

Updates to the Regional Seismic Travel Time (RSTT) Tomography Model

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The Regional Seismic Travel Time (RSTT) tomography model has been developed to improve travel time predictions for regional phases (Pn, Sn, Pg, Lg) in order to increase seismic location accuracy, especially for explosion monitoring. The RSTT model is specifically designed to exploit regional phases for location, especially when combined with teleseismic arrivals. The latest RSTT model (version 201404um) is located on the Sandia National Laboratories web site (<http://www.sandia.gov/rstt>). We are in the process of updating the RSTT model to include new features. The original model used CRUST2.0 combined with an a priori model in Eurasia from US National Laboratories. The newest crustal update will use the CRUST1.0 version that includes more detailed and realistic structures. New event data are also being compiled that include global ground-truth (GT) information from local, regional, and teleseismic bulletins as well as data obtained through various RSTT workshops in South America, Latin America, Asia, and Africa. Using the new crust and available data, the tomography will be updated for improved coverage and accuracy, including new path-dependent uncertainty estimates for all regional phases. We also demonstrate validation of the new model and uncertainty estimates using the International Monitoring System stations and Reviewed Event Bulletin events.

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