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Local seismic events in area of Poland based on data from PASSEQ 2006-2008 experiment

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PASSEQ 2006-2008 (Passive Seismic Experiment in TESZ; Wilde-Piórko et al, 2008) was the biggest so far passive seismic experiment in the area of Central Europe (Poland, Germany, Czech Republic and Lithuania). 196 seismic stations (including 49 broadband seismometers) worked simultaneously for over two years. During experiment multiple types of data recorders and seismometers were used making analysis more complex and time consuming. Dataset was unified and repaired to start the detection of local seismic events. Two different approaches for detection were applied for stations located in Poland. One used standard STA/LTA triggers (Carl Johnson's STA/LTA algorithm) and grid search to classify and locate events. Result was manually verified. Other approach used Real Time Recurrent Network (RTRN) detection (Wiszniowski et al, 2014). Both methods gave similar results showing four previously unknown seismic events located in area of Gulf Of Gdańsk in southern Baltic Sea. The investigation of local seismicity is a good opportunity for verification of new seismic models of lithosphere in the area. In this paper we discuss both detection methods with their pros and cons (accuracy, efficiency, manual work required, scalability). We also show details of all detected and previously unknown events in discussed area. This work was partially supported by NCN grant UMO-2011/01/B/ST10/06653.