

## Gravity monitoring of Nisyros Volcano (Greece): 2001-2004 preliminary results.

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The island of Nisyros is a stratovolcano at the eastern end of the Hellenic island arc. This arc of volcanoes is related to the northward subduction of the African plate beneath the Aegean microplate. The eastern sector of the arc, including the islands of Kos, Yiali and Nisyros seems to be geodynamically very active since it comprises the largest volumes of volcanic products and is at present a region of high tectonic unrest.

In June 2001, a microgravity network was installed on the Nisyros island, with the aim to monitor gravity variations and report changes, if any, in elevation and/or density induced by geodynamic activity. Topographic monitoring of gravity benchmarks based on a differential-mode, dual-frequency GPS, started in 2002.

The sites were selected in parts of the island experiencing different seismic-tectonic processes, in order to detect their relative movements.

In June 2002, monitoring measurements by the microgravity network was repeated for the first time. The comparison of the resulting values with those recorded in 2001 showed a maximum variation of +0.034 mGal in the active volcanic area, with an increasing trend towards South. In 2003 and 2004, the monitoring measurements was repeated again. The resulting G variations were comparable to those observed in 2001-2002. However, with the installation of a new station in 2002, the G variations proved to be confined to the most active volcanic areas.

The extent of the variations recorded between 2001 and 2004 largely exceeded the measuring errors, suggesting that such variations are to be ascribed to mass variations of the volcanic complex.

