



## Abstract Details

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**Title:** Electromagnetic Fields of Tsunami Waves

**Abstract:**

In connection with a problem of the tsunami waves precursors, disturbance of the geomagnetic field by long waves of the type of tsunami are studied with the shallow water theory approximation. Computation of the electromagnetic field is made with the method based on the performance of the induced fields in terms of poloidal (PM) and toroidal (TM) magnetic modes. PM mode is characterized by the electric currents in horizontal planes, TM mode is connected with currents in vertical planes. Components of the electromagnetic field of tsunami are expressed in terms of Green's function constructed for an unbounded ocean of depth  $H$  and fixed conductivity. Within the limits of shallow water theory approximation the PM mode has a dominant role. The form of the hydrodynamic source is obtained from solving a problem on tsunami generating by an earthquake with the limits of piston mechanism of generation. The following results are obtained. The vertical component of the geomagnetic field disturbances forecasts the tsunami wave coming and can be used for prediction of the disastrous waves. The disturbance field intensity on the large distance from the source depends on the shape of the wave front: the variations of the vertical component before of the sharply defined wave front may be substantially bigger than follows from the estimates made for a smooth-profiled wave.

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