Geophysical Research Abstracts
Vol. 21, EGU2019-17977, 2019
EGU General Assembly 2019

Modelling windstorms in high resolution reanalysis datasets: how well do we know our storms?

Laura Zubiate
Met Éireann, Dublin, Ireland (laura.zubiate@ucdconnect.ie)

European windstorms can have substantial socioeconomic impacts through strong winds, which pose major risks to life, property and forestry, and extreme waves which in turn affect coastal infrastructures and communities. Billions of euro in losses are registered every winter due to windstorms.

Planning for and mitigating these impacts requires detailed knowledge of the severity, location and frequency of European windstorms and how they drive strong winds and extreme waves. Furthermore, understanding how extreme winds and waves may change in the future is critical for adapting to climate change, particularly for key socioeconomic sectors such as insurance, forestry and energy. There is strong demand in these sectors for a wide range of information to assess wind and wave risks. WINDSURFER is a 3-year project that brings together eight leading research institutions across Europe to co-develop new methods, tools and assessments of extreme wind and wave risk with a focus on the Insurance, Forestry and Energy sectors.

Here we present the work carried out by the Windsurfer consortium in collating the available information on European windstorms, with a particular focus on the period 1900 – 1940. This will complement the work finalised by previous European projects WISC and SECTEUR. Information on historical storms has been assembled using official reports and collected observations.

Besides, selected windstorms from the period 1980 - 2017, such as Darwin and Ophelia, have been analysed at high horizontal and vertical resolution (2.5 km horizontal and 26 vertical levels). The dataset used is the MÉRA reanalysis generated by Met Éireann, the Irish meteorological service, using the HARMONIE spectral model. Mesoscale structures such as sting jets, gust fronts and topographic effects like channelling have been identified in the data. This dataset has allowed to assess the current characterisation of windstorms in high resolution reanalysis products and to identify short-comings and areas of future work.