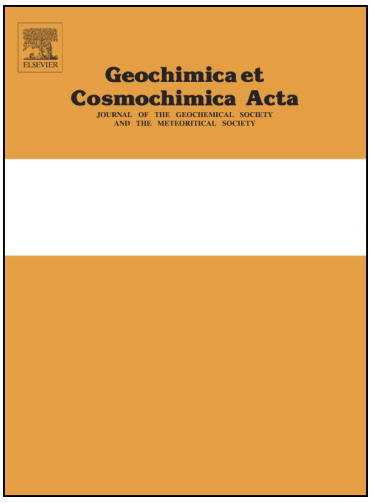

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Extensive CO_2 degassing in the upper mantle beneath oceanic basaltic volcanoes: first insights from Piton de la Fournaise volcano (La Réunion Island)

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ABSTRACT

In spite of its major role on the atmospheric volatile budget, climate, and tracking magmatic transfers, mantle (CO_2) degassing below volcanoes is still poorly understood. Most of the studies on this scientific topic lack constraint on the CO_2 concentration of primary melts, the depth at which it starts degassing, and the extent of this process in the mantle. In this study of Piton de la Fournaise (PdF) volcano, we couple geochemistry of low solubility gases (He, Ar, CO_2, $\delta^{13}C$) in fluid inclusions (FIs) and petro-chemistry of magmatic inclusions on a set of olivine and clinopyroxene crystals from basalts and ultramafic enclaves.