



Assessment of the bias related to climate variability over France in processing extreme wind hazards

Hugues Delattre (1,2,3), Nathalie Bertrand (2), Laurent Li (1), and Maeva Sabre (3)

(1) Sorbonne Université, Laboratoire de Météorologie Dynamique, Paris, France (hugues.delattre@lmd.jussieu.fr), (2) Institut de Radioprotection et de Sécurité Nucléaire, Fontenay-aux-Roses, France, (3) Centre Scientifique et Technique du Bâtiment, Nantes, France

Extreme wind hazards are generally taken into account in the process of designing residential and industrial infrastructures through the calculation of return periods with the assumption that climate is stationary. This general practice doesn't take into account the strong temporal variability of winds as well as their potential future evolution in a changing climate. There is thus a need of assessing the potential biases induced by the current methodology. As a first step of our project, we evaluate variabilities of extreme winds in meteorological reanalysis products to estimate potential biases in our nowadays climate. ERA-Interim reanalysis data are explored over Metropolitan France and its surrounding areas for years 1979-2015 (36 years) with a spatial resolution of 80km. Furthermore, estimations are completed with analysis of observations to better constrain the regional scale. Our study focuses on the spatial heterogeneities found over the regional scale of Metropolitan France in the variabilities and trends of extreme winds restrained in reanalysis estimations. We also discuss the characterization of extreme wind variabilities on a regional scale from reanalysis. As perspective, the aim of this study is to assess areas where extreme wind hazards are influenced by a changing climate and where the general practice would benefit from adjustments.