

Using of IMS Infrasound Stations for Tsunami Warning in the Antarctic Peninsula

Since the geophysical fields are interconnected with each other, it is possible to expect a response to earthquakes in all geospheres. Tsunamis occur only after those earthquakes that are associated with the rapid formation on the bottom of the ocean discharges, avalanches, landslides. This shift acts on the principle of the piston and pushes the water, causing the formation of a tsunami. In addition, this “piston” pushing not only water, but also air, which leads to the generation of infrasound. Infrasound propagation velocity exceeds the speed of propagation of tsunamis, which can be used for its early warning. This fact has been used in the Ukrainian Antarctic Station “Akademik Vernadsky” for developing techniques for early warning of a tsunami in the region of the Antarctic Peninsula (Scotia Sea). For developing of methodology used infrasound, seismic and oceanographic data of Vernadsky stations geophysical complex and infrasound data from IMS stations (Ushuaia, Neumeier). The essence of the procedure was limited to the detection of a strong earthquake in a given region, estimating of travel times and azimuths for infrasound waves and confirmation of the tsunami at tide gauge. A positive result was obtained for earthquakes with a magnitude of more than 7.

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