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- Recent Papers
- Volumes
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- Title and Author Search

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Review

Production

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The effect of the boundary conditions on the simulation of the 4 November 1966 storm over Italy

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Abstract. This study analyses the extreme event which took place on 4 November 1966, when a storm produced intense and persistent precipitation over northern and central Italy and an extreme surge in the northern Adriatic Sea, causing casualties and huge damages. Numerical simulations with a regional atmospheric model have been performed to reconstruct the phenomenology of the event. Results have been compared with observations. This study shows that the choice of the global fields for initial and boundary conditions is crucial for the quality of the reconstruction. The simulation is reasonably accurate if they are extracted from the NCEP re-analysis, while it is not satisfactory if ERA-40 data are used, though fields have a higher resolution in the ERA-40 than in the NCEP set of data. The internal physics of the model plays a smaller role in the reproduction of the dynamics of the event.

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