Display of historical and hypothetical tsunami on the coast of Sakhalin Island

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Tsunami waves achieve the coast of the Sakhalin Island and their sources are located in the Japan Sea, in the Okhotsk Sea, in Kuril Islands region and in the Pacific Ocean. Study of tsunami generation characteristics and its propagation allows studying display of the tsunami on the various parts of the island coast. For this purpose the series of computational experiments of some historical tsunamis was carried out. Their sources located in Japan Sea and Kuril Islands region. The simulation results are compared with the observations. Analysis of all recorded historical tsunami on coast of Sakhalin Island was done.

To identify the possible display of the tsunami on the coast of Sakhalin Island the series of computational experiments of hypothetical tsunamis was carried out. Their sources located in the Japan Sea and in the Okhotsk Sea. There were used hydrodynamic sources. There were used different parameters of sources (length, width, height, raising and lowering of sea level), which correspond to earthquakes of various magnitudes. The analysis of the results was carried out.

Pictures of the distribution of maximum amplitudes from each tsunami were done. Areas of Okhotsk Sea, Japan Sea and offshore strip of Sakhalin Island with maximum tsunami amplitudes were defined. Graphs of the distribution of maximum tsunami wave heights along the coast of the Sakhalin Island were plotted.

Based on shallow-water equation tsunami numerical code NAMI DANCE was used for numerical simulations.

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