



## **The role of convection permitting modeling to evaluate the contribution of the anthropogenic climate change on the UK Winter 2013-2014 extreme rain**

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During the winter 2013/2014, the UK saw heavy rainfalls associated with a succession of storms reaching Southern England causing widespread flooding, power cuts and major disruptions to transport. The January precipitation set a record for several rain gauge stations in Southern England. The aim of this study is to evaluate the contribution of the anthropogenic climate change, represented by a modification of the sea surface temperature (SST) on the January precipitation. For that, we conducted a sensitivity experiment by running a set of two-months simulations using WRF model with 50km horizontal resolution simulation and 2 km convection permitting simulation centered over the southern UK. We also investigated the sensitivity to the model physics. Results show that the horizontal resolution plays an important role for interpreting the results. Indeed, the low resolution simulation showed no robust signal to attribute this event. However, the convection permitting simulations gave more consistent results over the studied area.