Status of EarthScope's Transportable Array in Alaska

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The EarthScope's Transportable Array is commencing the second year of operations in Alaska. The proposed station grid is 85 km consisting of approximately 261 locations in Alaska and Western Canada. About 71 of the grid locations will be at existing seismic stations operated by the AEC, AVO and ATWC and are being upgraded with shallow borehole installations or higher quality sensors as appropriate. 12 new stations will be collocated with PBO GPS stations.

As the Transportable Array has moved to Alaska, IRIS has experimented with different portable drills and drilling techniques to create shallow holes (1-5M) in permafrost and rock outcrops. The goal of these new methods is to maintain or enhance a station's noise performance while minimizing its footprint and the equipment, materials, and overall cost required for its construction. Motivating this approach are recent developments in posthole broadband seismometer design and the unique conditions for operating in Alaska, where most areas are only accessible by small plane or helicopter, and permafrost underlies much of the region.

IRIS has partnered with Genasun to produce a lightweight high capacity power systems for cold environments. Based on the proven Genasun charge controller used in PASSCAL and Polar experiments and coupled to Lithium Iron Phosphate batteries a new system allows transport of large capacity battery systems in a single sling load of a helicopter, simplifying station setup and operation.

Figure 1 Planned stations of the Alaska Transportable Array. Red symbols are currently operating, Blue are being installed this summer, while Yellow and Green are planned for FY16 and FY17. A total of 261 stations are planned for operation up to 2019 or beyond.