



Tsunami wave generation, propagation and inundation from by asteroid-generated air bursts

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We discuss tsunami propagation and runup for asteroid-generated air bursts. We present simulations for a range of conditions using the GeoClaw and Basilisk codes and compare simulations with Nonlinear Shallow Water Equations and Serre–Green–Naghdi equations. Examples include asteroids that explode with 250 MT of kinetic energy, and use bathymetry from the U.S. coastline as well as an idealized bathymetry for a parameter study. The latter is based on a radially symmetric bathymetry to better explore the nature and decay rate of waves generated by air burst pressure disturbances traveling at the speed of sound in air, which is much greater than the gravity wave speed of the tsunami generated.