

Reviewer #3

Paper: A numerical study to investigate the roles of former hurricane Leslie, orography, and evaporative cooling in the 2018 Aude heavy precipitation event (R1)

Authors: Marc Mandement and Olivier Caumont

Overview

- The authors have addressed all referee comments thoroughly, and the paper is much improved with a much better balance between description of the results, and interpretation of the results including the wider context. I am happy to recommend acceptance of this paper once the remaining, small comments have been addressed. Well done on an interesting, informative and well-presented piece of research!

General comments

- Replace 'resolution' with 'grid spacing' when using numbers to discuss your model setup (e.g. 1 km, 500 m).
- The length of the paper has been reduced nicely without any loss of quality. Well done!
- You have substantially improved the readability of the manuscript by shortening the description of your results while interpreting your results in more detail.
- The connection between the text and the figures is now stronger. Adding annotations to the figures has helped in this regard.

Specific comments

Abstract

- L7: 1 km and 500 m horizontal grid spacing

Introduction

- Refer directly to one of the schematic diagrams of heavy precipitation events that you listed in your previous response (e.g. Fig. 1 of Ducrocq *et al.* 2016; Fig. 11 of Ricard *et al.* 2012), rather than just the paper. This way, the reader won't be expecting you to produce a schematic diagram of your own.
- L30. 'a maritime part of the Occitanie region...'
- L38. 'abnormally warm SSTs...'
- L44-45. Couple of other references for outflow boundaries of cold pools, local convergence lines and mesoscale pressure troughs?
- L79. 'A similar dynamic feedback...'
- Spell out 'Section' fully, rather than using 'Sect'.

Case description

- I can't see the labels "A" and "P" on Figure 5, even though you refer to them in the figure caption.
- L146. Include a couple of references for the sentence on the catastrophic consequences of the rainfall (from the earlier list on L65-66).

Origin of the conditionally unstable air and lifting mechanisms

- L251. Replace 'what' with 'which'.
- L283. Delete 'brutally'.
- L287. Replace 'increase' with 'increases'.
- L293. '...over the sea'.
- L309. '...local forcing'.
- L310. 'Convection triggered over the sea...'
- L388. Instead of 'south-south-eastern wind', use 'south south-easterly wind'. Do the same for any other instances throughout the paper.
- L387-390. The reworked sentence is slightly confusing to read. Can you reword by splitting into two sentences, or changing the order of the points you're making?
- L395. Reword to avoid starting the sentence with an abbreviation ('REF').
- L406. Replace 'relief' with 'peak'.

Influence of the cooling associated with the evaporation of precipitation

- L424-425. '...explained by the evaporative cooling being switched off.'

Conclusions

- L434-435. Although you have added a couple of sentences at the end of this section addressing Leslie's role as part of a discussion on future work, you still also have a sentence here where you indicate that Leslie's remnants are involved in the formation of the surface low and cold front (CF2). Did you not mean to remove this sentence?