Two distinct low εHf components in Azores lavas

P. BEGUELIN[1], M. BIZIMIS[1], C. BEIER[2], S. P. TURNER[3]

[1]Department of Earth and Ocean Sciences, Univ. of South Carolina, Columbia, SC 29208, USA (*correspondence: pbeguelin@geol.sc.edu)

[2]GZN/FAU, Schloßgarten 5, D-91054 Erlangen, Germany

[3]GEMOC, Macquarie Univ., NSW 2109, Sydney, Australia

We present Hf-isotope data on well characteirzed lavas from the Azores islands, dredged samples from the Terceira Rift (TR), and the Joaõ do Castro seamount (JdC), with the goal of undestanding the Azores plume heterogeneity in the context of plume-triple junction interaction.

Saõ Miguel island (SM) and JdC lavas form two distinct steep arrays extending below the mantle array in εHf-εNd space. JdC overlaps Mangaia (HIMU) lavas in εHf-εNd space, but has unradiogenic Pb isotopes, unilke HIMU. SM and JdC are also distinct in their Sr and Pb isotopes. Therefore, the two low εHf end-members are not of HIMU origin, and if they are related to recycled metasomatized lithosphere [1, 2], then our data shows that this is spatially variable within the plume.

These two low εHf end-members seem to be highly local features, not influencing the composition of the Western and Main groups of islands. Varying lithosphere thickness at the complex Azores plume – triple ridge junction is likely to control mixing and repartition of mantle components.

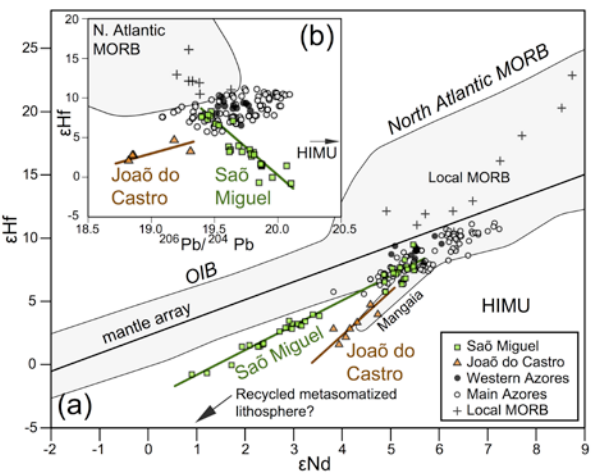

Figure 1: (a) εNd-εHf plot of Azores lavas showing the discussed arrays. (b) $^{206}Pb/^{204}Pb$-εHf plot of the same data.

[1] Schaefer *et al*. (2002) *Nature* **420**, 304-307. [2] Elliott *et al*. (2007) *Geoch. et Cosm. Acta* **71**, 219-240.