

EGU21-15429

<https://doi.org/10.5194/egusphere-egu21-15429>

EGU General Assembly 2021

© Author(s) 2022. This work is distributed under the Creative Commons Attribution 4.0 License.



Improving the detection capability of the West Bohemian network by template matching approach

Ali Salama and Tomas Fischer

Charles University , Department of Geology, prague, Czechia (salamaa@natur.cuni.cz)

During the West-Bohemia/Vogtland earthquake swarms thousands of events are detected within short periods of few days, whose preliminary location is provided by an automated procedure. The manually verified high quality catalog is provided with some delay and is usually less complete than the automatic one.

We developed a template matching procedure combined with differential time measurement and double difference location whose application in real time will allow to provide precise hypocentre locations for much larger data set than provided by the manual processing. Among others, the template matching approach includes flexible setting of the time difference between P and S waves which allows for event detection in a wider distance to the template's hypocentre. This makes the size of the template dataset small enough to allow for efficient detection process.

Our application of the template matching approach is aimed at identifying repeated activation of some patches during the swarms and weak background activity in the intermediate periods. Detecting and analyzing the repeating earthquakes will help revealing the continuing background activity and identifying fault areas that are active permanently. This will point to the possible sources of fluids or aseismic creep that are supposed to play significant role in swarm generation.