

**FOCAL MECHANISM OF EARTHQUAKES
FROM THE JUNE 1987 SWARM IN ASWAN, EGYPT,
CALCULATED BY THE MOMENT TENSOR INVERSION**

Hassoup AWAD¹ and Grzegorz KWIATEK²

¹National Research Institute of Astronomy and Geophysics
11421-Helwan, Cairo, Egypt
e-mail: awad_hassoup@hotmail.com

²Institute of Geophysics, Polish Academy of Science
ul. Księcia Janusza 64, 01-452 Warszawa, Poland
e mail: gregus@igf.edu.pl

A b s t r a c t

We obtained seismic moment tensor solutions of ten events from the June 1987 earthquake swarm, which occurred along the Kalabsha fault zone in the northern part of the Lake Aswan area in Egypt. In addition, the composite fault plane solution of this sequence was also calculated. The waveform data were obtained from the Aswan seismological network, which consists of 13 field stations with short period seismometers GS-13. The June 1987 swarm was a sequence of microearthquakes ($M \leq 3.4$), shallow (0-10 km) events forming two successive bursts, which took place on June 17 and 19.

The moment tensor solutions indicate that the focal mechanisms of events from this swarm sequence are expressed by right-lateral strike slip faults. They represent also an effective east-west compressional stress field acting in the area. Geological and geophysical data demonstrate that the Kalabsha fault zone is a right-lateral strike slip fault that consists of several fault segments trending in the east-west direction, perpendicular to the axis of the main course of the Lake Aswan. Thus, the focal mechanisms of the 1987 events are consistent with the local tectonics of the area.

Key words: earthquake swarm, focal mechanism, moment tensor inversion, spectral ray-tracer, Lake Aswan.