100 and 400 km, and every 3 km in the depth range from 5 to 39 km using either the 1-D southern California model or Gil7 model, not accounting for the 2-D or 3-D structure along specific paths between grid points (virtual source locations) and station locations. To obtain stable solutions using the new system, the structures along paths between grids and stations should be modeled properly to compute Green's functions. The improvement of the structural model is critical for the Mendocino/Gorda plate region and northern California where no optimal models have been established to our knowledge. This work is in progress.

When installation of the new stand alone system is completed, we will be able to immediately determine the earthquake source parameters (location, size and mechanism) using real-time data from the sparse BDSN, and/or the backup subsystem at Sacramento, should a significant event take place.

3.4 References

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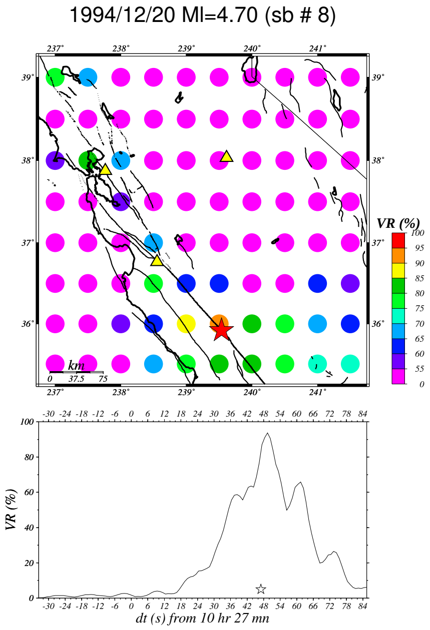

Figure 10.5: Example of resolution of simultaneous determination of location and MT in a grid search scheme. The study area is covered by a grid with an interval of 0.5 deg. Note that the optimal point source location identified with a VR of $\geq$ 90 % is very close to the true location (provided by the USGS) denoted with a star (upper panel) and the VR is maximum at the origin time (lower panel)

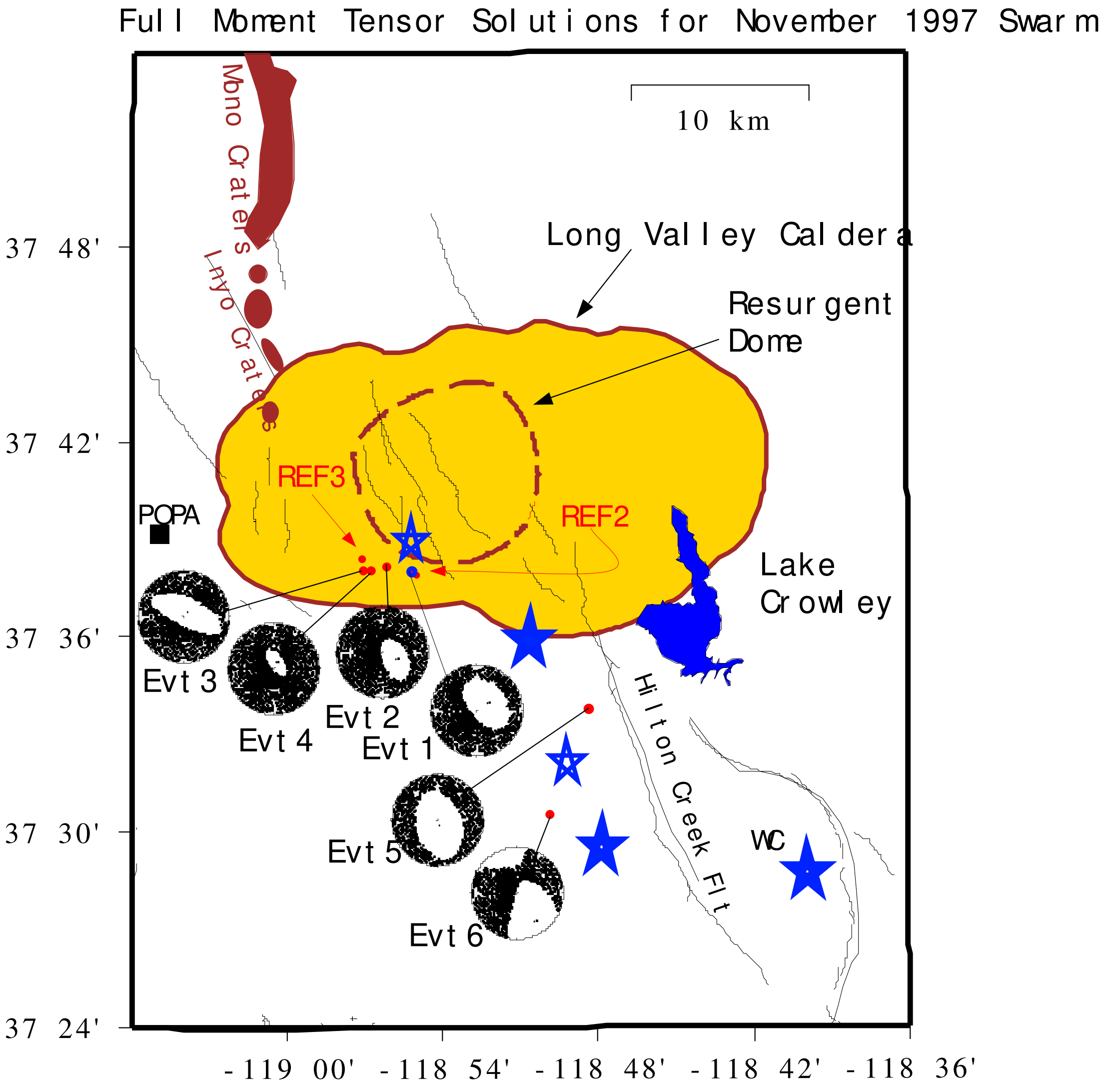

Figure 10.6: Map showing the Long Valley, Caldera, resurgent dome, Inyo-Mono craters chain, and earthquakes we investigated. The P-wave radiation patterns for the full moment tensor solutions are plotted. EVT1, EVT2, EVT3 and EVT4 result in anomalous seismic moment tensors with significant isotropiccomponents indicating volumetric expansion. Note that EVT5 and EVT6 are events that result in nearly pure double-couple solutions. The locations of 1980 Mammoth Lakes earthquakes are shown as stars and those with significant non-double-couple (NDC) components are shown as filled stars. The event labeled WC is the 1978 Wheeler Crest earthquake that also had a large non-double-couple component to the seismic moment tensor. The Devil's Postpile dilatational strain meter (POPA) is located by the filed square.