



About location of bottom hydrophones for tsunami detection

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After the catastrophic tsunami of 26.12.2004 many countries plan to create the system of operative tsunami detection and alarm. In some cases such an autonomous system may serve particular coastal area, densely populated or having large amount of tourists. The present study focuses on location of hydrophones given the necessary time lag for alarm. Non-linear effects in propagation are taken into account; they play important role for large tsunamis. The local geographical bottom relief influences the location of such stations. The problem is studied analytically for the case of bottoms with constant slope. Only in the case of steep shelves deep ocean location is required to meet the minimal advance of alarm. Contrary, for the shelves with low slopes the location can be on small depths and relatively short distances from the coast. This allows for saving in equipment cost and in principle allows for creation of autonomous tsunami alarm systems. Existence of such systems in tourist areas is important for recovery of tourist flows and optimal planning of further development of tourist infrastructure. This is relevant not only for the area of Indian Ocean but for Mediterranean area as well.