



## **Indian ridges, hotspots and interactions: Réunion-CIR and Amsterdams-St Paul-SEIR cases**

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Recent samples from the R/V Reville cruise RR11Knox (2007) have completed the study by Nauret et al. (2006) based on the GIMNAUT cruise samples (2000) on the interaction areas between the Reunion plume and the Central Indian Ridge (CIR). The data (Füre et al. 2008) support what Nauret et al. suggested. i.e. there seems to be a flux of  $^3\text{He}$  enriched material through the off axis Three Magi and Gasitao ridges toward the south on the segment of the CIR involved in the interaction. Radiogenic isotopes establish that this material derives from the Reunion plume and traveled from the present position of the plume to the spreading axis. Witnesses of this transfer are the off axis ridges produced by melting of the underlying mantle through tension cracks in the lithosphere and maybe also the island of Rodrigues.

Cruise Pluriel (2006) on the St Paul-Amsterdam plateau has completed cruise Boomerang 6 (1996) in investigating the off axis volcanism of the plateau. Isotope data on Boomerang samples along the spreading axis were published by Nicolaysen et al. (2007) and pointed out the complexity of the interaction between the ASP plume and the SEIR. Our new radiogenic isotope data establish a link between the seamount chain, the plateau and the islands. Subtle changes in composition are due to the two stages construction process of the plateau and seamounts. Some of them, highly alkaline, derive from lithospheric melting along tension cracks during a last phase of off axis magmatism on the Australian plate.

In conclusion, in both locations, it appears that the construction of plateau and/or off axis ridges/seamounts is related to the level of activity of the plume that seems to pulse with time.

Nicolaysen, K.P., et al. (2007), *G3*, 8(9), 24.

Nauret, F., et al. (2006), *Earth Planet. Sci. Let.* 245, 137-152.

Füre et al. (2008), *InterRidge News*, 17, 28-29.