

Scenarios of tsunamigenic earthquakes generated along the Hellenic subduction zone and impact along the French coastlines

Audrey Gailler, H el ene H ebert, and Fran ois Schindel e
CEA, DAM, DIF, 91297 Arpajon, France (audrey.gailler@cea.fr)

The Hellenic subduction is an active deformation zone characterized by a sustained day-to-day seismicity (magnitude < 4.5) among the strongest in Europe. The last significant earthquake along the Hellenic subduction zone detected and characterized by the French tsunami warning center (CENALT) occurred on 16th April 2015 ($M_w = 6.0$) along the southeastern coasts of Crete, without any tsunami risk for the French coastlines.

Even if great subduction earthquakes (magnitude > 7.5) are less frequent than in Chile or Japan, the Hellenic area experienced several strong events by the past, the biggest being associated with major tsunamis (e.g., in 551, in 1303). The last known sequence dates the end of the 19th beginning of the 20th century with a seismic gap located along the South Peloponnese – West Crete segment. The legendary 365 AD great earthquake (magnitude 8 to 8.5) is assumed to have ruptured along a major inverse fault parallel to the trench in this area, generating a large tsunami observed up to the Adriatic.

In this work we investigate the tsunami potential of earthquakes localized along the Hellenic subduction zone, especially the minimum magnitude required to generate a tsunami that would be able to cross from Eastern to Western Mediterranean. The impact along Corsica coastlines is discussed through the modeling of a set of tsunami scenarios (magnitude ranging from 8.0 to 8.5) established from historical events parameters.