



Volcano ground deformation monitoring: CGPS, leveling and tide-gauge at Vesuvius and Campi Flegrei

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One of the most relevant active volcanic area of the world is located around the city of Naples. This area is characterized by three volcanic active structures: Somma-Vesuvius, Campi Flegrei and Ischia Island. The Somma-Vesuvius volcano, placed east of Naples, (the last eruption occurred on 1944) is quiescent. It is characterised by a low level seismicity and deformation activity. Campi Flegrei (the last eruption occurred on 1538) are characterised by a slow deformation, called bradysism. During the 1969-72 and 1982-84, the Campi Flegrei caldera has been affected by two intense episode of ground uplift. In 1985, a subsidence phase started, with some episodic small and fast uplifts superimposed. Ischia Island has been characterized by a volcanic activity both explosive and effusive (the last eruption has occurred on 1302). Successively, dynamics has been characterized by seismic activity (strongest events occurred on 1881 and 1883) and by meaningful subsidence, in the S and NW sectors of the island. The concentration of the these active volcanoes in an area with dense urbanization needs systematic monitoring, in order to characterize eruptive precursors useful for modelling the volcanoes behaviour. Ground deformation is usually connected with changes of pressure in shallow magma reservoirs or with intrusive events. Therefore, analysis of ground deformation is one of the tools for understanding the geometrical and dynamical parameters characterizing magma bodies. The ground deformations in the Neapolitan Volcanic area are monitored by means of classical and satellite technique and, due to the vicinity of a coastline by the continuous recording of the sea level, using suitable tide gauge stations. In this paper we describe data processing and we show some results obtained in the last years, with main result in evidencing a mini-uplift during last two years.