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The EarthScope USArray Transportable Array: Results from a Continental-Scale Array

The Transportable Array (TA) component of the EarthScope USArray program is yielding unprecedented observations of seismic and infrasound wavefields, and providing the ability to image earthquake rupture at teleseismic distances and to observe intra-array seismicity at magnitudes of two and lower. The rolling deployment of the 400-station TA has occupied over 1,400 station sites across the United States. Each station includes a three-component broadband seismometer, infrasound microphone, and precision barometer. Stations are deployed in a grid pattern, with 70 km separation between stations. Each station is operated for two years and all data are distributed openly and without restriction. TA stations are highly uniform in design, which facilitates efficient deployment, operation, and utilization of the data. Stations utilize simple vaults that provide low-noise performance in a wide range of terrains. Automated analysis of station state-of-health channels contributes to the overall performance of the network, and the full 400 station array routinely delivers greater than 98% data availability in real-time. Over time the station design has also been carefully evolved to enhance performance. The TA is developing plans to deploy to Alaska and is developing new sensor emplacement strategies that will yield high quality data in extreme Arctic conditions.

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