

## Modern seismological surveys in Latvia from 2008 to 2019 and prospects for their development

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**Abstract** In Latvia, seismological monitoring has been carried out at Slitere station since 2006. Slitere station is part of the GEOFON international network, with its center at GFZ Potsdam. The use of other stations of the GEOFON network and some stations of national networks of Finland and Estonia allows monitoring the entire East Baltic Region (VBR), including Estonia, Latvia, Lithuania, the Kaliningrad Region of Russia and the adjacent part of Baltic Sea (Lat=53.9°N - 59.7°N; Lon=19.4°E - 29.6°E). The impetus for the development of seismological monitoring was the Kaliningrad earthquakes of 2004 with Mw 5.0 and 5.2. The main object of research, in addition to tectonic earthquakes, is man-made seismicity, which prevails in Latvia and in EBR. Because of seismic monitoring for the period from 2008 to 2019, 8 tectonic earthquakes were localized, as well as more than 5640 man-made seismic events. The total number of seismic events localized by the BAVSEN network is 13328, including 1146 teleseismic events. The relevance of seismological monitoring is increasing due to unfavorable geodynamic conditions in the area where some large energy, transport facilities and agglomerations are located, which requires a study of the seismic regime of the territories around these objects. The main problems of EBR seismic monitoring are associated with the identification of relatively weak seismic events, with a rare network of seismic stations, adverse seismic and geological conditions of the sedimentary cover and low activity of EBR tectonic earthquakes. The lack of promising methods for recognizing the genesis of seismic events puts this problem in first place. The prospects for seismological research in Latvia are related to the study of the seismic and geological properties of grounds, seismic micro zoning, monitoring of hydraulic structures, as well as the possibility of creating a National Data Center, within which seismological monitoring can become one of the main methods for radiation safety of EBR.

**Keywords** East Baltic region, LEGMC, BAVSEN, seismological monitoring, technogenic seismicity, discriminant.

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