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Description of a coastal impact event in Basque Country: 9 February 2016 case.

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Basque Country is frequently affected by swell episodes and high waves as a consequence of high fetch situations generated by remote deep lows and NW gales configurations. Coincidence of those situations with spring tides usually promotes some degree of littoral impact and economic losses in the area. In this work we analyzed the case of 9 February 2016 from two points of view, the met-ocean characteristics of the event and the damages produced during the episode in the Basque coastal area.

During the days 7 and 8 February 2016 an intense zonal circulation is established in the Atlantic, with very strong westerly winds and high fetch, as a consequence strong swell arrives to Basque coast affecting littoral areas. The wave characteristics are particularly energetic during the morning of the 9th, with Hs of 9.6 meters and a peak period of 20 seconds in deep water. The arrival of these energetic waves coincides with spring tides during high tide in the morning of day 9. The sea level reaches 4.69 meters. With these data overtopping indices that are used to obtain the potential waves impact on the coast, exceed red level thresholds stablished within the Euskalmet coastal warning system.

For the analysis of met-ocean conditions we use different available analysis and registered data in the area, including observations from different buoys and data from different numerical models. For the analysis of economic impact we study “battering of coastal waters“ damage data provided by the Spanish Insurance Compensation Consortium (CCS). Those data are analyzed considering different aspects as location, damage type, amount, etc. in order to extract some conclusions.

The final objective is to contribute in assessing the usefulness of new coastal-maritime warning system operationally used in Basque Meteorology Agency (Euskalmet) and to reduce the knowledge gaps at the interface between available ocean-meteo prediction/analysis systems and impact observed in Basque Country littoral areas. Note that the case presented in this paper is the first red level event since the new Basque coastal-maritime warning system became operational in 2015.