

Digitization of Soviet Era Peaceful Nuclear Explosion Seismograms From Regional Stations

The crustal structure of Eastern Siberia is poorly known due to its inaccessibility and the sparseness of seismic stations and larger earthquakes. Peaceful Nuclear Explosions (PNEs), detonated by the former Soviet Union are seismologically significant because they are Ground Truth events, wherein the depth and geographic coordinates of energy release (the detonation) are precisely known. The PNEs are therefore excellent data sources for crustal studies. Analog seismograms from regional stations for PNEs in eastern Siberia were collected and scanned to create a seismogram database. This database contains over 25 PNE, that when incorporated together, provides data coverage better than what is possible using only earthquakes. The scanned seismograms were hand digitized using the computer program WaveTrack. Digitizing PNEs allows modern processing techniques to be applied to each seismogram and provides the opportunity to enhance studies that were previously done using analog techniques. Digital data manipulation allows further analysis of crustal, velocity, and attenuation models.

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