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Post-seismic release slip observed after two earthquake swarms 2004 in West Bohemia

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In West Bohemia, Central Europe, there is an earthquake swarm area in that individual seismic events are clustered into several seismogenic zones sharply grouped along a few tectonic fault segments. The Nový Kostel zone dominates by its recent seismicity in the whole area. Its foci tend to cluster in space and the swarms occur in relatively narrow volumes. An important feature of the spatial distribution of the events is a lamella-like character of the earthquake focal belts. Permanent GPS observatories were established round this seismoactive swarm area. The data recorded in 2004 by two observatories, MARJ and POUS, were processed and changes in their positions displayed a linkage to earthquake swarm occurrences. The relations between origin times of earthquakes, their sizes and position changes of both observatories are presented. When the most swarm seismic energy had been released, then the position differences displayed relative monotonous movement trends: the northern component showed regularly increasing for 7-10 days and, on the contrary, the eastern component exhibited decreasing. These trends allowed a post-seismic release slip to be assessed: approximately 0.75 mm/day for the northern and 0.5 mm/day for the eastern directions. These movement trends led us to a deduction that they indicate a post-seismic sinistral release slip of 0.8 mm/day on tectonic NNW-SSE fault system which started when nearly the whole swarm went out and lasted for 7–12 days. The trend orientations of the post-seismic slip were compared to the seismotectonic model elaborated

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