Do deep mantle plumes explain the Mesozoic igneous features of New England?

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Triassic, Jurassic, and Cretaceous alkaline intrusions and sub-volcanic complexes occur with overlapping distributions in southern Quebec and northern New England, and similar Cretaceous alkaline basalt volcanoes form the chain-like New England Seamounts in the adjacent North Atlantic Ocean. The younger magmatism has been related to a "hotspot" model, in which the North American plate passed over a stationary deep mantle plume between 125 and 70 Ma. The model relies on an apparent age progression along the seamount chain. Epeirogeny or uplift of the Adirondacks and New England Appalachians has also been assigned to the mantle plume, which was essentially independent of contemporaneous plate tectonics around the North Atlantic basin. A Canadian kimberlite and an eastern Atlantic seamount have been chosen to represent the start and end of the hotspot track, by virtue of their locations.

However, the Cretaceous igneous features have no obvious age progression within New England, and Triassic and Jurassic igneous provinces in New England do not fit any known hotspot tracks in age, geography, or anomalous uplift, although they ought to have similar origins for their alkaline magmas. There are also dozens of Late Mesozoic kimberlites and seamounts around the New England region that have no geographic indication of a deep mantle plume. Is there a mechanism to account for all of the Mesozoic magmatic features in New England, not just younger examples that can fit a plume track? Rather than hypothetical plumes of mantle material rising independently from the core-mantle boundary, origins linked to tectonic events and structures of the upper mantle and lithospheric plates in and around New England may better explain its episodes and distribution of Mesozoic magmatism.