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A flood map catalogue for integration into a European flood awareness system (ECFAS)

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The European Coastal Flood Awareness System - ECFAS (EU H2020 GA 101004211) - project aims to deliver a proof of concept for a coastal flood awareness system as an improvement of the Copernicus Emergency Management Service. One of the project's keystones is the generation of a flood map catalogue for European flood-prone coastlines. To obtain this product, the work started with the identification of 28 historical test cases representing the wide variety of oceanographic and morphological conditions observed along European coastlines. The inundations generated by these events were numerically reproduced to calibrate and validate the LISFLOOD-FP model that will be used to generate the catalogue. For this step, observed flood maps derived from Very High Resolution satellite images and in situ observations were used as references. In parallel, validated hindcasts of oceanographic conditions in shallow water were produced using the ANYEU-SSL model. An Extreme Value Analysis was performed on the hindcast along the European coastlines to provide: (i) local storm conditions for a set of return periods (1, 2, 5, 10 and 20 years), (ii) local total water level thresholds for triggering the awareness system. Finally, 100 km long coastal sectors were identified along the European coastline for which a 100 m resolution LISFLOOD-FP numerical model will be generated. The catalogue will collect the maps generated with the storm conditions identified from the hindcast for each flood-prone coastal sector. These flood maps will represent a set of reference flooding scenarios in case of forecasted over-threshold coastal oceanographic events triggering the awareness system.