

Accepted Manuscript

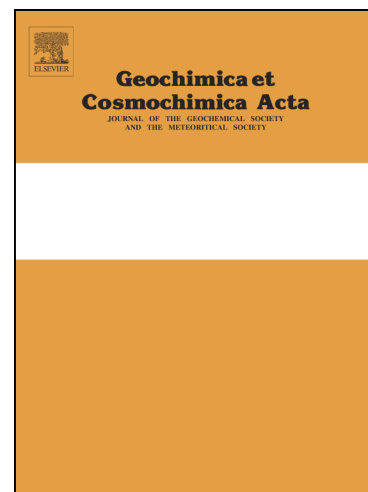
Extensive CO₂ degassing in the upper mantle beneath oceanic basaltic volcanoes: first insights from Piton de la Fournaise volcano (La Réunion Island)

G. Boudoire, A.L. Rizzo, A. Di Muro, F. Grassa, M. Liuzzo

PII: S0016-7037(18)30319-3
DOI: <https://doi.org/10.1016/j.gca.2018.06.004>
Reference: GCA 10793

To appear in: *Geochimica et Cosmochimica Acta*

Received Date: 5 December 2017
Revised Date: 29 May 2018
Accepted Date: 4 June 2018



Please cite this article as: Boudoire, G., Rizzo, A.L., Di Muro, A., Grassa, F., Liuzzo, M., Extensive CO₂ degassing in the upper mantle beneath oceanic basaltic volcanoes: first insights from Piton de la Fournaise volcano (La Réunion Island), *Geochimica et Cosmochimica Acta* (2018), doi: <https://doi.org/10.1016/j.gca.2018.06.004>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

Extensive CO₂ degassing in the upper mantle beneath oceanic basaltic volcanoes: first insights from Piton de la Fournaise volcano (La Réunion Island)

G. BOUDOIRE^{1,2*}, A. L. RIZZO^{3,4}, A. DI MURO^{2,5}, F. GRASSA³, M. LIUZZO³

¹Laboratoire Géosciences Réunion, Université de La Réunion, Institut de Physique du Globe de Paris (IPGP), Sorbonne Paris-Cité, UMR 7154 CNRS, F-97715 Saint-Denis, France

²Observatoire Volcanologique du Piton de la Fournaise (OVPF), Institut de Physique du Globe de Paris (IPGP), Sorbonne Paris-Cité, UMR 7154 CNRS, Université Paris Diderot, Bourg Murat, France

³Istituto Nazionale di Geofisica e Vulcanologia, Sezione di Palermo, Via Ugo La Malfa 153, 90146 Palermo, Italy

⁴Dipartimento di Fisica e Scienze della Terra, Università degli Studi di Ferrara, Italy

⁵Institut de Physique du Globe de Paris (IPGP), Sorbonne Paris-Cité, UMR 7154 CNRS, Université Paris Diderot, F-75005 Paris, France

* Corresponding author. Observatoire Volcanologique du Piton de la Fournaise (OVPF/IPGP), Impasse de l'Observatoire, Bourg Murat, 97418, France. Telephone: +262 (0)2 62275292. Fax: +262 (0)2 62591204. E-mail: guillaume.boudoire@gmail.com

ABSTRACT

In spite of its major role on the atmospheric volatile budget, climate, and tracking magmatic transfers, mantle (CO₂) degassing below volcanoes is still poorly understood. Most of the studies on this scientific topic lack constraint on the CO₂ 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, CO₂, $\delta^{13}\text{C}$) in fluid inclusions (FIs) and petro-chemistry of magmatic inclusions on a set of olivine and clinopyroxene crystals from basalts and ultramafic enclaves.

Download English Version:

<https://daneshyari.com/en/article/8910689>

Download Persian Version:

<https://daneshyari.com/article/8910689>

[Daneshyari.com](https://daneshyari.com)