

Abstract

GeoNetGIS: A GIS Method for Geodetic Applications

Track: Mining and Geosciences

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To evaluate geodetic strain rate and coseismic deformations of seismically active areas, we set up and surveyed a GPS geodetic network to investigate the active tectonic structures in Central Italy's Apennine. For an optimal management and mapping of the CA-GeoNet (Central Apennine Geodetic Network) a Geodetic Network GIS has been developed.

To analyze geodetic sources and improve analysis of crustal deformations we realized GeoNetGIS on PC platform using ArcGIS8.2 software. GeoNetGIS manages a repository consisting of different classes such as: Geodesy, Topography, Geography, Seismicity, Geology and Raster Images, administrated according to Thematic Layers. GeoNetGIS is required for multidisciplinary approach and management of large multi-scaled data sets, geographically referenced and with continuous or discrete coverage; it is particularly designed to analyze GPS sources related with tectonic structures and seismicity. Through GeoNetGIS, we can display site displacements, strain rate maps and create new layers gained by numerical and spatial analysis. To plot and investigate relationship between GPS station and tectonic lineaments on geology layer or aerial photography, a tridimensional scenery is implemented.

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