

Gravity and Geodetic Control of Geodynamic Activity near Aswan Lake, Egypt

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Abstract : Geodynamic investigations in the Aswan Lake region were started after the M=5.5 earthquake in 1981, triggered by the lake water fluctuations. Besides establishing the seismological networks, also the geodetic observations focused on the Kalabsha and Sayal fault zones were started. It was found that the Kalabsha fault is an active dextral strike-slip with normal component indicating uplift on its southern side. However, the annual velocity rates in both components do not exceed 2 mm/y, and do not therefore represent extremely active faulting. We also launched gravity monitoring in 1997, and performed another two campaigns in 2000 and 2002. The observed non- tidal temporal gravity changes indicate rather the flood water infiltration into the porous Nubian sandstone, than tectonic stress effect. The station nearest to the lake exhibited about 60 μ Gal positive gravity change within the 1997-2002 period.

Keywords : gravity monitoring, surface movements, Lake Aswan, groundwater change

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