

The 1867 Virgin Island tsunami: observations and modelling

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Abstract

The 1867 Virgin Island Tsunami was of a great effect for the Caribbean Islands. A maximal tsunami height in 10 m was recorded for two coastal locations (Deshayes and Sainte-Rose) in Guadeloupe. The historical data of this event for the Caribbean Sea is discussed. The modelling of the 1867 tsunami is performed in the framework of the nonlinear shallow-water theory. The four different orientations of the tsunami source in the Anegada Passage are examined. The directivity of the tsunami wave in the Caribbean is investigated. The time histories of water surface fluctuations are calculated for several coastal locations on the coasts of the Caribbean Sea. Results of the numerical simulations are in reasonable agreement with data of observations.

