

Assessment of domain sensitivity in Numerical Weather Simulations applied to Mainland Portugal

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Numerical weather simulations are of extreme importance since these valuable tools allow us to study and forecast weather conditions. Nevertheless, to produce a realistic result, numerical weather prediction (NWP) models require a comprehensive study of its configurations and a correct setup.

Several studies have been performed to evaluate the sensitivity of NWP models to parameterizations and initial conditions, but the impact of domain geometry is somehow less studied and/or documented.

In this work, the sensitivity of a NWP model to the domain geometry and resolution have been assessed over Mainland Portugal, for three extreme weathers events. In this study, WRF-ARW v3.5.1

model driven by $0.5^\circ \times 0.5^\circ$ GFS analysis was used.

The Model skill was assessed by comparing the hourly forecasts with observations from 10 m wind speed, 2 m temperature, 2 m relative humidity and sea level pressure fields.

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Keywords

NWP, Domains resolution, Domain geometry

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