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Vulnerability categorization of natural and man-made structures subjected to tsunami hazard for the Bulgarian Black Sea coast

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Lowlands, steep bays, lagoons, beaches, river deltas and estuaries – the whole spectrum of the natural tsunami vulnerable elements could be observed on the North Bulgarian Black sea coast. Depending of their spatial position and size these elements are local traps for increasing the tsunami negative effects due to their magnification of the tsunami inundation. Some of these objects could be concentrators of the more dense populated areas (such as beaches, and lagoons with the SPA possibilities. Some others are not so much populated due to their spatial position and worse conditions of everyday human practice (such as river beds, deltas and estuaries. Statistical assessment of the vulnerability of these structures is performed according to their distribution and sizes. Similar approach of classification of the man-made tsunami vulnerable structures is performed. Modern practices such as DEM, satellite images, GPS measurements are performed to assess more accurately the vulnerability functions of the different structures. Preliminary classification and typology of all such structures is done to be able to separate different vulnerable elements of the tsunami influence parameters – inundation heights and velocity currents. The area under investigation is located from Varna city to the Bulgaria-Romania border.

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