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The October-November 2008 earthquake swarm in Vogtland/NW-Bohemia: first results of focal mechanism determinations

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Vogtland/NW-Bohemia, an area at the border between Germany and Czech Republic, is known as one of the most interesting earthquake swarm regions in Europe. This special type of seismicity is expressed by the accumulation of a huge number of events of similar magnitude and their episodic reoccurrence. During a swarm hundreds or thousands of earthquakes without a distinct main shock occur spatially and temporally clustered.

The most recent swarm of 2008 occurred between the 6th of October and the middle of November. With more than 20000 detectable events and magnitudes up to 4 it is the most prominent one since the big swarm in 1985/86. Due to the strength of the swarm and the increased number of stations in the Vogtland/NW-Bohemia region the swarm of 2008 offers various possibilities to investigate the peculiarities of swarms and the special seismotectonic situation of the Vogtland/NW-Bohemia region.

This study concentrates on the determination of earthquake focal mechanisms. Mechanisms for all events with magnitudes ML $\geq$ 2.7 have been calculated. The ensemble of focal mechanism is analysed with respect to variations within the swarm as well as changes with respect to the mechanisms of the former swarms of 2000 and 1985/86. For example, the focal mechanism of one of the strongest events (10.10.2008, 08:08 UT) represents a strike slip mechanism with a slight normal faulting component. It is similar to the mechanisms of the stronger events of 2000 and 1985/86. The strike direction of one nodal plane (almost N-S) reflects the strike of the Marianske Lazne fault zone and parallel striking fault systems. The focal mechanisms are used to invert for the regional stress field which then is compared to the stress field in Central Europe.