



Using GPS and seismic data for hazard estimation of Egypt

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Recent crustal deformation studies have a great role for evaluating the geodynamics of the seismo-active areas in the country. The crustal deformations must be put in mind where connecting significantly with the human life and its resources. From the historical point of view and recent instrumental records, there are some seismo-active regions in Egypt, where some significant earthquakes had occurred in different places. The special tectonic features in Egypt are the territories of a high seismic risk, which have to be monitored by up-to date technologies. Investigations of the seismic events and interpretations led to evaluate the seismic hazard for disaster prevention and for the safety of the dense populated regions and the vital national projects as the High Dam. In addition to the monitoring of the seismic events, the most powerful technique of satellite geodesy GPS are used where geodetic networks are covering such seismo-active regions. Active crustal deformation field in active regions in Egypt are examined, as obtained from both seismological and GPS data. The results from data sets are compared and combined in order to determine the main characteristics of deformation and hazard estimation for specified region. The final compiled output from the seismological and geodetic analysis threw lights upon the geodynamical regime of these seismo-active regions and classified them according to horizontal crustal strains classifications. This study is an attempt to build a basis for further development of seismic catastrophic risk management models to reduce a risk of large catastrophic losses within the important region in Egypt.