

CO-SEISMIC DEFORMATIONS FROM THE 4 APRIL, 1904 KROUPNIK EARTHQUAKE (SW BUGARIA, M=7,8) AND THEIR TECTONIC INTERPRETATIONS

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The field investigations in Simitli Graben (SW Bulgaria) gave the possibility to collect new information and to make new interpretation for the processes related to one of the strongest earthquake in SE Europe - Kroupnik Earthquake (04.04.1904, M=7.8). The Kroupnik Fault area is characterized by strong scarped relief of tectonic genesis, and by active exogenetic processes, as erosion, landslides, creep zones, mudflow fans, rockfalls and seismogravitational deformations. The tectonic stress field study using the slickensides on fault outcrops has led to the reconstruction of s1, s2 and s3 axes orientation. The average directions are: s1 \rightarrow 830/320, s2 \rightarrow 1840/90 and s3 \rightarrow 2810/370. This result could be assumed as the probable fault-plane solution in the focus of the earthquake, determining the left lateral fault displacement with predominating normal component (oblique-slip fault). It was located the most probable terrain near the contemporary Struma river bed, where 2m high river barraging took place in 1904. Vertical electrical sounding was performed using 4-electrodes Shlumberger array. The SE part of the geo-electrical sections is presented by alternation of layers with different electrical resistivity due to the different alluvial materials - sand, sandy clay and gravel. The same layer alternation is deeper from 3m to 5m at the NW side of the fault trace. This result could be used for more detailed quantitative determinations of the April 4, 1904 Kroupnik Earthquake mechanism and recalculation of the postulated magnitude. The study has been performed in the frames and the financial support of the European Program COPERNICUS, Project ASPELEA.