

Interactive comment on “Radar-derived convective storms climatology for Prut River Basin: 2003–2017” by S. Burcea et al.

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We greatly appreciate the Referee 1 comments. These were very valuable in improving the manuscript.

Below are the authors responses.

Section 4.4 of the manuscript, named “Large scale drivers of convective storms in the Prut River basin”, was added to present the physical interpretation approach suggested by the reviewer. Sea level pressure and CAPE were extracted from the ERA5 reanalysis, and used to identify the large-scale drivers of local convective storms from the Prut River basin. Therefore, it was highlighted that low values of sea level pressure over the Balkan peninsula and Black Sea region are important dynamical drivers of

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convective storms in the analysed area. Furthermore, through the correlation between the monthly number of convective systems in the Prut basin and CAPE, one can better identify the statistical signature of atmospheric fronts associated to the high convective activity in the Prut basin.

It is not the scope of this article to investigate any differences of convective storm characteristics between Prut river basin and other parts of Romania. The authors want to highlight a method of deriving storm climatology at basin to regional scale, given a long time series of radar observations.

Merging or splitting cells were not considered herein, as a general convective storm climatology was envisaged. The suggested approach is scientifically challenging, but is not the scope of this paper.

To measure the central tendency, the mean was replaced with the median estimator, being more robust than the average. The mesoscale background related to Fig. 9 and 10 is worth being investigated, but this would lead to an extended specialized analysis, and is not the aim of this paper which intends to present an approach to derive a general storm climatology based mainly on radar data.

Section 4.4 was rewritten to highlight the large-scale drivers of convective storms in the Prut river basin.

Section 4.5 was removed from the manuscript.

The spatial distribution (uniform or hot-spots) of the convective storms could be related to mesoscale flows and/or the distribution of convection parameters like CAPE. The scope of this paper is to present the distribution of convective storms at basin to regional scale in order to provide a simple but practical information to the readers. To detail the different yearly distribution, including the analysis of mountainous convection, an additional deeper mesoscale analysis is needed, which can be solely the subject of a whole paper.

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