

Rock fall photogrammetric monitoring in the active crater of Piton de la Fournaise volcano, la Reunion Island

Clément Hibert, Thomas Dewez, Anne Mangeney, Gilles Grandjean, Fabrice Boissier, Philippe Catherine, Philippe Kowalski

► **To cite this version:**

Clément Hibert, Thomas Dewez, Anne Mangeney, Gilles Grandjean, Fabrice Boissier, et al.. Rock fall photogrammetric monitoring in the active crater of Piton de la Fournaise volcano, la Reunion Island. EGU General Assembly 2010, May 2010, Vienne, Austria. pp.6928. hal-00533856

HAL Id: hal-00533856

<https://hal-brgm.archives-ouvertes.fr/hal-00533856>

Submitted on 8 Nov 2010

HAL is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.



Rock fall photogrammetric monitoring in the active crater of Piton de la Fournaise volcano, La Reunion Island

Clément Hibert (1,2), Thomas Dewez (2), Anne Mangeney (1), Gilles Grandjean (2), Patrice Boissier (3), Philippe Catherine (3), and Philippe Kowalski (3)

(1) Institut de Physique du Globe de Paris, Laboratoire de Sismologie, Paris, France (hibert@ipgp.jussieu.fr), (2) Bureau de Recherches Géologiques et Minières (BRGM), Natural Risks and CO2 Storage Security Unit, Orléans, France, (3) Observatoire Volcanologique du Piton de la Fournaise, Institut de Physique du Globe de Paris, Réunion, France

The collapse of the active crater at Piton de la Fournaise volcano, La Reunion Island, 5th April 2007, offers a rare opportunity to observe frequent rock fall and granular landslides, and test new monitoring techniques. Events concern volumes ranging from single blocks to more massive cliff collapse.

The purpose of the presentation is two fold: first, we present a comparison between a Digital Terrain Model (DTM) obtained prior to crater collapse and a DTM extracted from aerial photographs shot in October 2010 (before the eruptive crisis of November 2009 and January 2010). This provides an assessment of morphological changes at the scale of the crater. The second purpose is to describe slope instabilities on the south-western flank of the crater observed since October 2009. These ground-based observations were obtained from a pair of photogrammetric stations deployed along the northern and eastern edges of the crater. These works were conducted within UNDERVOLC project.

With this monitoring system we mapped zones affected by rockfalls (departure and accumulation areas) and propose a first estimate of volumes of lava produced by the eruption affecting the inside of the crater since January 2.