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Earthquake swarms versus 2014 mainshock-aftershock activity in West Bohemia, Czech Republic

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We present basic characteristics of the 2014 mainshock-aftershock sequence in the West Bohemia/Vogtland region and compare it with the swarm activities in 2000, 2008 and 2011. For our research we used data from the WEBNET network. We analysed the aftershock decay rate, magnitude-frequency and interevent time distributions, cumulative seismic moment, and space-time distribution of events. The strongest mainshock is of $M_L = 4.3$, the two smaller shocks are of $M_L = 3.5$ and $M_L = 3.6$. In their case, we analyse the P-wave waveforms and focal mechanisms. We found that the magnitude-frequency distribution is independent of the type of seismicity having b-value close to 1 for both swarm-like and the mainshock-aftershock-like sequences. Also the probability density function of the interevent times within each whole activity is similar complying with power law $\sim T^{-1.4}$. However, in case of the event $M_L = 4.3$, the rate of its aftershocks was much faster ($\sim T^{-1.8}$). The three mainshocks are located very close to each other and all occurred on a newly activated fault segment. This segment forms a boundary between one fault segment triggered in 2000 and 2008, and two fault segments activated in 2011. All the mainshocks have rather complex waveforms of P-waves. The $M_L = 3.6$ event seems to be triggered by a nearby small foreshock which produced a small onset on the waveforms before the main P-wave pulse. The newly revealed segment also predestined uncommon pure thrust faulting of the three mainshocks quite different from the prevailing strike-slip faulting.