

Setting and Coulomb's Stress Change for Earthquakes in Aswan, Egypt

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Aswan is a very important city located in the southern part of Egypt, with several cultural heritage sites and critical infrastructure, including the High Dam. The High Dam is located near one of the most seismotectonically active zones, the Kalabsha fault zone. This zone witnessed the strongest instrumental earthquake in Aswan in November 1981, with $M_w = 5.8$. The current study aims to study the seismotectonic setting of Aswan depending on (1) Updating the fault plane solutions catalogue by constructing the Focal Mechanism Solution (FMS) for the earthquakes that happened in the vicinity of Aswan from 2012 to 2022 (2) stress tensor inversion using the FMS. Also, it was known that Aswan suffered from two historical earthquakes along the Kalabsha fault. In this study, Coulomb's stress change was estimated for these earthquakes to determine if they occurred along the Kalabsha fault and their relation to the 1981 earthquake.

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Promotional text

Our study is considered very important because it aims to update the seismotectonic setting for a very important area in Egypt, the Aswan area, and clarify the location of the historical events in this area and deduce the relation between these events and the 1981 earthquake.

Oral preference format

in-person

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