

Interactive comment on “Evaluation of convection-permitting extreme precipitation simulations for the south of France” by Linh N. Luu et al.

Anonymous Referee #1

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General comments: The authors use four indices to evaluate the skills of convection-permitting models and EURO-CORDEX in reproducing daily and sub-daily heavy precipitation over the Mediterranean region. As expected, the models with higher resolution which are able to resolve deep convection show better performance. The results are meaningful, and the paper is well written.

Major comments: 1.The evaluation between the simulation and the observation do not cover the same period. On Line 85-90, the authors mentioned "Each convection-permitting simulation (hereafter mentioned as CPS) is conducted for two different periods including 1951-1980 and 2001 -2030 with the RCP8.5 scenario for the year

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after 2005. These two periods are chosen with a gap period (1981-2000) rather than a seamless one in order to perform a climate change impact study which will be presented in another article." Since the climate change impact is not studied in this paper, why do the authors select 2000-2030 simulation to compare with the observation in 1997-2007 (Figure 2,6)? If the period is not the same, are the quantitative results in the paper robust? And why RCP8.5? How much difference between the RCP8.5 and RCP4.5?

2.Besides quantitative evaluation, could the authors add more discussion that could explain the results, tie the results into the scientific literature and emphasize the importance of the results?

Minor comments:

1.Line 55. Could the authors give more specific introduction about the region? Why do the authors select this region to study?

2.Line 92, What does the "Mediterranean events" mean?

3.Line 183, could the authors mark the French Alps in Figure 2? "The EUR-11-HadGem2-ES or CPS-HadGEM2-ES show the best agreement with observations." Did the authors mean the results of French Alps? Could the authors provide quantitative evidence? Like spatial correlation?

4.Section 3.1, could the authors give some explanation about why the EUR-11 performs better than the CPS which resolve better deep convection in French Alps?

5.I think it might be better if the authors exchange the order of 3.3 and 3.4. In the method parts, the second indice is comparing the distribution of wet events.

6.Line 244. Could the authors give more explanation about "the convection scheme used in EUR-11 over-simplified the cloud process".

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