



## **Geochemical and isotopic investigations on the volcanic activity of Ischia island (S. Italy) in the past 10 ka: first results and inferences for an evaluation of the behavior of the magmatic system**

**M. D'Antonio** (1,2), M. Andria (2,3), I. Arienzo (2,4), L. Civetta (1,2), S. de Vita (2), G. Orsi (2), R. Petrini (3), F. Slejko (3), S. Tonarini (5)

(1) University Federico II, Naples, Italy, (2) INGV-Osservatorio Vesuviano, Naples, Italy, (3) University of Trieste, Trieste, Italy, (4) University Alma Mater, Bologna, Italy, (5) Istituto di Geoscienze e Georisorse, CNR, Pisa, Italy (masdanto@unina.it / Phone: +39 081-2538323 / Fax: +39 081-2538145)

The island of Ischia is an active volcanic field located in the north-western corner of the Gulf of Naples (South Italy). A complex interplay among tectonism, volcanism, volcano-tectonism, erosion and sedimentation has characterized the whole history of the island. Volcanism began prior to 150 ka B.P. and continued, with quiescence periods centuries to millennia long, until the last eruption occurred in 1302 A.D. Early volcanism culminated with the caldera-forming Mt. Epomeo Green Tuff eruption (55 ka) which was followed by block resurgence of the caldera floor, at least since 33 ka. Resurgence dynamics influenced the later volcanic activity determining the conditions for magma ascent mainly within the eastern portion of the island and along pre-existing regional faults. During the last period of activity, started 10 ka B.P., volcanism was mainly concentrated around 5 ka and in the past 2.9 ka. The volcanic system is still active, as testified by the intense volcanism in historical times, widespread fumaroles and thermal springs, and seismic activity.

New geochemical and isotopic data have been acquired on volcanic rocks representative of the past 10 ka volcanic activity at Ischia. The analyzed rocks are both pyroclastic (pumice, scoria and obsidian fragments) and lava, collected from volcanic units positioned in a well defined chronological succession. The volcanics range in composition from shoshonite, through latite and trachyte, to phonolite; moreover, they are

variable in isotopic composition of Sr and Nd. All new data have been integrated with available data on volcanic rocks from the same period of time. The whole data set has been employed to make chemostratigraphic diagrams and perform petrological modeling. The results of these investigations have been integrated with volcanological and structural data in order to understand the behavior of the magmatic feeding system of Ischia through time.