

## ***Interactive comment on “Probabilistic precipitation and temperature downscaling of the Twentieth Century Reanalysis over France” by L. Caillouet et al.***

**L. Caillouet et al.**

laurie.caillouet@irstea.fr

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The referee comments are recalled in italics and followed by the authors' responses.

*The study presents the methods and results of a temperature and precipitation downscaling activity over France. The novel aspects of the study are the presentation of a new post-processing method which extends upon the SANDHY downscaling technique, and, the application of the method on a much longer temporal timespan than has previously been conducted for France. I suggest accept after very minor revision.*

The authors would like to thank Referee 3 for his/her positive comments on the

C3125

manuscript.

*For my only major point, I would certainly agree with the other reviewer that a better explanation of the methodological steps is required, and a schematic would probably be a good way to show this.*

A synthetic diagram will be added to the appendix to better show the different downscaling steps for all 3 methods developed in the manuscript.

*Minor Points:*

*Abstract: SAFRAN isn't defined the same way SANDY is.*

Indeed, Safran is less precisely defined in the abstract than SANDHY, but not less than 20CR, the other major dataset used in the study. The focus here is on the downscaling process between these two reanalyses, and not on the datasets themselves.

*there is some interchanging between US (e.g. homogenized) and UK spelling (e.g. optimised) - stick with one style throughout*

Thank you for pointing this out. The manuscript will be carefully checked for these inconsistencies.

*p4428 sometimes e.g. 14/113 20th/twentieth century is used interchangeably - better to stick with one style exclusively*

Thank again for pointing this out. This will also be checked.

*113 does era20c start in 1900, not 1899?*

This is actually right, data are available from 1900 only. This will be corrected.

*Safran is sometimes capitalised (e.g. abstract) and sometimes isn't*

This is right, we will try and stick to one single form.

*p4427 18 remove 'for example'*

C3126

This will be corrected.

*I13 'the number of temperature observations show an increase after 1950' sounds better*

This will be corrected accordingly.

*I14 'data' are technically plural, so the phrase is better as 'The data sparseness before 1950 do. . .' (rather than "does")*

Actually the subject is "sparseness", so the current sentence should be grammatically correct.

*p4429 I6 remove 'to date'*

This will be corrected accordingly.

*p4430 I2 no need to say 'twentieth century reanalysis version 2' as it was already defined earlier*

This will be corrected.

*p4432 I5 statical spelling*

This will be corrected.

*I18 Sandhy already defined earlier in the paper*

This will be shortened.

*p4434 I7 predictands?*

The authors are unsure about how interpreting this comment. If it is related to the meaning of the word, "predictand" has been defined and used earlier on (P4433 L1 and L3).

*p4445 'generalized' is an odd adjective to describe flooding*

C3127

This is right. We propose to use "widespread" instead.

*p4449 no reason to redefine 20CR/SANDHY again here*

This will be shortened.

*Fig 1 - label x axis*

We will add "Years" as x-axis label.

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Interactive comment on Clim. Past Discuss., 11, 4425, 2015.

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