ID: Type: **Oral**

1.1-O2. A study of atmospheric gravity waves using the USArray Transportable Array

The USArray Transportable Array (TA) is a network of approximately 400 seismo-acoustic stations deployed on a 70 km Cartesian grid covering an area of 2,000,000 km^2 in the continental United States. The network moves eastward through station redeployments and is now located on the Atlantic coast. This dense network has provided unprecedented opportunities for research in seismology, infrasound and atmospheric science. We have developed a novel technique to investigate gravity wave occurrence and propagation across the network and have applied it to atmospheric pressure data recorded from Jan 1, 2010 through 2014. We divided the stations in this time range into 3,600 non-overlapping triads. Each triad is most sensitive to propagating gravity waves in the 1-6 hour period range. We report several lines of research with this new dataset. First, we study individual large events in which atmospheric gravity waves are observed to cross the TA. We also study the long-term occurrence statistics of gravity waves and compare them to satellite observations. Thirdly, we analyze recordings of infrasound signals that have propagated through the heterogeneous background that the network has allowed us to characterize. We discuss plans for future work when the network is redeployed in Alaska.

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Track Classification: 1. The Earth as a complex system