# SurgeWatch: A new approach to systematically capture information about 2,000 years of coastal flood events around the British Isles

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Coastal floods are a major global hazard leading to long-lasting and wide-ranging social, economic and environmental consequences. With sea-level rise accelerating, and possible changes in storminess, high sea levels will occur more frequently in the future. Without upgrades to flood protection this will significantly increase coastal flooding and impact growing populations and cities around the world's coasts. Continuing to improve the understanding of extreme sea level and coastal flood events is therefore of utmost importance.

The UK has a long history of severe coastal flooding, and at present 2.5 million properties and £50 billion of assets are potentially exposed to coastal flooding. However, there is no formal, national framework in the UK to record flood severity and consequences and thus benefit an understanding of coastal flooding mechanisms and consequences. To address this issue, we have compiled an innovative new database called 'SurgeWatch' (www.surgewatch.org) to systematic document and improve understanding of coastal flooding. Integrating a variety of 'hard' (e.g. sea level and wave records, meteorological data) and 'soft' (e.g. newspapers, weather reports, and social media) data sources we have identified more than 1,000 distinct coastal flooding events over the last 2,000 years for the UK, extending as far back as 245 AD. We have ranked of each of the events using a multi-level categorisation based on inundation, transport disruption, costs, and fatalities: from 1 (Nuisance) to 6 (Disaster). For the most severe events ranked Category 3 and above, an accompanying event description based upon the Source-Pathway-Receptor-Consequence framework has been produced.

In this presentation we will describe the key lessons we have learnt from undertaking a detailed and novel analysis of the drivers and impacts of the 2,000 flood events compiled over the last century. We will also outline plans for extending this database to the whole of Europe and also to include other natural hazards. To our knowledge SurgeWatch is the most detailed database on coastal flooding anywhere in the world and we hope that similar datasets will be compiled for other countries/regions and other natural hazards, following the framework we have developed here.