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Integration of Infrasound, Atmospheric Pressure, and Seismic Observations with the NSF EarthScope USArray Transportable Array

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Earthscope's USArray Transportable Array (TA) network serves as a real-time monitoring and recording platform for both seismic and weather phenomena. To date, most of the approximately 500 TA stations have been retrofitted with VTI SCP1000 MEMS barometric pressure gauges capable of recording data at 1 sample per second (sps). Additionally, over 300 of the TA stations have also been retrofitted with Setra 278 barometric gauges and NCPA infrasound sensors capable of recording data at 1 and 40 sps. While individual seismic events have been successfully researched via the TA network, observations of powerful weather events by the TA network have yet to be embraced by the scientific community. This presentation will focus on case studies involving severe weather passage across portions of the TA network throughout 2011 in order to highlight its viability as a platform for real-time weather monitoring and research. It will also highlight the coupling of atmospheric signals into the seismic observations. Examples of gust front passages and pressure couplets from severe thunderstorms will be presented, as will observations of multiple tornados occurred in the Spring of 2011. These data will demonstrate the overall viability of the TA network for monitoring severe weather events in real-time.