Response to referee comments on acp-2021-297

The impact of atmospheric blocking on the compounding effect of ozone pollution and temperature: A copula-based approach

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General comment

We would like to thank the editor and referee for their comments on the manuscript.We appreciate the time spent in reviewing the manuscript. Please note that the changes have been applied in the revised version. A marked-up version of the manuscript is included. Changes are shown in red script and the deleted text is shown as cross out sentences. Here we provide our responses. The comments from the referee are in bold script and our responses are given in standard script.

Response to Referee #2

In this paper, Otero and coauthors examine the impact of atmospheric blocking on the ozone and temperature as measured at 300 stations across Europe during the period 1999-2015. The authors apply a copula-based method to model the probabilities of extreme temperature and ozone under blocking and non-blocking conditions.

The authors have now made a concerted effort to address the reviewers' concerns. For example, they now clarify their approach for calculating ozone and temperature anomalies at each measurement station, and they justify that approach. They also discuss the implications of their results given current knowledge of future trends in climate and surface ozone. Finally, they now work harder to interpret the spatial distributions of the probabilities of ozone exceedances under blocking conditions.

I recommend publishing once the minor issues below have been addressed.

Minor comments.

1. The paper has a large number of typos and lapses in English, about 1-2 per page. I recommend that the authors ask for assistance in editing.

Following your suggestion, we have asked for assistance in editing the manuscript. According to this, some corrections and edits have been applied in the revised version.

2. The last paragraph of the introduction should state that the paper focuses on Europe.

We have stressed in the last paragraph of the introduction that our study aims to asses persistent blocks on the compounding effect of ozone and temperature over Europe (L67 in the marked-up version).