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Type: **Poster**

Distributed acoustic sensing observations and modeling of the DAG series of chemical explosions

The Dry Alluvium Geology (DAG) series of chemical explosions aim to increase our understanding of explosion-source seismic, acoustic, and electromagnetic phenomenology. The explosion series takes place on the Nevada National Security Site (NNSS) in an alluvium geology. As of December 2018, two of the planned four explosions have been detonated in a common borehole on Yucca Flat: 1,000 kg TNT-equivalent at 385-m depth-of-burial and 50,000 kg TNT-equivalent at 300 m. A component of the DAG diagnostic instrumentation consists of surface-laid and downhole fiber optic distributed acoustic sensing (DAS) cables. A helically-wound fiber installed in two vertical boreholes 80-m from ground zero (GZ) and a traditional surface-laid straight fiber extending from GZ to 2 km recorded the explosions. We present both modeling and observations of the explosions. Phenomenology observed thus far include near-source generated S waves, post-event microseismicity, and surface spall.

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