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3D software tools for model interrogation, event location and travel-time

The development of the SALSA3D (SAndia LoS Alamos 3D) tomographic velocity models has made available to the monitoring and seismological communities a 3D velocity model useful for event location and uncertainty estimation. We discuss the research products that have resulted from this effort, including the models themselves, model uncertainties, a set of 2D and 3D travel time tables and an associated software suite. Included in the software is a single-event locator (LocOO3d) that can use a variety of velocity models, including the SALSA3D models, either alone or in combination to provide location and location uncertainties. A second program, pCalc is capable of computing travel-time estimates through the SALSA3D models for a rich set of seismic phases and is also compatible with several community velocity models. These two software packages, along with the previously-released model representation framework (GeoTESS) provides a suite of tools for working with the SALSA3D models that will be useful to monitoring agencies and academic institutions throughout the seismological community.

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