



Ischia island: strain field by GPS and Levelling data.

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In this paper, we discuss the results obtained by means high precision levelling and GPS surveys performed at Ischia island in June 2010.

The levelling survey has been carried out on the whole network of the island. The compensated heights for each benchmark (bm), referred to bm 1 located at Ischia harbour, were compared to those obtained in the previous levelling survey performed during 2003.

The GPS network operating on Ischia Island consists of 21 3D vertices homogeneously distributed on the island. Six different GPS surveys of the whole network were carried out since 1997, in order to investigate the subsidence phenomena. The comparison among the 1997, 1998, 1999, 2001, 2003 and 2010 surveys results show that some GPS points present significant horizontal displacements confirming slow but continuous deformations in the Southern and North West sectors of the island.

The results show significant ground subsidence of various amplitude affecting different areas of the island. In addition, a further comparison with the measurements performed in 1987 confirms the existence of such differential movements characterised by subsidence velocity constant over time. Finally, we found a good agreement between levelling and GPS velocities, calculated in time span 1997-2010.

Therefore, the integration of GPS and levelling data allowed to define the strain field on the island over the past 20 years.