The work moves from the first results proposed by the SAVECOASTMED project (Sea level rise scenarios along the Mediterranean coasts – ECHO/UB/2016/742473/PRE/V16) and deals with the implementation of a set of coastal plains for different regions of the Mediterranean Sea based on the datum at 2016 and the regional IPCC AR5 sea level forecast as well as rates of vertical land movements estimated from instrumental or observational data. Blue and red full lines in the plots indicate the IPCC SSH projections, for RCP 2.6 and 8.5 respectively, adjusted with the mean rates of VLM. Dotted lines correspond to the pure IPCC projections. Color bands are the estimated uncertainties at 95% confidence level, obtained by combining lower and upper sea level bounds from IPCC projection with the uncertainty from VLM.

Furthermore, an advanced open source complex numerical model was used and applied to simulate the potential scenarios induced by storm surge events coupled to sea level rise in the pilot sites. The approach is finalized to the strongly related to deliverables of the action E.3 - Assessment of coastal flooding risks scenario changes induced by severe storm events and erosion dynamics.

In such context, hydrodynamics and wave processes were simulated by Delft3D package with “online coupled wave-flow” model. This type of dynamic interaction takes into account the effect of wave on current and the effect of flow on waves. In detail, the flow field is repeatedly computed by the hydrodynamic module and is provided to the wave module at the coupling time steps.

Finally, the potential flooding areas mapping due to the combined effect of sea level rising (SLR) and vertical land motion (VLM) with ordinary and extreme storm surge events have been proposed in order to define flooding risk scenarios for the Ionian Lucanian coast with respect to the scenario:

- Tr: 1 year and RCP 2.6 and 8.5
- Tr: 100 years and RCP 2.6 and 8.5

The maritime wave climate assessment and storm surge data for the study areas have been evaluated through the Forecast/hindcast system for the Mediterranean Sea developed by the Department of Environmental, Chemistry and Civil Engineering of University of Genoa (Mentaschi et al., 2013, 2015). Wave climate assessment originates from a re-analysis of atmospheric and wave conditions, producing an hindcast database spanning from January 1979 till the end of December 2016 over the domain employed for the atmospheric and wave condition simulations.

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