

**Annual Report, 2000**  
**Maintenance on the 3-D Seismic Velocity Model**

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This proposal is to perform maintenance on the 3-D seismic velocity model. The work is to incorporate new information into the San Gabriel Valley, the deep central basin of the Los Angeles basin, and the southern edge of the Santa Monica Mountains. The product of this work is an updated version of the SCEC southern California 3D seismic velocity model that corrects inadequacies identified in SCEC sponsored model verification studies. The update tasks are in progress. The effort to date has been to work with seismic velocity model users to identify and correct model errors, upgrade some model generation procedures, and to support the release of the Phase III report.

Version 2 of the SCEC reference 3D seismic velocity model of southern California was released during 2000 (Figure 1). It attracted a large number of users from academia, government agencies, and private industry. During applications of the model, these users identified errors in the model related to closely spaced reference surfaces used in generating the model. I corrected the errors in a timely way to permit users' research to proceed with minimal delay.

Some users requested a smoother interpolation scheme to determine crustal seismic velocities outside the sedimentary basins where the velocities are based on tomographic results. This was implemented. Also, a new method of interpolating between the geotechnical data constraints and the rule-based portion of the model was implemented.

A description of the Version 2 model was published in the Phase III special issue of the Bulletin of the Seismological Society of America. The Phase III report concludes that the depth to 2.5 km/s shear wave velocity was a useful predictor of ground motion. To support the public relations effort of the Phase III release and the SCEC website, I generated data to construct the maps and images of the 2.5 km/s shear wave isovelocity surface (Figure 2). I also participated in the Phase III release press conference.

Publications and Presentations

- Magistrale, H., S Day, R. Clayton, and R. Graves, 2000, The SCEC southern California reference three-dimensional seismic velocity model Version 2, *Bull. Seism. Soc. Am.* **90** (6B), S65-S76.
- Magistrale, H., S. Day, R. Clayton, and R. Graves, 2000, The SCEC southern California 3D seismic velocity model version 2 (abstract), *Seismol. Res. Lett.* **71**, p. 216.
- Magistrale, H., S Day, R. Clayton, and R. Graves, 2001, The SCEC 3D southern California seismic velocity model Version 2, poster presented at the 2000 SCEC annual meeting.
- Magistrale, H., S Day, R. Clayton, and R. Graves, 2001, The SCEC southern California reference 3D seismic velocity model Version 2 (abstract), invited talk to be given at the 2001 SSA annual meeting.

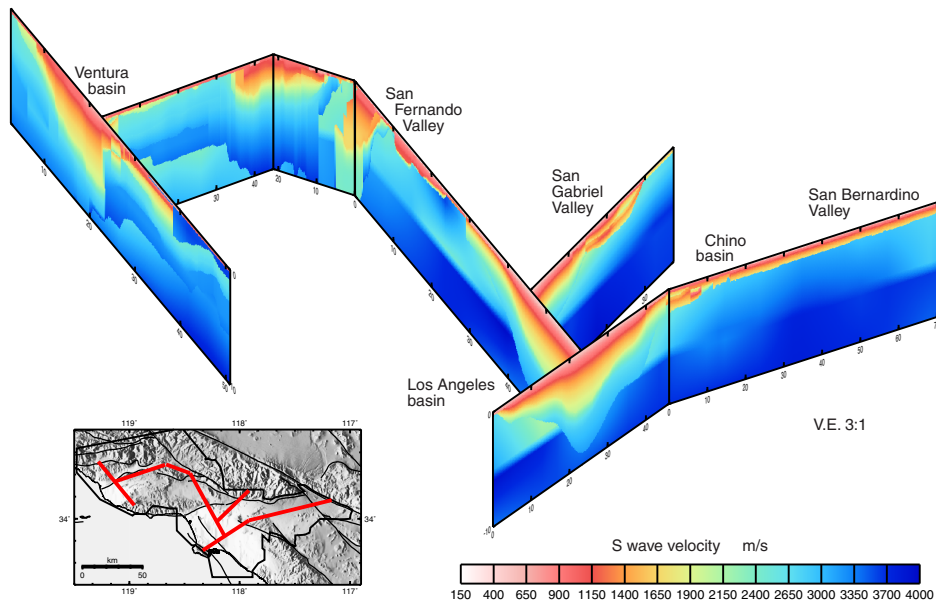


Figure 1. A fence diagram of  $V_s$  in the Los Angeles region. Cross section locations shown in red in lower left panel.

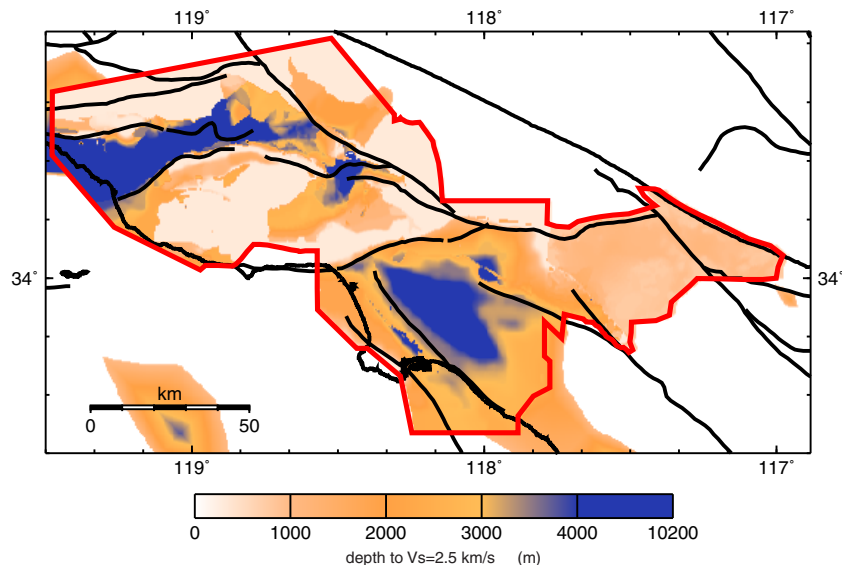


Figure 2. Depth (in meters) to the 2.5 km/s shear wave isovelocity surface.