**Climate
of the Past
Discussions**

Interactive comment on "The construction of a Central Netherlands temperature" *by* G. van der Schrier et al.

Anonymous Referee #1

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Constructing a Central Netherlands Temperatures series is an interesting topic, relevant for CP. The manuscript is rather clear, interesting to read, the search for metadata is carefully handled.

However i have a number of concerns regarding the application of homogeneity checks and reference construction.

Introduction

As stated in the introduction, this reconstructed series is very close to the one previously computed in Van Ulden et al. in 2009. So an obvious question is : what does this series improve?

2. Construction of long records The Van Der Hoeven (1992) method to reconstruct T24

is described (not very well: subscripts and superscripts have disappeared in 2), but... it is unclear whether it has been used or not! Note that this is a very empirical method. One may wonder why a direct regression model has not been used, although there might be colinearity problems here.

3. Method

"Both references and target series have their seasonal cycles removed". What happens when changes affect seasonality? Especially when the main criterion for assessing changes is a Durbin-Watson test. In Menne & Williams, detection is performed on serial monthly series. From what i understood in your examples (section 6), detection is performed on monthly series, also, but separately : series of january, february, etc... So where is a need to desaisonalise the series? See figure 2 to be convinced that this phenomenon may occur.

Choice between models (3), (5) and (7) is empirical ("visual confirmation"). But those are nested models, so choosing which one is best can be performed straightforwardly by means of a Fisher test.

4. Reference

- PCA is not a "new" technique for building reference series, references should be searched. - (10) (11) and (12) do not take into account the fact that the "c_i" were established using the target series as well. Repeating PCA just excluding the target series should not be so difficult and computationally expensive! - Note that in your application that PCA is equivalent to perform... the mean of the series, weights being roughly equal to 1/7 -96.7% of the variance is explained by the first mode. This mode should deserve a figure. But i assume this is mostly the seasonal effect that allows such a high percentage of explained variance. Not warming trend.

5. Quality checks Standard deviation is interesting, but exhibiting the difference series candidate minus ref is more revealing.

6. Detected breaks and trends.

This paragraph is a long list of "we detected a significant artifact, but did not correct it since we did not find supporting metadata". If you assume that your metadata are perfectly complete, no need to use statistical tests.

In your method, you combine drawbacks of the two approaches. That is you will not correct significant changes when not supported by metadata, and fail to validate changes reported in the metadata if they do not pass the tests. Provided you use tests at a 5% level, that is very conservative tests, the latter should occur quite often too. Caricatural examples:

6.3 Groningen where you have metadata in 1952-1953, significant changes (with a strong seasonal signal), finally judging that evidences are too scanty ? Remind that noise is much stonger on monthly series. 1996 :sentence is unclear, but here again there are some parts of evidence of a change.

6.4 Oudenbosch

"should not affect the daily averaged temperatures". Well, if you use the Van der Hoeven method, it will!

1971-1972 : remember again that noise is much larger on monthly series, it is not surprising that the change is not detected for all months, and if there is seasonal effect it might be not detected on the annual too. Besides this, you.. have metadata!

6.9 Hoorn

Break detected around 1970-1973. Believe that is a school is built 20 m from the shelter, you may have problems.

etc..

6.11 Deelen

What is a "large enough break to warrant adjustment"?

You should also take into account that position of detected changes is just an estimation, not necessarily the true one (ex : De bilt, around 1921).

7. CNT

Why not use anomalies, which would allow compute the series directly, even with varying number of series? The process leading to corrections of the variying number of series is not really described.

If your purpose is to make something representative of the "Central Netherlands", then you should use an interpolation method.

I do not understand why you extensively describe the homogeneization of some series that you do not include in the end in the CNT.

Conclusion.

As a conclusion to this review, for your purpose, it is more important to remove significant changes, even if it sometimes leads to unecessary adjustments, that will be small anyway, than letting artifacts uncorrected. So please redo the job, correcting the artifacts you put into evidence.

Interactive comment on Clim. Past Discuss., 6, 2517, 2010.