

V52D-08 - Teleseismic detection of very long period signals from Mayotte volcanic crisis



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Abstract

Deep ocean volcanoes are responsible for 70% of the Earth magma output, although only ~10% of records in the most accurate compilation of volcanic episodes relate to deep-ocean volcanoes. This reflects our limited knowledge of deep-basin volcanism that arises from the logistic difficulties encountered in a direct monitoring. We introduce a methodology to detect long-period volcanic signals using global-scale seismological data. Our approach allowed the identification of recurrent long-period seismic signals that originated near Mayotte. Joint analysis of these low-frequency seismic signals and GPS data indicated an episode of volcanic unrest that involved very large volumes of magma, and reveals its small-scale dynamics. These data demonstrate the feasibility of monitoring large and remote volcanic unrest, and shed new light on the functioning of deep-ocean volcanoes.

Authors

[Piero Poli](#)

Massachusetts Institute of Technology

[Shapiro Nikolai](#)

Institut de Physique du Globe de Paris

[Michel Campillo](#)

ISterre Institute of Earth Sciences, CNRS, Université Grenoble Alpes

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Simone Cesca¹, Jean Letort², Hoby N. T. Razafindrakoto¹, Sebastian Heimann¹, Eleonora Rivalta^{1,3}, Marius Isken⁴, Luigi Passarelli⁵, Mehdi Nikkhoo^{1,6}, Gesa M. Petersen⁷, Fabrice Cotton¹ and Torsten Dahm¹, (1)Helmholtz Centre Potsdam GFZ German Research Centre for Geosciences, Potsdam, Germany, (2)IRAP - Observatoire Midi Pyrénées, Toulouse, France, (3)Helmholtz Centre Potsdam GFZ German Research Centre for Geosciences, Geophysics, Potsdam, Germany, (4)University of Kiel, Kiel,