

Interactive comment on “A 305-year continuous monthly rainfall series for the Island of Ireland (1711–2016)” by Conor Murphy et al.

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Received and published: 6 December 2017

Review of Murphy et al 2017

This paper describes an extension of a recent rainfall dataset for the Island of Ireland, taking the existing 1850–2016 dataset back to 1711 using a recovered summary found at the Irish Meteorological Service Met Eireann.

The study is one of those great data rescue stories that shows the value of this work. The data are well described, with limitations and caveats presented appropriately. I particularly liked the use of bootstrapping to get a range of estimates for the annual average rainfall used to construct the full series, and the visualisation of trends.

It's a shame that the authors can't find more information about how the recovered

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summary was developed, but their use of independent and somewhat related sources to verify the extended record is well done. The information about other long-term rainfall data in and around Ireland in this paper will also surely be useful for future researchers.

I recommend that the article be published subject to the consideration of the small suggestions below.

- It would be good to include a map of Ireland, and perhaps the wider UK region, showing the locations mentioned in the text (including the independent sources) for those unfamiliar with Ireland.
- The study talks more about the rainfall variability in summer and winter than that of autumn and spring, despite the fact that the winter record is arguably the least reliable in the first few decades. Is there a reason for this? Are these key seasons for water security in Ireland, or seasons that show particular sensitivity to large-scale features?
- Using bootstrapping to estimate the AAR (and uncertainty) seems like a good idea to me. However, a reader might think that the uncertainty shown in Figure 2 represents all of the associated uncertainties with the data, including quality issues of the very early observations. You discuss this towards the end of the paper, but it would be good to add a disclaimer about this in Section 2.1.2 (and in the caption to Figure 2) to clarify.
- Is there any reason why you used Spearman rank correlation over Pearson?
- In section 2.2.1, you mention that the EWR series was used to calibrate the Jenkinson series. Can you elaborate on that? Did you do that, or Jenkinson et al?
- You mention where you obtained the Hoofddorp dataset, but no other comparison series. Are they all from the associated publications? Perhaps specify this.
- Section 2.3: did you do any quality control/outlier analysis on the data before homogenisation?
- Why did you use SNHT and the Pettitt tests for homogeneity assessment? Presum-

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ably it's because they don't need neighbouring stations, but it would be worth adding a sentence explaining your choice of these methods over more recent approaches such as RHtestV4.

-It's great that the original data source is provided with the paper, but will the final digitised dataset also be made available?

- A hopeful question: have you looked into whether Jenkinson or their colleagues are still alive?

- As an aside: this work, while suitable for Climate of the Past, would also have been suitable for data-focussed publications such as Geoscience Data Journal or Earth System Science Data. This would have enabled you to attach a DOI to the Jenkinson record (and your dataset) and make it more prominent, rather than including it as an attachment.

-In section 3.3.1 you mention that the post 1950 period is the wettest for winter, but in the discussion talk about the impact that increasing availability of observations has on the trend. Do you think that this post-1950 wet signal might also be an indicator of increasing data coverage?

Table 4: Two decimal places in the correlations is probably enough

Table 5 and 6: One caption mentions that these descriptions are 'derived from', while the other says 'taken from' Rutty's diary. Were they compiled in different ways?

Figures 4 to 9: You might want to try some different colour schemes for these spaghetti-type plots that are colour-blind appropriate (try <http://colorbrewer2.org/>). the lol curve should ideally be on top of the other too, I think that would improve readability. Finally, it would be great if you could spell out the acronyms used in the legend, at least in the first caption.

Technical corrections

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Abstract, line 10: I'd add the word 'boreal' before 'spring, summer and autumn', for southern hemisphere readers.

Abstract, line 14: add the word 'volcanic' before eruption

Page 3, line 8: do you have a reference about the lost diaries of William and Sam Molyneux?

Page 4, line 11: I'd add the word 'precipitation' before 'record'.

Page 4, line 21: I'd add 'community standard' or something similar ahead of the mention of HOMER, to signify its standing in the homogenisation field

Page 11, line 17: I feel like a word is missing at the start of this sentence. Maybe 'To derive the lol_1711 series MEAN'?

Page 11, line 23: you talk about the median and mean of the series in the same sentence, is that accurate?

Page 12, line 28: I'd remove the 'For' at the start of this sentence

Page 17, line 35: Maybe add 'around that time' to the end of this sentence, and include a reference to George J Symons' network if you have one

Page 19, line 2: remove 'multiple' or 'different'

Page 19, line 5: add 'previously' before 'available'

Page 19, line 26: 'remain', rather than 'remains'

Interactive comment on Clim. Past Discuss., <https://doi.org/10.5194/cp-2017-142>, 2017.

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