

Seismotectonic and geodetic data for the recent activity of the Krupnik region (SW Bulgaria)

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The Krupnik region of the SW Bulgaria is of a high seismic activity. The epicenter of the strongest earthquake of Bulgaria, of the Balkan Peninsula and of Europe during 20th century is situated in the Krupnik region. It is the 1904 Krupnik earthquake ($M=7.8$).

The recent active faults and photolineaments are well represented in the studied region. Intensive horizontal and vertical movements are realized along a lot of the faults and the photolineaments. The cited structures and movements provoke the intensive block fragmentation of the investigated territory. The most important local structural unit is the Simitli graben. The main axis of the graben is in NE-SW direction. The graben is surrounded by

the Vlahina and the Rila horsts to the N and by the Maleshevo and the Pirin horsts to the S. The Simitli graben and the surrounding horsts are cut by faults and photolineaments (Fig. 1).

The Struma fault zone with NNW-SSE direction and the Krupnik fault zone with NE-SW direction are among the most significant for the recent mobility of the region. The crossing of the cited fault zones is situated in the western part of the Simitli graben, in the vicinity of the epicenter of the strong 1904 Krupnik earthquake. The above cited faults and photolineaments and their crossing are very often seismically activated. The highest number of the weak Bulgarian earthquakes (Solakov, Simeonova, 1993) is with epicenters located in the studied

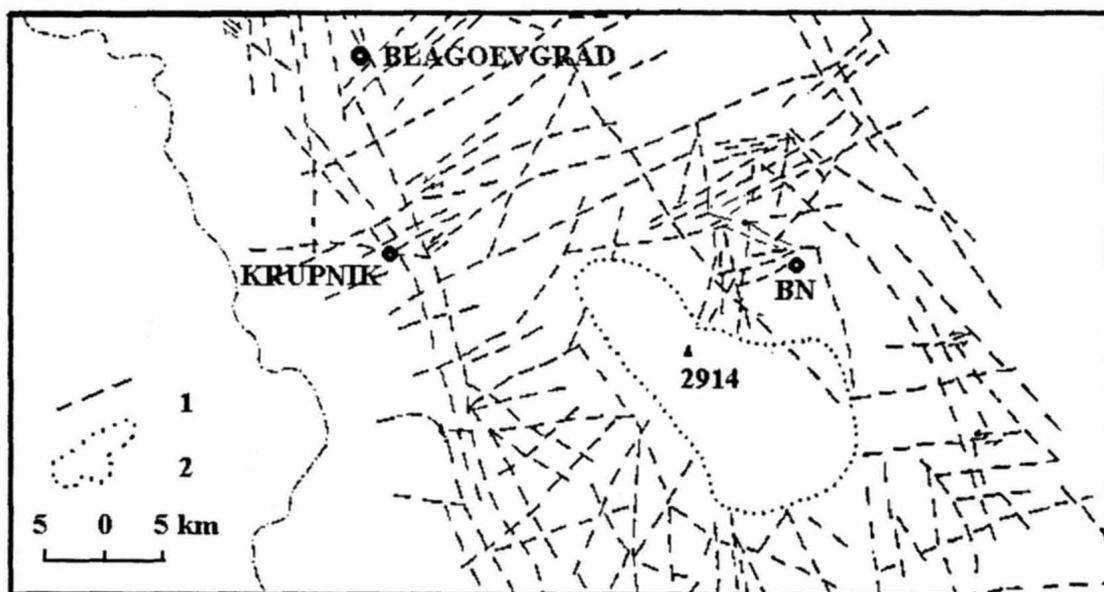


Fig. 1. Photolineaments in the territory of the Kroupnik region. 1 - photolineament, 2 - area with clouds

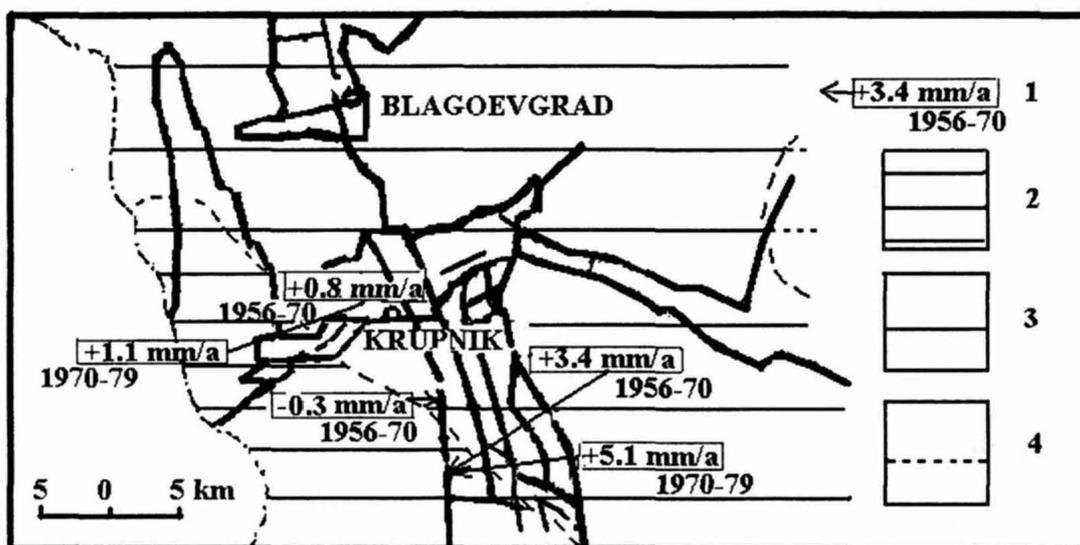


Fig. 2. Geodetic data (after Milev and Vrablyanski, 1988, Milev, 2000) for the recent vertical block movements in the locality and in the country. 1 - local measurements in mm/year; 2-3 - uplift with values: 2 - $> 2\text{ mm/a}$, 3 - $< 2\text{ mm/a}$; 4 - subsidence $< 2\text{ mm/a}$

region. The Krupnik region is one of the most seismically active territories of the country during the last tens years.

The geodetic information (Milev, Vrablyanski, 1988) shows the realization of relatively intensive and contrast block movements in the Krupnik region. The horsts situated to the S and SW of the Simitli graben are characterized by vertical movements of high values. The southern horst, the Pirin horst, is uplifted by more than 3 mm/y . The southwestern horst, the Maleshevo horst, is subsided with value of $0,2-0,3\text{ mm/y}$. The Simitli graben is uplifted with about 1 mm/y (Fig. 2).

The seismotectonic and the geodetic data for the Krupnik region indicate the recent activity of the investigated territory of SW Bulgaria. The scientific information is of importance for Bulgaria and for the neighboring countries, especially Macedonia and Greece. The obtained

during a long-term period facts for the manifestations of the recent activity are included in publications and practical works of different scales. They are used for various national and regional tasks.

References

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