Asteroid tsunami modeling in the framework of Navier-Stokes equations with different sources

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The equivalent tsunami source is widely used to predict tsunami waves in the ocean induced by the meteorite fall. It presents the initial displacement having the cavern shape and zero velocity. Dimensions of the cavern are determined by the parameters of the meteorite: mass, density, fall velocity, etc. Such equivalent source has been developed to predict the tsunami wave characteristics in far zone with use of linear theory of surface gravity waves. Alternative approach is to model the process of meteorite entry in the water. Here we use the Navier-Stokes equation to compare tsunami wave characteristics generated by both sources. Quality, the results are similar but quantitatively the wave amplitudes and wave packet structure are different.