

Long-term trends of subsoil radon in Kamchatka as indicators for the preparation of earthquakes with $M > 7.5$ at the northwestern framing of the Pacific Ocean

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Abstract [Резюме](#) [RUS](#)

The paper presents the results of the volume activity monitoring of subsoil radon at the strain-sensitive point of the Paratunka control station (PRTR) for 2000–2020. Emanation observations are carried out at this point in order to search for precursors of strong earthquakes in subsoil radon variations. The preparation of earthquakes at the northwestern framing of the Pacific Ocean with a source depth $H < 200$ km and $M_w > 7.5$, and of a lower magnitude in some cases, which have occurred at the distances up to 1000 km from PRTR, is reflected in the dynamics of radon volume activity (RVA) in the form of trends lasting from 8 months to 3 years. The behavior of RVA dynamics in the last 5 years points to a possible earthquake with $M_w > 7.5$ in the Pacific Ocean in the vicinity of the eastern coast of the Kamchatka Peninsula, which may occur before February 1, 2021. This conclusion is consistent with a long-term seismic forecast for the Kuril-Kamchatka seismogenic zone, made in the works of S.A. Fedotov and A.V. Solomatin [2017, 2019], according to which the highest probability of an earthquake with $M_w \geq 7.7$ falls on the Avacha Bay and Southern Kamchatka.

Keywords

Kamchatka Peninsula, subsoil radon, moisture saturation zone,
long-term trends, precursor, earthquake

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