Vitoria-Trindade Ridge: petrology and geochemistry studies of seamounts and Martin Vaz Archipelago

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Lots of efforts have been made through the years to the Vitoria-Trindade ridge studies. A certain amount of data in the literature is found but not complete enough to set up a geological setting. [1] suggest the opposite, that there is hotspot associated according to the geochemistry evidences to the Columbia seamount.

On February 2011 was realised a rock dragging of Columbia, Dogaressa, Davis, Jaseur and Montague beyond a field work to Trindade and Martin Vaz. Over 140 samples for the studies and and 120 thin sections made besides 116 litogeochemistry analyses.

The seamounts petrological and litogeochemistry studies revealed the basanite as main rock for this seamount formation, where clinopyroxene and olivine beyond alteration were observed. For Martin Vaz contains basanite covering the pyroclastic rocks of the base and necks and dikes of fonolite.

Lavas from seamounts, Trindade and Martin Vaz Islands are situated on mature (70 Ma) oceanic crust and form an alkaline volcanic suite that shows an evolution from parental basanites to derivative phonolites. The systematic variation in major and trace element concentrations observed between the basanites, and phonolites are interpreted to be the result of fractional crystallization. Incompatible element concentrations in comparison with published data from other regions along the Trindade hotspot track (Abrolhos, Poxoreu, Alto Paranaiba, Serra do Mar) shows that this track can be explained by a conventional plume model.

[1] Fodor RV (2000) Geochemical evidence for the Trindade hotspot trace: Columbia seamount ankaramite. *Lithos* **51** (2000), pp 293–304.