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Investigations on the Tsunami hazard on the French Atlantic Coastline.

Antoine Frere (1,2), Audrey Gailler (3), Jean Roger (1), Samuel Toucanne (4), Simon courgeon (4), and Ricardo Silva Jacinto ()

(1) CEA, DAM, DIF, 91297 Arpajon Cedex France (antoine.frere@cea.fr), (2) Institut de Physique du Globe de Paris 75007 Paris, France., (3) Université des Antilles et de la Guyane, LARGE, (4) IFREMER, Lab Environm Sedimentaires, Plouzane, France.

Tsunami Hazard in metropolitan France is poorly known. This, added to the high vulnerability and low preparation of the coastline, could lead to a high risk. In the course of the TANDEM project, we investigate three potential kinds of scenarios that could pose a threat to the French coasts, i.e. long wave related to atmospheric disturbances, landsliding sources and distant earthquakes.

Meteotsunamis are not well known to strike the French Atlantic Coast. The 26 and 27 of June 2011 however, a small tidal disturbance was observed along the coasts of the Bay of Biscay and English Channel. Using tide gauge data from 4 countries (Portugal, Spain, France and United Kingdom) processed in the temporal and spectral domains, we are able to extend the observations made in previous studies and propose additional conclusions about the sources' timing.

For the 1843 earthquake in the Lesser Antilles (offshore Guadeloupe), we define three different scenarios, each of them characterized by a different strike for the rupture zone. Using numerical simulation, we compare the effect of the resulting tsunamis on the La Rochelle (France) approaches. This illustrates the behaviour of French coastline to long wave arrival from different sources and the protection given by natural obstacles (e.g., Azores archipelago, continental slope of the Bay of Biscay).

The continental slope of the Bay of Biscay presents scars left by large scale landslides. We investigate several scenarios of landslides in order to perform numerical simulation. With a coupled landslide-tsunami simulation code we simulate the effect of these scenarios on the ocean surface, and the resulting tsunami to selected coastlines. All in all, this preliminary study gives an overview on the various possible coastal impacts the various impacts for the chosen scenarios.