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# of Interactions Among Earth's Subsystems from the EarthScope Transportable Array

Large-scale seismological networks record diverse and complex signals resulting from interactions among Earth's subsystems. The signals vary in strength and may be unintentionally observed. For example, acoustic energy from sources such as bolides or volcanoes can propagate in the atmosphere then couple into seismic energy that is recorded by seismometers. Processes in the hydrosphere (seasonal storm activity) and cryosphere (presence of sea ice) modulate the ambient microseismic background noise. Long-period tilt signals on horizontal seismic components are driven by variations in atmospheric pressure. Finally, the weak magnetic susceptibility of broadband seismometers yields long-period signals during geomagnetic storms. These various signals provide valuable insight into interactions between the solid Earth, oceans, atmosphere, and magnetosphere. The scientific value of these observations is enhanced through the use of dense networks with standard station design, substantial geographic extent, and long duration deployments. Augmenting existing seismic networks with weather sensors, microbarometers, infrasound microphones, etc. produces complementary data that can be leveraged to best characterize the observations. We present examples from the EarthScope Transportable Array deployments in the conterminous United States and Alaska. Global geophysical networks such as the International Monitoring System and Global Seismographic Network present similar opportunities for unique observations.

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