Acquisition of a Unique Onshore/Offshore Geophysical and Geochemical Dataset in the Northern Malawi (Nyasa) Rift

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Abstract

The Study of Extension and maGmatism in Malawi aNd Tanzania (SEGMeNT) project acquired a comprehensive suite of geophysical and geochemical datasets across the northern Malawi (Nyasa) rift in the East Africa rift system. Onshore/offshore active and passive seismic data, long-period and wideband magnetotelluric data, continuous Global Positioning System data, and geochemical samples were acquired between 2012 and 2016. This combination of data is intended to elucidate the sedimentary, crustal, and upper-mantle architecture of the rift, patterns of active deformation, and the origin and age of rift-related magmatism. A unique component of our program was the acquisition of seismic data in Lake Malawi, including seismic reflection, onshore/offshore wide-angle seismic reflection/refraction, and broadband seismic data from lake-bottom seismometers, a towed streamer, and a large towed air-gun source.