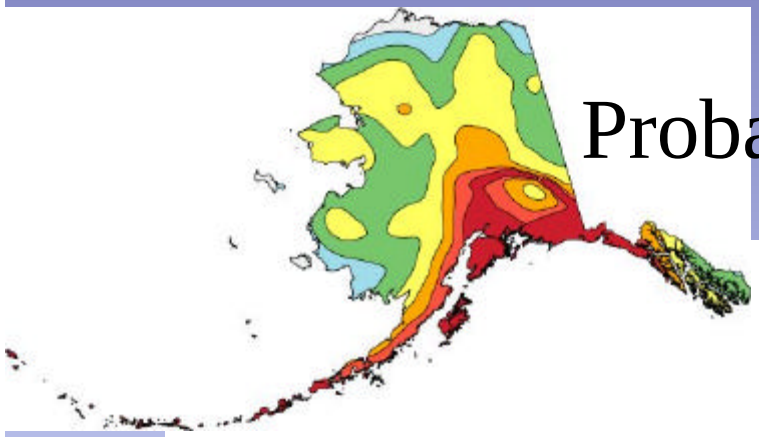
(294.,86., 161.)

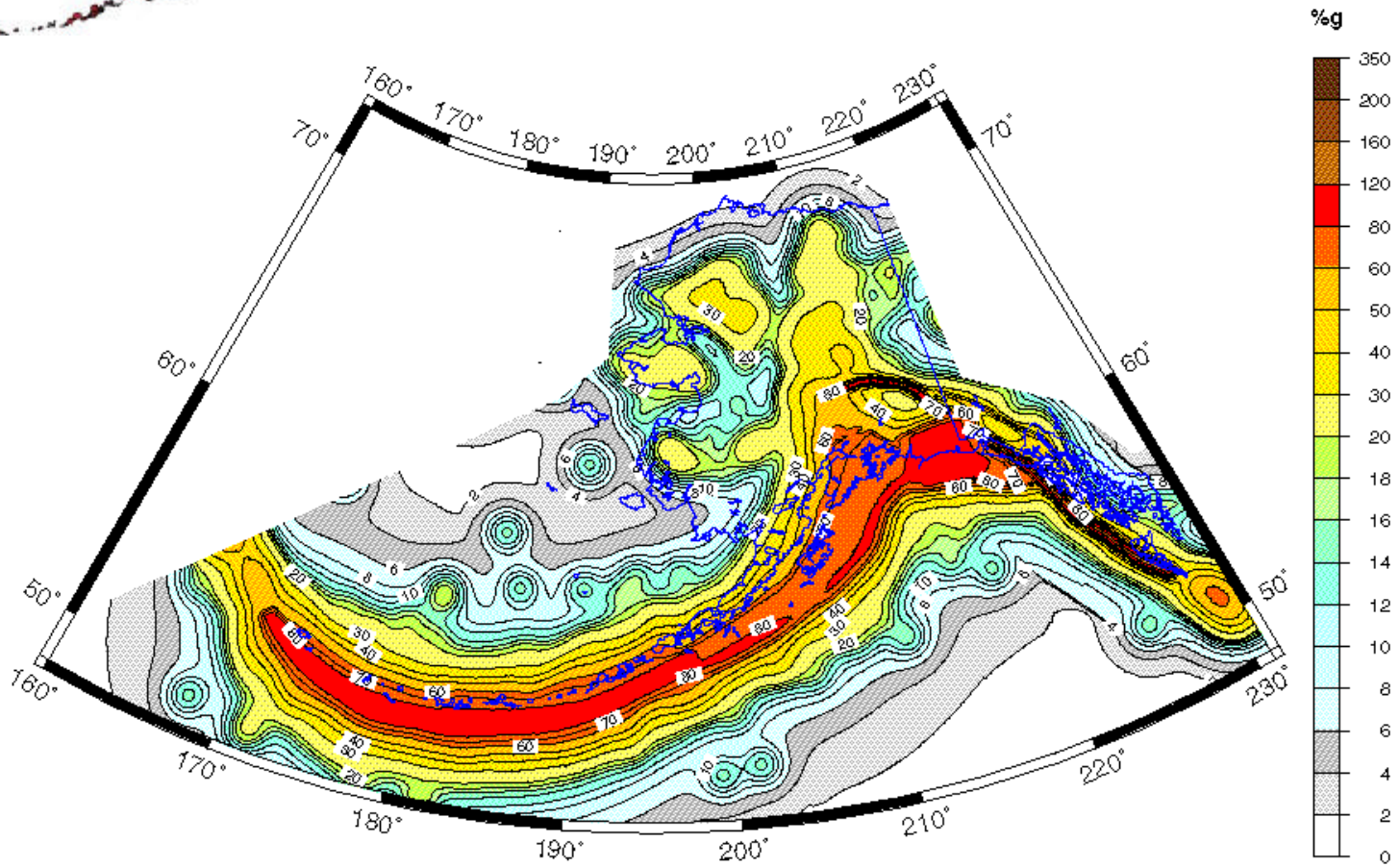




Main Fault

Probabilistic Seismic Hazard Map

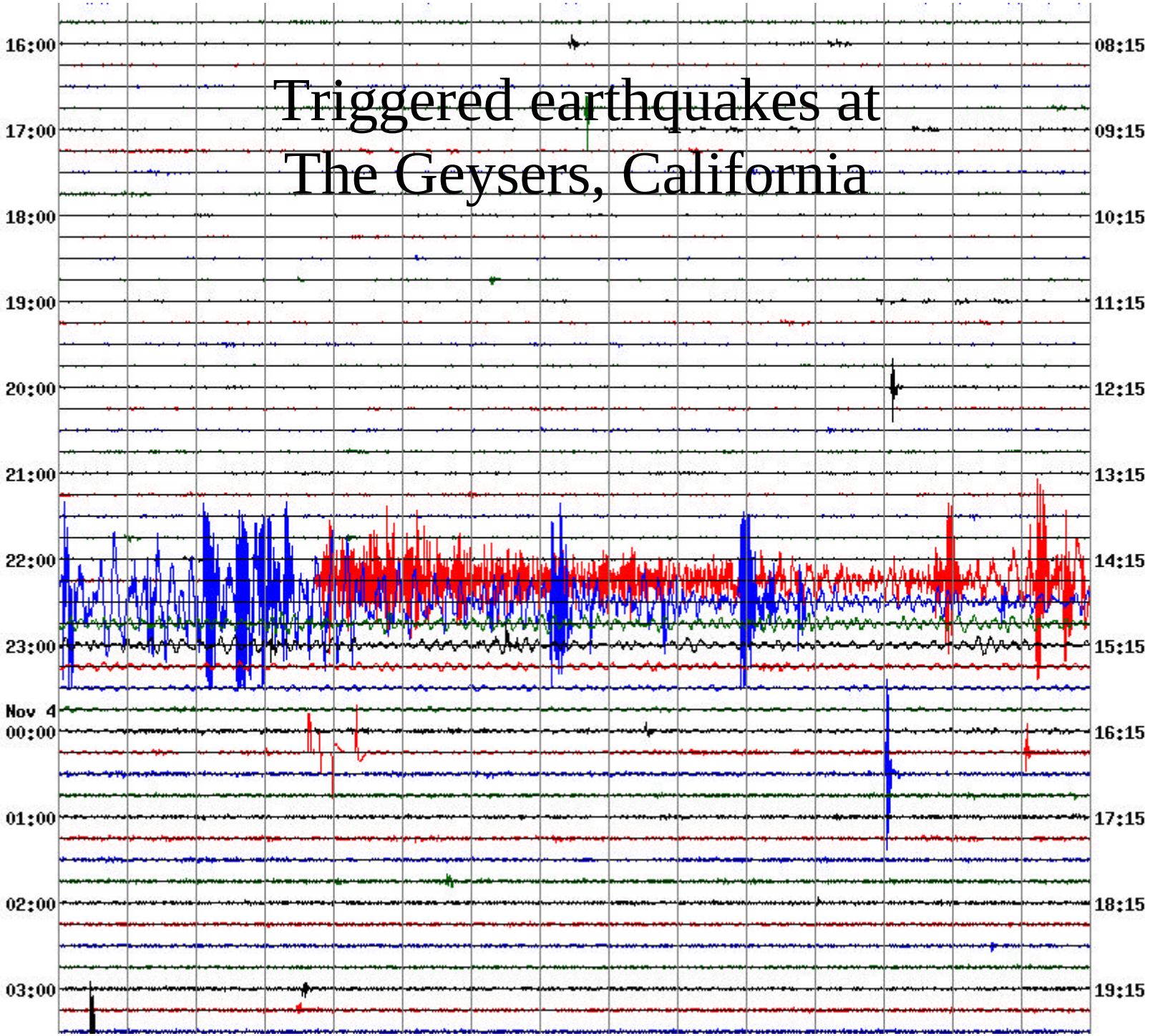




Peak Ground Acceleration (%g) with 2% Probability of Exceedance in 50 Years

Long-range triggering of earthquakes observed in geothermal and volcanic area of the western U.S.

Triggered earthquakes at The Geysers, California



Triggered earthquakes at Yellowstone National Park