

Results of the Simple Stress Analyses of Micro-earthquake Focal Mechanisms in the Area of Western Bohemia

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The seismo-tectonic activity has been known in the area of Western Bohemia since the Middle Ages. Several earthquake swarms occurred in this century. The focal mechanisms computed for the events of the swarm in 1994 and of the swarm in 1997 were used for simple stress analyses. All these events originated near Nový Kostel, at the Vackovec - Nový Kostel - Počátky line.

The orientations of principal stress axes computed from events of the swarm of December 4 -5, 1994 slightly differ from orientations computed from events of the swarm of January 16 -18, 1997 (see Fig.1). Both analyses showed well-defined sub-horizontal orientation of the main extension in approximately NE-SW direction. The maximum compression axis is also sub-horizontal in the case of the swarm in 1997 and is orientated in NNW-SSE direction. In the case of the swarm of 1994, the maximum compression axis dips approximately towards SE, the possible value of dip varies in the whole range from 0° to 90°.

The discussed results were also compared with orientations of principal stress axes obtained from the analysis of published focal mechanisms of the strong earthquake swarm of 1985/86 (Antonini 1988). The result of this analysis is very similar to the result of stress analysis of focal mechanisms of the 1994 swarm.

References

ANTONINI M. 1988. Variations in the focal mechanisms during the 1985/86 Western Bohemia earthquake sequence – correlation with spatial distribution of foci and suggested geometry of faulting. In PROCHÁZKOVÁ D. (ed.): Induced seismicity and associated phenomena, *Proceedings of conference in Liblice*, March 14-18, 1988, 250-270.

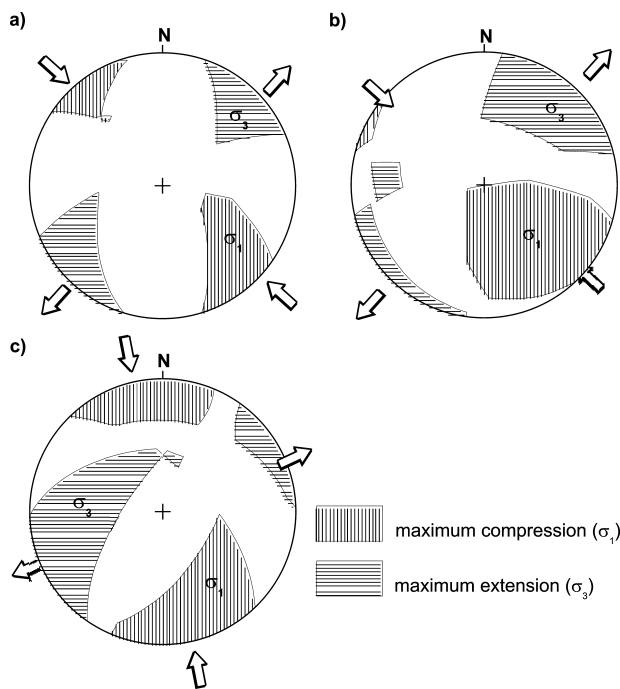


Fig. 1. Results of simple stress analyses of the focal mechanisms of events from the Western Bohemia area (Lambert projection, lower hemisphere): a – result of the analysis of published focal mechanisms of the 1985/86 swarm (see Antonini 1988); b – result of the analysis of focal mechanisms of the 1994swarm; c – result of the analysis of focal mechanisms of the 1997 swarm.