



Ground deformation analysis using GNSS permanent stations: Experience on Central Italy after the l'Aquila Earthquake

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The great number of GNSS permanent stations nowadays available represents a very important tool for many surveying applications. Satellite technologies as well as dedicated software yet affirmed, have opened new horizons in the field of surveying. In particular, the construction of GNSS time series can provide interesting results regarding the ground's surface monitoring on both local and global scale. This knowledge should have interesting extensions when applied on the seismically very unsteady underground. This research aimed to understand the moving patterns caused by the seismic sequence of L'Aquila earthquake (2009) in the central Italy using various networks of permanent stations. Global IGS/EPN/RDN and the local regional networks of Abruzzo and Umbria regions have been employed on purpose. All measurements were carried out with a great number of permanent stations creating a long time series with enough information to analyze the surface movements of the territory. With the obtained results a comparison between the pre and post seismic period was possible. The test area was extended on a radius of about 50 km from the seismic epicenters. All data elaborations were made using two scientific software (BERNESE and GAMIT/GLOBK) achieving high accuracy by modeling any source of error on measurements. The results of the elaboration with both software and for all networks are being presented.