



## **Seismicity and Monitoring Crustal Deformation in and around Egypt Using GPS Technique: Implication for Eastern Mediterranean and Middle East Tectonics**

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Studies of crustal movements in Egypt started as early as 1983 following the occurrence of Aswan earthquake in 1981. On November 14, 1981 an earthquake with magnitude 5.6 occurred at kalabsha fault, 70-Km southwest of Aswan City. This earthquake is considered as an important event as it is located not far from the Aswan High Dam. Therefore, the first program for monitoring crustal movements has been started in Kalabsha area during the winter of 1983 with the cooperation between the National Research Institute of Astronomy and Geophysics (NRIAG) and the Aswan & High Dam Authority. The initial measurements were carried out in December 1984. These measurements were repeated twice a year till December 1994.

Since the year of 1994 till now, the geodetic observations by means of Global Positioning System (GPS) were applied instead of the Terrestrial ones to cover some other regions of the country (e.g. Sinai, Greater Cairo and Aswan). Data adjustment and analysis of the reaped GPS campaigns from the different networks prevailed significant movements which helps in more understanding the geodynamics of these regions and in creating maps of seismic hazard assessments.

Also, the main characteristics of the seismotectonics of Egypt, which are necessary to a reliable evaluation of the seismic risk, are discussed. The analysis is based on the previous published works on the geologic, tectonics, structural setting of the selected sites and the recently recorded seismic activity from 1900- 2000. Besides, NRIAG collaborated in carrying out GPS measurements in the Eastern Mediterranean and Middle East Regions. The results of these measurements are presented.