

## Modeling of tsunamis along the Kuril Trench and sandy event deposits in the Pacific coast of Kunashir Island

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The Pacific coast of Hokkaido Island, northern Japan, is facing to the risks from large-scale, inter-plate earthquakes in the near future. Previous studies on paleotsunami deposits in Hokkaido suggested that an unusually large-scale earthquake took place some time in the 17th century. However, recurrence and size of such large-scale earthquakes are not yet fully determined, because of sparse availability of the paleotsunami data from adjoining areas, such as the Kuril Islands. Since 2007, the joint surveys in Kunashir and Shikotan Islands by Japanese and Russian researchers have discovered several sandy event layers as candidates for paleotsunami deposits.

In this presentation, origin of the sandy event deposits from the Pacific coast of Kunashir and Shikotan Islands is examined by means of numerical modeling of tsunami hydrodynamics and sediment transport. The preliminary results showed that the tsunami tend to be considerably higher in the northeastern coast, comparing with the southwestern coast of the island. This is because that the southwestern coast of Kunashir Island is located behind the Shikotan and Khabomai Islands; meanwhile the northeastern coast is facing directly to the Kuril Trench. It is likely tsunamis with various sizes can inundate the northeastern coast and leave sedimentary deposits; on the other hand only unusually large-scale tsunamis may inundate the southwestern coast and create sandy layers. In addition to the scenario-based examination, the origin of the possible 1994 tsunami deposits from Kuraoi River, northeastern Kunashir Island, will be investigated. This may provide implications for identification of paleotsunami deposits in this region and reconstruction of the large-scale earthquakes in the past.

Keywords: tsunami, Kuril Trench, Kunashir Island, deposit