



## **Effects of the recent volcanic activity of Mt. Etna on in-soil Radon concentration in the NE flank**

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In-soil radon investigation has been performed on Mt. Etna. The aim of this study was to evaluate the effects of the recent volcanic activity on soil radon concentration trend. Continuous radon measurements have been performed since July 2001 on the NE flank of Mt. Etna. The monitoring technique consisted on a drawing system of soil gas through a probe hit in the ground, connected with a ionization chamber detection system, equipped of an aqua-stop filter, for eliminating the moisture, and of a progeny filter in order to allow  $^{222}\text{Rn}$  passes only. In the same site a seismic station and meteorological sensors are located.

Three flank eruptions have involved Mt. Etna, during the investigated period: i) July-August 2001, which has involved prevalently the southern flank and secondary the eastern one; ii) October 2002 - January 2003, which has involved both the north-eastern and the southern flanks; iii) September 2004, which has involved the eastern flank.

The recorded in-soil radon concentration has shown cyclical average behavior. Even if the comparison among the radon trend and the meteorological parameters (Temperature, Humidity and Pressure), seems generally to show a seasonal correlation, nevertheless a possible dependence of the radon concentration on volcanic dynamics is not excluded, in fact some radon anomalies are not linked to anomalies on any meteorological parameter. Moreover the study of the seismic activity recorded in the same flank has allowed to characterize the volcano dynamics and to correlate it with

the radon trend; in fact, variations in the concentration values are recorded after an eruptive event.