



## **A regional analysis of changes in flooding events along the Spanish coast**

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The regional flooding assessment in a coastal location due to marine and meteorological dynamics is a complex phenomenon due to a large number of elements are involved. Here, an extreme analysis of changes in flood events along the Spanish Mediterranean and Atlantic coasts is presented. The observed sea level can be considered as the combined result of several factors: mean sea level, tidal level, surge level and waves. To characterize the flood elevation and to estimate possible changes, a regional hourly historical reconstruction during the last 60 years from the composition of their components has been developed. The role of each factor under extreme sea level events may not necessarily be similar with the mean sea level variations, therefore, a time-dependent extreme model taking into account changes in rate of occurrence and magnitude of the extreme events of flood levels has been applied. Results show the regional trends and the estimated change for specific horizon years in return flood levels. The role of each component and the spatial distribution of the estimated trends is also analyzed.