Galapagos plume terranes – longevity of plume components

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The Quepos and Azuero terranes are accreted oceanic terranes located on the Pacific side of Costa Rica and Panama. They formed 60-70 Ma ago [1, Trela et al. in prep.] and represent seamounts formed by the Galapagos plume tail stage of the 90 Ma active Galapagos plume system. Here we present hafnium and helium isotope analyses of picritic samples previously analyzed for major, trace, Sr-Nd-Pb isotopic compositions as well as olivine major, trace elements and T by olivine-spinel thermometry [1, Trela et al. in prep.]. 3He/4He was measured by crushing of fresh olivine separates and gave for Quepos 10.3-20.5 R/Ra increasing the range towards higher values compared to previous analyses [2]. Helium isotope ratios are lower for Azuero with 4.1-10.3 R/Ra. Hafnium isotopes of 0.28297-0.28305 overlap for the two terranes and are comparable to the range previously reported for Quepos (0.2830-0.28305) [3].

The data will be discussed in the context of the four compositional domains of the present-day Galapagos plume. Helium isotope data are evaluated in the context of source lithology, temperature, and geochemical signatures. The data further support the persistence of the Central Domain signature over 70 Ma including the high 3He/4He isotopic signature.

[1] Trela *et al*. (2015) *EPSL* **425**, 268-277. [2] Hauff *et al*. (2000) *EPSL* **174**, 247-263. [3] Geldmacher *et al*. (2003) *G3* **4**, doi:10.1029/2002GC000477.