Use of TIGGE-LAM ensemble datasets for the prediction of high-impact weather events

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The TIGGE-LAM archive provides a unique opportunity to support research on ensemble prediction at high spatial resolution.

In this contribution, different limited-area model ensemble prediction systems (LAM-EPSs) from the TIGGE-LAM archive are used to assess the predictability of severe weather events over Europe.

The added value of the multi-model with respect to the single-model approach is assessed by investigating the performance of the different LAM-EPSs over a 3-month period and a common overlap region.

The skill of the TIGGE-LAM systems (either running in convection-parameterised or convection-permitting mode) is studied in terms of probabilistic prediction of precipitation and 2-metre temperature for forecast ranges up to day 3.

The relative benefits of higher resolution and/or larger ensemble size are quantified over the verification period as well as for the individual case studies.

Finally, the possibility to generate probabilistic products from the combined ensembles is discussed.