

T3.1-P12. IRIS Activities in Seismic Network Technology Development and Evolution

IRIS has deployed thousands of seismic stations as part of the EarthScope USArray and other efforts. In particular, the Transportable Array (TA) has completed its ten-year, 1,700 station rolling deployment across the continental United States. The TA network has delivered high quality data and network uptimes exceeding 98%. Motivated by the success of the TA and other IRIS programs, and to address key science objectives, IRIS is exploring new technologies that can enable even larger array deployments that record unaliased wavefields. Improvements in packaging and power systems can provide equipment with reduced size, weight, and power that simplify logistics for large experiments, and make a critical difference for deployments in harsh environments or other situations where rapid deployment is required. New posthole-style sensor emplacements provide both simple installation and low-noise performance. We will explore the key factors enabling IRIS' efficient and successful large-scale seismic station operations. We will highlight projects that are exploring new array capabilities and future directions for IRIS instrumentation facilities, including the results from testing techniques for emplacing posthole seismometers. We will provide examples from a prototype experiment that utilized a sparse array of high performance broadband posthole seismometers combined with a dense in-fill of short-period geophones.

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