

Abstract

Erosion rates of wind turbine blades are not constant, and they depend on many external factors including meteorological differences relating to global weather patterns. In order to track the degradation of the turbine blades, it is important to analyse the distribution and change in weather conditions across the country. This case study addresses rainfall in Western Europe using the UK and Ireland data to create a relationship between the erosion rate of wind turbine blades and rainfall for both countries. In order to match the appropriate erosion data to the meteorological data, 2 months of the annual rainfall were chosen, and the differences were analysed. The month of highest rain, January and month of least rain, May were selected for the study. The two variables were then combined with other data including hailstorm events and locations of wind turbine farms to create a general overview of erosion with relation to wind turbine blades. <https://pureportal.strath.ac.uk/en/publications/rain-erosion-maps-for-wind-turbines-based-on-geographical-locatio>