

**A STUDY OF CRUSTAL DEFORMATION
ALONG THE RED SEA REGION USING
GEODETIC AND SEISMIC DATA FROM EGYPT AND YEMEN**

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A b s t r a c t

Monitoring of recent crustal deformation was carried out using GPS observations to detect the present-day styles and rates of extension, as well as rift-margin deformation along the extent of the Red Sea rift.

For studying the crustal deformation along the Red Sea Region and Gulf of Aden, 12 geodetic stations were established to cover some areas in Egypt and Yemen. The GPS measurements were carried out in April 2000 and November 2001. Analysis of the first and second campaigns of GPS measurements indicates that the magnitude of movements together with the strain parameters is small, but the magnitude of displacement may reach up to 20 mm in some points close to the Red Sea, such as those in Hodeidah (Yemen) and Dahab (Egypt). Moreover, the direction of movement on these points is opposite to each other. Such results are in harmony with the general trend of the tectonics in the Red Sea region. Separate analyses of GPS measurements on geodetic points in Yemen relative to each other show a rate of displacement of about 3 mm. The direction of movement on Sana'a is SW and on Aden is NE.

Key words: crustal movements, GPS data, seismic activity, Red Sea region.