Reply to the RC2

First we would like to thank the RC2 for the time and the work he/she spent on the paper. You will find our point-to-point response to his/her comments below. It is organized as follows: the initial comments are in blue and the response to each comment in black. For some major comments, we answer directly in black after certain sentences. The changes in the manuscript will be in red, with the line number or the figure number. When an entire section has been modified or reorganized, the line number is omitted.

Major remarks:

1. For post-processing temperature and precipitation data are used from 2-year periods. However, the paper does not mention which part of the data set is used for
training and which part for verification and whether cross-validation has been used or
a completely independent verification period is considered as in the verification of daily
precipitation amounts (Fig. 16)? Besides, it would also be good to add the verification
period in the captions of Figs. 5, 6 and 12-14. The validation is made by a 2-fold cross-validation on the two years of data (one sample per year). This sentence has been added in the text and in captions.

2. The hyperparameters of QRF (like the number of trees and the terminal node size)
should be added and whether these are optimized for the training period. This information is now provided at the beginning of the verification section.

3. I think it is good to add flow diagrams in which all steps involved in the post-processing of temperature and precipitation are displayed. Thank you for this excellent suggestion. Two flowcharts are now available.

4. The conclusion section is rather short and there is no discussion paragraph. The
current conclusion section mainly focuses on computational aspects, which could be
moved to a separate earlier section. Instead it would be good to have a real conclusions
and discussion section in which the main conclusions are given and the results are
placed in context (in relation to other papers if possible) and in which future work is
mentioned. The former conclusion section is now reshaped as the discussion section and a "real" conclusion section has been added.

5. Some of the figures are really small and will become much more clear if they are
enlarged, notably Figs. 7-9, 11, 13 and 15. Alternatively the legend in some of the
figures can be enlarged to be readable. Most of the figures have been redrawn, and labels rescaled. Thank you for this suggestion.

Minor remarks:

1. Lines 2 and 18: "misdispersed" and "misdispersion" do not seem to be correct
English words. Please replace. These terms have been replaced with "poorly dispersed."

2. Line 5: Please add something like "and subsequent interpolation to a grid" after
"temperature". ok
3. Line 40: Please introduce the abbreviation EGP. done

4. Lines 44 and 46: Please add references for the two EPS systems. ok

5. Line 47: Please place "(calibrated with rain gauges)" after "data". ok

6. Line 53: Please replace "adjustments" by "adjusted". This appears to be a misunderstanding of the sentence. The noun form "adjustments" is correct in this case, as it is the subject of the clause.

7. Line 83: Why is it needed to apply the spatialization algorithm twice? Does ECC not account for that? The spatialization algorithm is applied once. A flowchart has been added.

8. Line 89: Please replace "subgrid" by "grid".ok

9. Line 91: I would say spatial penalties issues are reduced rather than solved.

10. Lines 94-95: Please replace "calibrated (with rain gauges) radar data ANTILOPE" by "radar data set ANTILOPE (calibrated with rain gauges)" and add the resolution of that data set. ok

11. Line 100: Please insert "potential" before "predictors". ok

12. Line 138: Please provide a reference for the method of moment. ok

13. Line 141: Please insert "forecasting a" before "temperature". ok

14. Line 159: I would use another title for this section. As the paper has been reorganized, this section has now been omitted.

15. Line 167: Please replace "data" by "observations". ok

16. Line 171: The use of "natural" is a bit strange here. This has been replaced by "innate".

17. Line 181: Please replace "close" by "close by" and add "fields" after "cover". ok

18. Line 224: Is one year of data enough? We are limited by (too frequent) model updates here.

19. Lines 237-240: Please correct the equation: "+" instead of "=" and use the "for all" symbol (?) instead of the infinity symbol. ok

20. Line 247: Please delete β 1D the 2nd time is it mentioned and replace the multiple α 1D 's by α 1D , α 2D , α 3D , α 4D .ok

21. Line 248: Please introduce the abbreviation AIC.ok

22. Line 292-293: Please add a reference for the COSYPROD interpolation scheme. COSYPROD is just the name for an internal IDW-like scheme. IDW references have been provided.

23. Line 307: It is not necessary to start a new paragraph here. ok

24. Line 329: Please replace "according to" by "for". ok

25. Line 331 and caption of Fig. 14: I would not say that the improvement is constant. Also noticed by the RC1. We have removed this statement.

26. Axis labels of Fig. 13: Please move 1 of the 2 labels to the other side of the figure (top panel) and add "= 1-FAR" after "Success Ratio" (bottom panel). Done.

27. Caption of Fig. 13: Please add that the red curves are for the post-processed forecasts and add the meaning of the different background curves and dotted lines in the bottom panel (respectively CSI and bias). Ok, the CSI and bias are now in the caption.

28. Line 334: Please replace "propose" by "show".ok

29. Line 336: Please insert "24-h" after "Observed" and delete "in the day".ok

30. Line 340: I would say "slightly improves" instead of "does not deteriorate". "Slightly improves" would be a bit of a stretch.

31. Line 341: I would replace "Figure 12 for raw CRPS. Indeed," by "same results as in Figure 12 for the raw CRPS, because".ok

32. Line 342: The bc-ECC method itself does not reduce time penalties because it does not involve temporal aggregation, but I wonder why time aggregation does not have more or less the same effect on the raw and post-processed precipitation forecasts in terms of CRPS? For raw daily rainfall amounts, an error in the timing of the shower is made up by the lead time one (or several) hour(s) before or after. Post-processed hourly rainfall amounts are independent (each lead time is post-processed separately). A sentence has been added: Due to

the nature of daily precipitation distribution compared to hourly ones (fewer zeros, smaller variance and lighter tail behavior), we believe that direct post-processing of daily precipitation is more effective if the target variable is daily precipitation.

33. Line 353: Please choose either allow or enable. ok

34. Line 357: Please add "for bc-ECC" after "3 minutes".ok

35. Line 362: Please replace "substantial save space" by "to save space substantially".ok