

# **The Cenozoic Magmatic Record of East Africa: A Tale of Rifts, Plumes, and Paradoxes**

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The Cenozoic evolution of East Africa is a story of continental rift development superimposed upon a plume-influenced upper mantle. Not only is this region the archetype of a continental rift, but the plume material contributing to magmatism is derived from one of the largest structures on Earth – the African Large Low Shear Velocity Province. The interplay between the thinning of the plate and elevated temperatures in the mantle has controlled the composition, distribution, and cadence of magmatism in the region. In this contribution, I explore the Cenozoic magmatism of East Africa, its complexities, unexpected surprises, and seeming paradoxes. For example, in many Large Igneous Provinces there is a growing trend of constraining the main flood basalt pulse to ca. 1 to 2 Ma. East Africa, however, provides a counterexample where flood basalts persist for ca. 15 Ma. Similarly, it would be logical to assume the plume-influenced upper mantle was the source of basaltic magmas in the rift, but studies of the diversities in magma compositions highlight a key role for the lithospheric mantle in magma generation – even in regions where rifting is advanced. This spatial, temporal, and geochemical tour of the province will examine the insights possible in a broad level synthesis study. I will discuss the conceptual challenges faced when undertaking such an endeavor and aim to make this presentation relevant to not only those studying Large Igneous Provinces, continental volcanism, and the continent to ocean transition but also to those who might try to undertake a synthesis study of their own field area.