

IRAQ

Seismicity Evaluation of Southern Iraq

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The present study deals with evaluating the seismicity of southern Iraq , bounded by the longitude (45-48) E and latitude (29-33) N, during the period from (1990-2017). Events were re-analyzed in Iraqi Seismological Network (ISN) with focusing on the recent activity, and the recorded data was subjected to statistical analysis to calculate the relation between total number of events with the duration of oscillation, the distribution of (s-p) with magnitude, and the temporal distribution for the study area.

The seismicity of the study area is recently increased specially in the South-East due to its relation to the general seismicity of the Zagros-Tauros belt, which lies along a broad zone of deformation that forms part of Zagros-Touros belt. It is located between the Arabian plate and the Iranian plate. Neotectonic activities and seismotectonic parts affect each other and produce a great seismicity in Iraq.

The tectonic results acquired from this study were correlated with the available seismicity data; the correlation has shown that there is mutual relationship between earthquake epicenters and tectonic lineaments especially in the south-east, Iraq-Iran boundaries which found that some epicenters lay along or very close to the fault or lineament, and some other lay on lineaments intersections.

A frequency- Magnitude for the study area was presented and the values of (b) constant were computed to be (-0.16) and (-0.83). Which indicate a very low to moderate seismic tectonic activity and that change in activity may be due to the change in tectonic setting of the region.

Moment Magnitude (Mw) body wave magnitude (Mb), surface wave magnitude, (Ms), duration magnitude (Md) and Richter local Magnitude (ML)

were calculated for the events. The epicentral distances (Δ) and (E) energy were also calculated, and focal depth was found to be shallow ranged from (5-27.7) km.

Fault plane solutions for the study area were studied too, supported by many researchers' solutions, and it shows reverse strike slip solutions along planes with NW-SE.