
S45C-05 - New insights into crustal and mantle structure beneath the New England Appalachians from temporary broadband seismic deployments and integration with geological constraints



Thursday, 15 December 2022



16:28 - 16:38



S103cd (South, Level 1, McCormick Place)

Abstract

The New England Appalachians provide a fascinating window into a host of fundamental geological problems. These include the modification of crustal and mantle lithospheric structure via orogenesis, terrane accretion, and continental rifting, the evolution of individual terranes through processes such as channel flow and ductile extrusion, and the causes and consequences of the Northern Appalachian Anomaly (NAA), a prominent geophysical anomaly in the upper mantle. Recent and ongoing deployments of dense seismic arrays in New England are providing new images of the crust and upper mantle in unprecedented detail, allowing us to address both new and longstanding science questions. These deployments include the Seismic Experiment for Imaging Structure beneath Connecticut (SEISConn, 2016-2019), the New England Seismic Transects (NEST, 2018-present), and the GEology of New England via Seismic Imaging Studies (GENESIS, 2022-present) arrays. Here we present initial results from the SEISConn and NEST experiments and discuss science targets and hypothesis testing for the GENESIS experiment. In combination with constraints from geological investigations (including structural studies and geochronology work), our new seismic investigations are shedding new light on the tectonic evolution of New England and the ways in which upper mantle processes can affect the structure of the overlying lithosphere.

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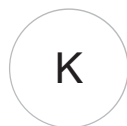
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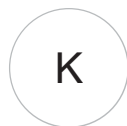
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