Formalization of the estimation of the radioactive waste burial site seismic regime parameters on seismological and geological data

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Abstract. Model showing the relationship of the block structure of the crust and of earthquake sources is proposed [Sadovsky, 1979; Rodionov, 1979, 1984, 1994; Bugaev, 1999, 2011, 2013, 2014]. The use of the model allows to formalize the evaluation of the forecast of seismic regime parameters depending on the elastic limit, conditions and rate of deformation of the earth's crust. The repository site of spent nuclear fuel in Olkiluoto (Finland) and site in the area of Krasnoyarsk Mining and Chemical Combine considered as examples. It shows that the parameters of inferred graphs limit the location of the points of the graphs of repeatability of the magnitudes calculated for the site based on samples of earthquakes in the area according to different authors. This allows us to recommend predictive assessment of seismic regime parameters for the stability control of the seismic regime and analysis of safety of geological environment insulation properties for waste sites on the results of seismological monitoring and high-precision observations of modern movements of earth crust.

Keywords: earth's crust model, quasi-homogeneous tectonic block, fracture, strain rate, microearthquake, earthquake, magnitude, seismic, radioactive waste, small-aperture seismic array.