We would like to thank the referee for the helpful comments, as well as for the time and effort invested in the review. Below we provide our response to the reviewer's comments and describe the modifications made to address them. In black font we include the reviewer's comments, and in blue is our response.

"p5l1 - interesting logic to identify rain cells. I wonder if the authors have seen this paper that is used a fair bit for cell identification - Steiner, M., R. A. Houze, Jr., and S. E. Yuter, 1995: Climatological characterization of three-dimensional storm structure from operational radar and rain gauge data. J. Appl. Meteor., 34, 1978-2007. Some comment on how their approach compares to this one will be of use."

Thank you for the question and the reference. We focused on a two-dimensional approach rather than examining the full three-dimensional structure of the rain cells. We did not thoroughly review the different methods and algorithms used in the field for identification, extraction and tracking of convective cores since it was not the main the scope of this paper, that is based on already existing methods. However, we have edited the introduction in the revised manuscript to include some more information, as follows:

"The spatial distribution of rainfall in convective environments is often examined focusing on the properties of the convective rain cells (abbreviated hereafter as rain cells), that can be directly derived exploiting the full three-dimensional structure of the cells (Dixon and Wiener, 1993; Johnson et al., 1998; Steiner et al., 1995) or, more commonly, extracting the convective two dimensional segments from radar data (Barnolas et al., 2010; Cox and Isham, 1988; Féral, 2003; Féral et al., 2000; von Hardenberg, 2003; Karklinsky and Morin, 2006; Northrop, 1997). A widely used approach requiring only two-dimensional information is to define them as areas in which the rain intensity exceeds a certain threshold. This simplified representation of the rain field allows focusing on the high flash-flood generating potential portion of the storm and is used in synthetic rainfall generators and hydrological models (e.g., Morin et al., 2006; Peleg and Morin, 2012; Wheater et al., 2000; Yakir and Morin, 2011)."

"I was left with a feeling that this study has skirted off an obvious question pertaining to the results, which is whether rising temperatures are increasing such convective cells (and flash flood causing cells) or not. I feel for this paper to be complete, some discussion to this effect should be included as there is considerable evidence out there that such storms are increasing in terms of their intensity as well as their spatial and temporal attributes".

Thank you for raising this idea. In fact, in addition to the many studies recently devoted to the impact of warmer climates on the occurrence and magnitude of high-intensity rainfall (see a review by Westra et al. (2014)), there is evidence of a possible change in the frequency of the storm generating synoptic types in the area in response to climate variations (Alpert et al., 2004). Addressing this topic would be of high relevance but we feel it is out of the scope of this paper. We focus here on present climatic conditions to examine the connection between the properties of the convective rain cells and the hydrological response and the generating synoptic types. The presented results are complete and informative for the present-climate conditions and provide solid bases for future examinations of the possible impact of temperature on the characteristics of the convective rain cells (with implications for climate-change scenarios) – natural continuation of the present study and already planned as future objective – and on the impact of climate change scenarios on the frequency and occurrence of the generating synoptic types.

We would like to thank the referee again for the review.

References

Alpert, P., Osetinsky, I., Ziv, B. and Shafir, H.: Semi-objective classification for daily synoptic systems: application to the eastern Mediterranean climate change, Int. J. Climatol., 24(8), 1001–1011, doi:10.1002/joc.1036, 2004.

Westra, S., H. J. Fowler, J. P. Evans, L. V. Alexander, P. Berg, F. Johnson, E. J. Kendon, G. Lenderink and N. M. Roberts: Future changes to the intensity and frequency of short-duration extreme rainfall, Rev. Geophys., 52(3), 522–555, doi:10.1002/2014RG000464, 2014.