

2.3-O3. Infrasound Observations From a Seismo-Acoustic Hammer Source at the Nevada National Security Site

As a part of the Source Physics Experiment (SPE) site characterization, Sandia National Laboratories, in conjunction with HK Exploration, deployed a large (13 metric ton) seismo acoustic hammer source at the Nevada National Security Site (NNSS) in December 2014. During early field testing of the hammer source we found that as the mass hit the ground a significant downward deflection of the surrounding surface imparted an observable infrasound pressure wave into the atmosphere. We present results from the early field testing as well as the results from the small-scale experiment at NNSS. The early field testing was conducted in a crane yard in North Las Vegas, Nevada with asphalt at the surface while the test at NNSS was done on alluvium. The alluvium has a higher flexure rate than the asphalt thus allowing better surface deflection and subsequent atmospheric coupling. For nuclear explosion monitoring with infrasound, the ground surface is the source of the atmospheric pressure perturbations and by understanding the source geology we hope to better describe the small-scale waveform characteristics that could be possible diagnostics for underground nuclear tests.

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