IRIS PASSCAL has supported portable broadband seismic experiments for close to 30 years. During that time we have seen a variety of sensor vaults deployed. The vaults deployed fall into two broad categories, a PASSCAL style vault and a Flexible Array style vault. The PASSCAL vault was constructed of materials available in-county and it was the Principle Investigator (PI) who established the actual field deployed design. The Flexible Array vault was provided to PIs by the EarthScope program, offering a uniform portable vault for these deployments.

Cost, logistics, and the availability of materials in-country are usually the deciding factors for PIs when choosing a vault design and frequently trade-offs are made given available resources. Recently a third type of portable broadband installation, direct burial, is being tested. In this case a sensor designed for shallow, direct burial is installed in a ~20 cm diameter by 1 m deep borehole. Direct burial installation costs are limited to the time and effort required to dig the borehole and emplace the sensor. Our initial analyses suggest that direct burial sensors have lower noise levels than vault installations on both horizontal and vertical channels across a range of periods spanning <1 s to 100 s. Moving towards an instrument pool composed entirely of direct burial sensors (some with integrated digitizers) could yield higher-quality data at lower cost.

Until recently vault performance for portable installations supported by the PASSCAL program was qualitative. A quantitative comparison of these various installation techniques is the subject of this poster. We've selected a suite of North American experiments that are representative of the three installations and compare their noise performance by using PSD probability density functions (*McNamara and Buland*, 2004). In order to determine the quality of our portable installations, we compare them with the network average of the TA—a high-quality, professionally installed network.