

Nat. Hazards Earth Syst. Sci. Discuss., referee comment RC1  
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## **Comment on nhess-2022-96**

Anonymous Referee #1

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Referee comment on "Meteorological, impact and climate perspectives of the 29 June 2017 heavy precipitation event in the Berlin metropolitan area" by Alberto Caldas-Alvarez et al., Nat. Hazards Earth Syst. Sci. Discuss.,  
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### **General Comments:**

The authors investigate a heavy precipitation event in meteorological, climatological and economical sense. It is shown that the chosen case was indeed considered extreme and had high impact therefore its analysis can be relevant for a wider audience and it also fits well into the scope of NHESS. The authors also included an experiment showing the effect of our warming climate on such extreme precipitation event, which help to put the case into perspective. The authors use valid methods to draw their conclusions. The paper consists many different aspects of the case, which have valuable information but also makes it a bit fragmented. I urge the authors to reconsider, if every part is really needed to support their conclusions and to try to shape it to be more coherent. Now it feels like different short analyses listed together.

### **Major Comments:**

Section 2: I suggest this section to be restructured, even splitted into two. I would consider putting subsection 2.2 into the results section and mentioning COSMO-REA6 at the reanalysis section. In the 2.3 subsection it is not well explained why the authors used three different models. What is the added value in using so many models, could it not be done via one model? Also, the analysis done on WRF simulation could it not be done on the COSMO-CLM simulation, or the aerosol simulations with either COSMO or WRF? I also

suggest to separate better the models description from the actual experiment set ups.

Section 3: This section should also be unified and simplified. I would suggest to move the methodology description in subsection 3.2 into the Method section and subsection 3.3 into 3.1. Subsection 3.4 consist some paragraphs which are describing the presented Table 1 and Figure 8, which feels unnecessary to me, I would suggest the authors to list more conclusions here. Subsection 3.5.2 also consists some methodology description, which should be moved to the Method section (PSI, cell tracking). Also it is not quite clear what is the contribution of the aerosol experiment to this case study, why is it a valuable part of the analysis.

### **Specific comments:**

Page 2 Line 22 (last sentence) A bit vague.

Page 3 Line 3: I would not call Vb cyclones small-scale disturbances

Page 9 Line 217: How do you know that the spin-up was sufficient?

Page 12 Line 293: I would suggest to use "29 June 2017 HPE" instead just "29 June 2017" (not just here, but in the whole paper)

Page 12 Line 300: originated in the night from 28 to 29, would be clearer.

Page 22 Line 483: (Tab. 2, number 6 in Fig. 11)

Page 24 Line 518: "which exceeds the increase in precipitable water we find", in where?

Page 26 Line 551: Which experiments fits better the observations? What are the conclusion related to this event?

Page 26 Line 567: "between Poland and northern Italy" strange wording

Page 26 Line 568: What does "this area" defines here? Not clear to me.

Page 28 Line 615: Is this a plane for further work?

Figure 7 Why are there so little lightning from the area of Berlin, where the precipitation has its peak?

Please also note the supplement to this comment:

<https://nhess.copernicus.org/preprints/nhess-2022-96/nhess-2022-96-RC1-supplement.pdf>