



## Insights into the Reunion hotspot magmatism from primitive melt inclusions

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Réunion island, located in the Indian Ocean, is the present location of the hotspot that generated the Deccan flood basalts 65 Ma ago, the Chagos-Maldives-Laccadive Ridge and the Mascarene Plateau.

We present major and trace-element data from olivine-hosted melt inclusions from Réunion (Piton des Neiges and Piton de la Fournaise volcanoes) and Mauritius islands. Our preliminary results suggest that the changes in the melt inclusion compositions result from the melting of a single source that has been homogeneous over the last 8.5 Ma. Major and trace element concentrations were determined by EMP and LA-ICP-MS in melt inclusions from high-Mg olivines (Mauritius: Fo<sub>86–90</sub>; Piton des Neiges: Fo<sub>85–89</sub>; Piton de la Fournaise: Fo<sub>83–87</sub>). Inclusions from Piton de la Fournaise display tholeiitic compositions, whereas those from Mauritius and Piton des Neiges show a transition between alkali and tholeiitic basalts. The compositions of melt inclusions are consistent with the major element trends defined by the whole rocks [1, 2], but do not seem to have been affected by clinopyroxene removal. The trace element patterns show little difference between the three different volcanoes. They display clear correlations between the incompatible element concentrations and rather constant highly incompatible element ratios (e.g., Nb/La =  $1.08 \pm 0.1$ , Th/U =  $4 \pm 0.4$ ). Melting of a single source can account for these geochemical variations. Thus, the mantle source of the Reunion hotspot has been homogeneous and constant

over the last 8.5 Ma.

This work is being completed by the study of samples from leg 715 basalts (from Maldives-Laccadives and Mascarene Plateaux) and from the Deccan traps.

[1] Albarède, F., Fitton, G., Luais, B., Semet, M., Kaminski, E., Upton, B.G.J., Bachèlery, P., Cheminée, J.-L., *J. Petrol.* 38 (1997) 171-201.

[2] Fisk, M.R., Upton, B.G.J., Ford, C.E., White, W.M., *J. Geophys. Res.* 93 (1988) 4933-4950.