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A tale of two storm: An example of a storyline approach for high-impact twin storms

Nina Nadine Ridder and Hylke de Vries

Koninklijk Nederlands Meteorologisch Instituut, R&D Weer- en Klimaatmodellen, De Bilt, Netherlands (riddernina@gmail.com)

Coastlines are confronted with several hazards. When these hazards happen strike simultaneously or in short procession the impact of an event can be significantly increased. A recent example for such a “compound event” are the two cyclones Ulli and Andrea that passed over the North Sea in Jan 2012 and caused a near flood event at the northern coast of the Netherlands causing significant socio-economic impacts. Events like this, i.e. storms that occur shortly after each other, are called “twin storms”. To understand common characteristics of twin storms and their drivers this study uses the storyline approach to analyse one hypothetical twin storm as realised in a climate ensemble (ECMWF seasonal forecast). For this, event selection is based on the impact of the twin storm in regards to the inflicted coastal surge levels along the Dutch coast. The necessary surge data is provided by a regional storm surge model (WAQUA/DCSMv5) forced with the atmospheric conditions from the ensemble. In a second step, changes in the storm characteristics and driver interactions under future climate conditions will be analysed by remodelling the event with changed boundary conditions. The results of this study will illustrate how the storyline approach can complement local climate projections and illustrate how compound events can be implemented in the information chain to improve future policy.