



Postseismic release of CO₂ in the 2014 West Bohemia aftershock sequence revisited

Josef Vlček, Tomáš Fischer, and Martin Lanzendörfer
Faculty of Science, Charles University, Prague, Czech Republic

The West Bohemia/Vogtland region is specific for its collocation of earthquake swarm activity and degassing of CO₂ of mantle origin in a relatively small area. We present an analysis of three mainshock-aftershock sequences that occurred in May-August 2014 and were initiated by ML 3.5 mainshock. Four days later a fast increase of CO₂ flow rate began in the Hartoušov mofette, 9 km apart from the epicenters. During the subsequent 150 days the flow reached the six-fold of the original level. The following decay, which lasted for several years, suggests that the seismic activity and gas release were closely related. In our previous study we successfully tested the relevance of the fault valve model as the seismic triggering mechanism.

In this study we present the methodology of continuous CO₂ flow monitoring at mofettes and boreholes, using both direct and indirect methods. While the direct methods count the gas volume rate, the indirect methods derive the gas flow from the volume of bubbles in borehole. We also discuss the published models with the newly acquired data since the 2014 seismic events.