ID: Type: **Oral**

2.3-O2. Estimating depth and source characteristics of North Korean nuclear tests (2006, 2009 and 2013) using regional and teleseismic networks

North Korea conducted underground nuclear explosions on October 9, 2006 (M 4.2), May 25, 2009 (M4.7) and February 12, 2013 (M 5.1). We determined depths and source characteristics of thos enuclear tests. The North Korean nuclear tests were recorded by the teleseismic arrays of ASAR, FINES, NVAR, NOA. PDAR, WRA and YKA as well as regional stations. We selected the pronounced coherent spectral nulls using pP+P and sP+P spectra from teleseismic arrays for the 2006, 2009 and 2013 nuclear tests. The centroid depths for the 2006, 2009 and 2013 tests were 2.33, 2.28 and 2.24 km via pP-P dealy times. The vertically distributed source for the 2006 generated mostly Rayleigh waves with a dip-slip faulting, whereas the horizontally distributed source for the 2009 and 2013 tests excited SH and Love waves with normal faulting as well as Rayleigh waves indicating that SH were attributed to not only release of tectonic stress but also source configuration and source mechanism implying that 2009 and 2013 tests were well contained blocking up nuclear debris through long winding drifts consequently did not release radioisotopes to the atmosphere.

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Track Classification: 2. Events and their characterization