

Tsunami and coseismic deformations along the coast of Avachinsky Bay (Kamchatka, Russia): new evidences for the past \sim 4300 years.

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Avachinsky Bay is one of the three biggest Bays on the Eastern side of Kamchatka peninsula. The distance between the Avachinsky Bay shoreline and Kurile- Kamchatsky trench vary from 170 up to 210 km. It is why the coseismic subsidence with amplitude more then 0.5 m could occur here only during the strongest ($M \geq 8$) subduction-type earthquakes with wide sources.

We did the paleoseismological study at the wave-build Holocene marine terrace along \sim 70 km of Avachinsky Bay shoreline: investigated the geological history of terrace development; the positions of the coastlines for the different periods of the middle and late Holocene; we studied the tsunami deposits and had restored paleotsunami intensity. We found that most ancient part of marine terrace was formed \sim 4300 years BP.

Since that time, tsunami with runup ≥ 4 m affected the Avachinsky Bay coast more then 30 times. And only 3 earthquakes for the past \sim 4300 years were accompanied by coseismic subsidence with amplitude $\sim 1 \pm 0.5$ m. The buried erosional scarps along the marine terrace are geological imprint of coseismic subsidence. We tracked the buried scarps \sim 70 km along the shoreline.

The age of the uncovered buried erosional scarps are $\sim 1200 \pm 50$, 2450 ± 50 and 3400 ± 100 14- BP. It means that average frequency of "wide-sources" great earthquakes for the south Kamchatka are about 1000-1200 years.

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