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Impact of storms on coastlines: preparing for the future without forgetting the past? Examples from European coastlines using a Storm Impact Database

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Severe storms have historically affected many European coastlines but the impact of each storm has been evaluated in different ways in different countries, often using local socio-economic impact criteria (e.g. loss of lives and damage to properties). Although the Xynthia (2010) storm, Atlantic coast of France, was the largest coastal disaster of the last 50 years, similar events have previously impacted Europe. The 1953 storm surge in the southern North Sea, resulted in over 2000 deaths and extensive flooding and was the catalyst for post WWII improvements in flood defences and storm early warning systems. On a longer timescale, the very extreme storm of 1634 AD re-configured Wadden Sea coastlines, accompanied by thousands of deaths. Establishing patterns of coastal risk and vulnerability is greatly helped by the use of historical sources, as these allow the development of more complete time series of storm events and their impacts.

The work to be presented was supported by the EU RISC-KIT (Resilience-Increasing Strategies for Coasts - toolKIT) Project. RISC-KIT (http://www.risckit.eu/np4/home.html) is a EU FP7 Collaborative project that has developed methods, tools and management approaches to reduce risk and increase resilience to low frequency, high-impact hydro-meteorological events in the coastal zone. These products will enhance forecasting, prediction and early warning capabilities, improve the assessment of long-term coastal risk and optimize the mix of prevention, mitigation and preparedness measures.

We analyse historical large-scale events occurred from The Middle Ages to the 1960s at the case study sites of North Norfolk Coast (UK), the Charente-Maritime and Vendée coast (France), the Cinque Terre-Liguria (Italy), the Emilia-Romagna coast (Italy), and the Ria Formosa coast (Portugal). The work presented here uses a database of events built by the project, examining records for the last 300 years, including the characteristics of the storms as well as recorded losses. Finally, lessons learned will be presented, understanding the interaction between DRR elements such as prevention, resilience, mitigation and preparedness. The project's database is publicly available (http://risckit.cloudapp.net/risckit/#/)