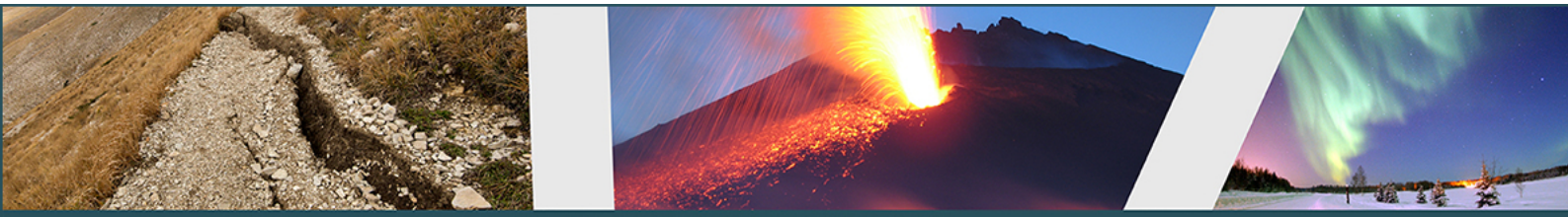

INGV ANNALS OF GEOPHYSICS

Trace elements mobility in soils from the hydrothermal area of Nisyros (Greece)

Kyriaki Daskalopoulou, Sergio Calabrese, Silvia Milazzo, Lorenzo Brusca, Sergio Bellomo, Walter D'Alessandro, Konstantinos Kyriakopoulos, Franco Tassi, Francesco Parello

Abstract

Nisyros Island, Greece, is a stratovolcano known for its intense hydrothermal activity. On June 2013, during a multidisciplinary field campaign, soil samples were collected in the caldera area to determinate the main mineralogical assemblages and to investigate the distribution of trace element concentrations and the possible relationship to the contribution of fluids of deep origin. Soil samples were analysed with XRD and for the chemical composition of their leachable (deionized water) and pseudo total (microwave digestion) fraction both for major and trace elements. The results allow to divide the samples in 2 groups: Lakki Plain and Stefanos Crater. The latter, where a fumarolic area is located, shows a mineralogical assemblage dominated by phases typical of hydrothermal alteration. Their very low pH values (1.9 – 3.4) show the strong impact of fumarolic gases which are probably also the cause of strong enrichments in these soils of highly volatile elements like S, As, Se, Bi, Sb, Tl and Te.

Keywords

volatile elements; fumarolic gases; volcanoes

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PDF

References

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KEYWORDS

Central Italy Earthquake GPS Historical seismology Ionosphere Irpinia earthquake Italy Mt. Etna Seismic hazard Seismic hazard assessment Seismology UN/IDNDR earthquake earthquakes historical earthquakes ionosphere magnetic anomalies paleoseismology seismic hazard seismicity seismology