



Increased detectability of microearthquakes in the swarm area of Nový Kostel (Western Bohemia)

M. Haege (1), M. Joswig (2)

Institute of Geophysics, University of Stuttgart

The region in Western Bohemia is one of the seismically most interesting areas in Europe because of its swarm activity. It is assumed that the weak background activity, the microseismicity in inter-swarm periods, plays an important role in terms of stress accumulation. A microseismic study was carried out to investigate the existence of weak events in the vicinity of the focal area Nový Kostel, the most active area in the last years. The measurement was performed in a seismically quiet period with three small arrays, each consisting of a central 3-c and three 1-c seismometers, arranged as an equilateral triangle with an aperture of 200m. In the measurement period of six days, 13 microearthquakes in the range ML -1.5 to -0.1 were detected and located. An analysis of the frequency-magnitude distribution was done to relate the amount of the recorded events to the local network (WEBNET) data. For the comparison, periods without strong swarms were taken as reference data. The results show that our detection rate was three times higher than that of WEBNET. Further, the linear extrapolation to small magnitudes indicates a decrease of the detection threshold of about one magnitude and suggests a self-similarity of events in the range ML -0.5 to 1.0. Relative location of our events confirms the NNW-SSE orientation of the main active fault zone and demonstrates that the focal zone around Nový Kostel is permanently seismic active.