



A New Earthquake Focal Mechanism Catalog for Egypt

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We present a new earthquake focal mechanism catalog for Egypt based on well-constrained fault plane solutions compiled from the previous studies and the earthquake catalogs of the National Earthquake Information Centre (NEIC) of the USGS, the International Seismological Centre (ISC), the American Incorporated research Institutions for Seismology (IRIS) and the European-Mediterranean Seismological Centre (EMSC) from 1955 to 2017. It also contains solutions for moderate-to-large size earthquakes ($M_I \geq 3.0$) from the Egyptian National Seismological Network (ENSN) from 1997 to 2017 using P-wave polarities and amplitude ratios to inspect the mode of tectonic deformation and search for the distribution of the main stress axes on different tectonic provinces in Egypt.

According to the general distribution of the recent major earthquake epicenters in Egypt, the most active seismic zones have been divided into nine regions; Aswan, Abu Dabbab, Beni Suef, Dahshour, Cairo-Suez district, The northern Red Sea-Gulf of Suez, The southern Gulf of Suez, The Gulf of Aqaba and The Offshore NW part of Egypt-Al Almeen-The Northern Egyptian Continental Margin.

This study gives new insights for a better understanding of the earthquake focal mechanisms in Egypt to analyse its tectonic relations. The determined focal mechanism solutions show good agreement with those provided by previous authors and the earthquake data catalogs of other international seismological authorities. Moreover, the results exhibit a good agreement with the tectonic settings and recent deformations of the study area.