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TITLE: Icelandic emergence: an alternative vision based on the model of volcanic systems

SESSION TYPE: Poster

SESSION TITLE: T51H. The Origin of Intraplate Volcanism: Hotspots, Nonhotspots, and Large Igneous Provinces III Posters

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ABSTRACT BODY: The most common hypothesis about the origin of Iceland requires the combined action of a mantle plume centered under the mid-Atlantic ridge at the latitude of this island. Alternative hypothesis exists, however, envisaging Iceland as the result of an old slab that increased mantle fertility. We examined both of these hypothesis to the light of compiled geophysical, geological and geochemical datasets. In particular much attention was given to the implications of each hypothesis considered, concerning the location of volcanic centers through the history of the island. Overall, the idea of an abnormal mantle under the northern Atlantic, perhaps associated to continental delamination, seems to explain better the documented changes in the ridge systems and the ridge jumps as recorded by the volcanic record in Iceland. The appearance of Iceland at a triple junction of ridges (the extinct Aegir Ridge and the still active Kolbeinsey and Reykjanes Ridges) is therefore envisaged as a combination of a more fusible mantle and specific stress constraints in the crust associated to the opening of the Atlantic. Thus, by redirecting attention to information provided by the clusters of volcanic systems, we are able to produce a simple tectonic model capable to reconcile known facts concerning the evolution of the north-Atlantic in the past 50 My, and a wide diversity of geological, geochemical and geophysical observations.

KEYWORDS: [8137] TECTONOPHYSICS / Hotspots, large igneous provinces, and flood basalt volcanism, [8150] TECTONOPHYSICS / Plate boundary: general, [8178] TECTONOPHYSICS / Tectonics and magmatism.

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