

Interactive comment on “Sensitivity of the WRF model to the lower boundary in an extreme precipitation event – Madeira Island case study” by J. C. Teixeira et al.

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The simulations' setup used in this work was the same one that Luna et al. (2012) have found to produce the best results. In fact, the cumulus parameterisation scheme (CPS) is activated in the the 25 km and 5 km resolution domain and not active in the high resolution domain (1 km) as they can be solved explicitly at this resolution. We agree that the way it is described in page 3, lines 156-158, is misleading and we are willing to change it. Albeit no statistically significant results can be obtained with the investigation of only one case study, results can be generalised for different areas with similar characteristics and under similar conditions. We pretend to understand

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the physical mechanisms of this orographically induced precipitation extreme event which is very common in Madeira. One of the main conclusions is that forecasting these events based on radar products, as suggested elsewhere, is not useful since precipitation forms over the island and is not advected from the ocean. It is beyond the scope of this study to evaluate the climate (i.e. statistics) of these events. The main objective of the present work is to understand the physical mechanisms of such extreme precipitation events which may have impacts on society. These type of very extreme events are very rare and, as such, it is difficult to gather an ensemble to evaluate their statistical significance. The authors will consider the suggestions of the referee in a future stage of the revision process of the present work.

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