Bridging the gap between Gas Emissions and geophysical observations at active volcanoes

Ficha informativa

Información del proyecto

BRIDGE

Identificador del acuerdo de subvención: 305377
Estado Proyecto cerrado
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Objetivo

In spite of their significance in a variety of volcanological aspects, gas observations at volcanoes have lagged behind geophysical studies for a long time. This has primarily reflected the inherent technical limitations met by gas geochemists in capturing volcanic gas properties (chemistry and flux) at high-rate (1 Hz), and using permanent instrumental arrays. The poor temporal resolution of volcanic gas observations has, in addition, precluded the real-time analysis of fast-occurring volcanic processes, as those occurring shortly prior to eruptions, therefore generally limiting the use of gas geochemistry in volcanic hazard assessment. However, the recent progresses made by modern multi-component/high frequency measurement techniques now open the way for decisive step ahead in the current state-of-the-art to be finally attempted.

The BRIDGE research proposal has the ambitious goals to bridge the existing technological gap between geochemical and geophysical observations at volcanoes.
This will be achieved by designing, setting up, and deploying in the field, innovative instruments for 1 Hz observations of volcanic SO2 and CO2 fluxes. From this, the co-acquired volcanic gas and geophysical information will be then combined within a single interpretative framework, therefore contributing to fill our current gap of knowledge on fast (timescales of seconds/minutes) degassing processes, and to deeper exploration of the role played by gas exsolution from (and migration through) silicate liquids as effective source mechanism of the physical signals (e.g., LP and VLP seismicity, and tremor) measured at volcanoes. Finally, this combined volcanic gas-geophysical approach will be used to yield improved modelling/understanding of a variety of volcanic features, including modes/rates of gas separation from magmas, mechanisms of gas flow in conduits, and trigger mechanisms of explosive volcanic eruptions.
Beneficiarios (2)

**UNIVERSITA DEGLI STUDI DI PALERMO**

- **Italia**
- **Aportación de la UE**: € 1 429 022
- **Dirección**: Piazza Marina 61, 90133 Palermo
- **Tipo de actividad**: Higher or Secondary Education Establishments

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**UNIVERSITA DEGLI STUDI DI PALERMO**

**AGENZIA NAZIONALE PER LE NUOVE TECNOLOGIE, L’ENERGIA E LO SVILUPPO ECONOMICO SOSTENIBILE**

- **Italia**
- **Aportación de la UE**: € 67 200
- **Dirección**: Lungotevere Grande, Ammiraglio Thaon Di Revel 76, 000196 Roma
- **Tipo de actividad**: Research Organisations

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