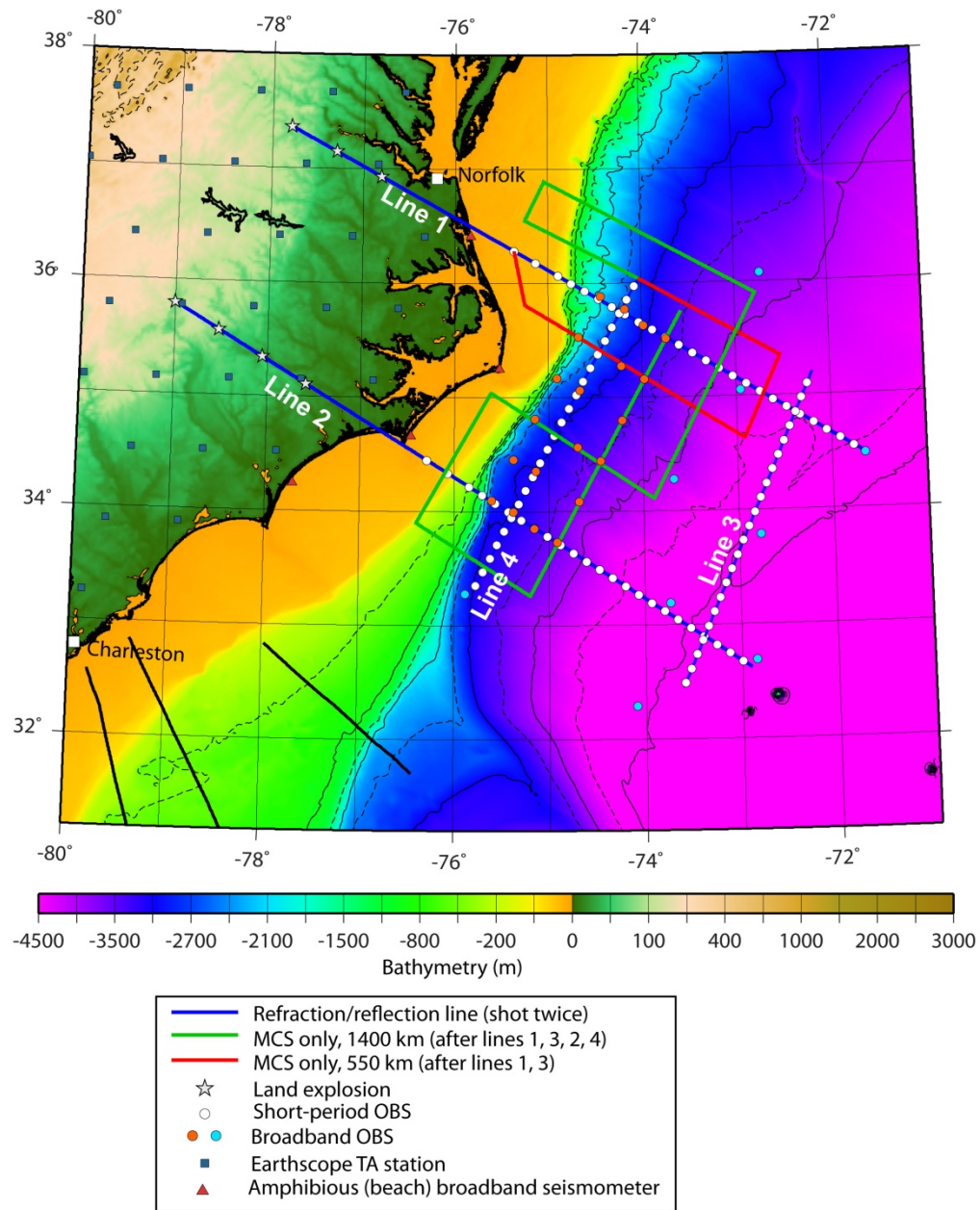


The arrival of the Earthscope Transportable Array (TA) stations to the US east coast in 2013, and the coincident choice of the Eastern North American Margin (ENAM) by GeoPRISMS as a primary site present the scientific community with a unique opportunity to take advantage of the synergy between the two efforts, and to address some of the prominent research questions regarding the structure and evolution of the ENAM. The cooperation between the two programs is particularly appropriate for the ENAM region because a 3D approach that spans multiple scales, and a footprint that crosses the shoreline is best suited to address the role of preexisting lithospheric weakness in the evolution of the margin, from the geometry of the continental rupture to the location and volume of the syn-rift magmatism, the east-west transition from craton to continental and oceanic crust, the distribution of magmatism and associated depletion throughout the lithosphere and the along strike segmentation of the margin.

In the Summer of 2012 we proposed to the US National Science Foundation an ambitious plan for seismic data acquisition on a 400-km-wide section of the mid-Atlantic East Coast margin around Cape Hatteras. The study area encompasses the rifted margin, from the continental lithosphere onshore to mature oceanic lithosphere offshore and two major fracture zones that are associated with significant offsets at the modern Mid-Atlantic Ridge. The study also covers several features representing the post-rift modification of the margin by slope instability and fluid flow. The experiment augments the Earthscope TA with 30 broadband ocean bottom seismometers (OBS) offshore North Carolina and Virginia in a 400 x 500 km area. Embedded in this onshore/offshore passive seismic array, we propose to acquire seismic reflection and refraction data offshore with the *R/V Marcus Langseth* and the *R/V Endeavor*, and refraction data onshore with a land-explosion seismic experiment. This onshore/offshore acquisition plan includes two major active-source seismic lines in the rift direction from the Carolina Terrane onto oceanic crust. Additional multichannel seismic (MCS) data acquisition in this region enable characterization of crustal and sedimentary structure of the continent-ocean transition zone, as well as the structural setting and architecture of the Cape Fear Slide, Cape Lookout Slide, and Currituck Slide on the adjacent shelf and slope. The seismic experiment was proposed in the context of a community-driven effort, with completely open data access upon completion of the data acquisition. To maximize the educational impact the project includes a multifaceted syn- and post-data acquisition plan involving young scientists and students.

As the Earthscope Transportable Array reaches the East Coast in 2013 and 2014, the community will have an unprecedented opportunity to image the structure of the rifted margin. To make effective use of the seismic vessel *R/V Marcus G. Langseth*, Earthscope seismic instrumentation, and US OBS Instrument Pool, we seek further community input both to refine the experiment plan to best meet the needs of the diverse GeoPRISMS and Earthscope communities, and to develop PI-driven proposals to take advantage of this existing effort.



Layout of the Eastern North American Margin Community Seismic Experiment.