

CRUSTAL DEFORMATION DEDUCED FROM GRAVITY AND GEODETIC DATA OF THE HIGH DAM AREA, ASWAN, EGYPT

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The High Dam area in Aswan, Egypt has been subject to various geophysical and geodetic studies, due to its importance for some vital projects. Micro-gravity measurements were established for studying the stability of the road connecting the High and Old Aswan dams. In addition, the micro-gravity measurements were accompanied by the GPS and precise leveling measurements, in order to determine the accurate height of the observation points.

Profile of 10 km length joins the High and Old Aswan dams was established to study the recent vertical movements in this road. Four campaigns from 2001 to 2006 were performed for collecting the micro-gravity measurements, precise leveling and GPS data. The stability study of this road, as depicted from the previous techniques is the main target of this paper. The accuracy of micro-gravity campaigns is about 5 microGal. The geodetic results indicated lower rates of vertical displacement. The subsidence of small area from the profile has been detected from the precise leveling contemporary to the negative gravity anomaly which it has been observed in the same part from the profile. The gravity results agree well with the precise leveling and GPS data and due to the stability of the road close to the High and Old Aswan dams.

HighDam, micro-gravity, stability

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