

## **Seismicity monitoring at the Izvorul Muntelui dam (Eastern Carpathians Romania) using multiple approaches**

Felix Borleanu, Anca Otilia Placinta, Mihaela Popa, Iren Adelin Moldovan, and Emilia Popescu  
National Institute for Earth Physics, Magurele, Romania (felix@infp.ro)

Artificial water reservoirs may often generate seismic events as a result of stress variation due to the weight of water, weakness of fractures or faults and increase of pore pressure in crustal rocks. Izvorul Muntelui is one of the largest dams, built between 1950 and 1960, located in the northeastern part of Romania, within the Eastern Carpathians. According to Romplus catalog (Oncescu et al., 1999), for a maximum distance range of 0.30 relative to the dam, only a small number of seismic events were recorded between 1984 and 2011. Since 2012, as a result of Romanian Seismic Network developing, the seismicity monitoring is performed using 2 nearby stations: Bucovina (BURAR) - a small seismic array situated about 100 km northwest relative to the dam and a 3-C broadband seismic station, Bicaz (BIZ) placed next to the dam. The analysis was firstly accomplished on the catalog data and further extended to the waveforms recorded by both seismic stations between 2012 and 2015 time interval. Multiple techniques like cross-correlation, polarization, frequency-wave-number analysis as well as relative magnitude computation were performed to improve the detection capabilities and source parameters estimation. The obtained results revealed that only a reduced number of seismic events may be directly associated to water level variations.