



Asteroid impact in the Black Sea: tsunami and toxic gas emission

E. Pelinovsky (1), R.D. Schuiling (2), R.B. Cathcart (3), V. Badescu (4) and D. Isvoranu (4)

(1) Institute of Applied Physics, Nizhny Novgorod, Russia (pelinovsky@hydro.appl.sci-nnov.ru), (2) Utrecht University, The Netherlands, (3) Geographos, Glendale, California, USA, (4) Polytechnic University of Bucharest, Romania

Normally the consequences of an impact of an asteroid in a water body are discussed in terms of the beach run up of impact-generated waves. If even a small asteroid would hit the Black Sea, however, the potential emissions of toxic and flammable gases could be more disastrous to the region (comprised of Romania, Ukraine, Russia, Georgia, Turkey and Bulgaria) than the tsunami caused by the impact. For instance, shortly after the 11 September 1927 “Great Crimean Earthquake” gigantic fiery flares ranging from 20 to 500 m high and covering large areas were observed erupting from the Black Sea. Probably, these flames were caused by the spontaneous combustion of methane eruptions triggered by the earthquake. Even in normal times dense bubble curtains, or plumes (also flares) of methane can attain altitudes of 200 m in the water column or even reach the surface where methane can inflame. A “burning sea” is not unusual during thunderstorms over the Black Sea. The methane will act as a carrier gas for the H₂S that is dissolved in these same waters. Full text of our paper will appear in the journal "Natural Hazards", vol. 40, No. 2 (2007).