General:

This is an important contribution in deriving a continuous very long precipitation series for an area that is strongly influenced by the Atlantic and various circulation modes. The authors do a very good job in compiling all the meta information, the way how they generate the new series and provide associated uncertainties. They also carefully compare with other series and link statistically to upstream Atlantic climate conditions. I find this is an important contribution and I support it to be published in Clim Past. Below are a couple of suggestions/comments I wish the authors can take into consideration for the revisions.

Major comments:

Abstract: The abstract might be improved. In my view it is too detailed with specific information that do not reflect the major findings of the study. It might include a synthesis of the findings and what makes this series unique. Also implication of the results and potential for future applications could be stressed.

I suggest to provide a spatial correlation (spearman) plot between precipitation of Ireland (the representative station or country average) and Europe, separated for each season and for at least the last 50 years. That would show how the target new precipitation series is statistically linked to remote areas of the UK and European mainland.

I would suggest to produce a Figure that shows the location of the precipitation series that are compared with the target Ireland series. The starting year of the stations could be separated with different colors.

Section 3.2., table 4 and fig 3:

Please could you also calculate the significance for the running correlation. One way would be through bootstrapping. For the interpretation of this figure I would then only describe and interpret the significant periods

You may need to state why you start in 1790

Comparison with independent circulation: The authors might use the independent gridded SLP (and derived NAO-I, first EOF of gridded SLP) reconstruction by Küttel et al. (2010). They cover the past 260 years and are fully independent.

Apart from the NAO, the East Atlantic/Western Russia pattern (Eurasia-2 pattern EU2 (Barnston and Livezey, 1987) is one of the most important modes for western Eurasia and shows also significant correlation with precipitation over Ireland. For instance, the EU2 index measures the pressure difference across central Europe and thus is important in describing the variability of Eurasian climate, especially during wintertime. Therefore the authors might also consider the EU index that has been reconstructed back to AD 1675 (Luterbacher et al. 1999) and calculate the correlation and running correlation.

It would also be interesting to compare your new reconstruction with those of Pauling et al. (2006) and Casty et al. (2007). The authors provide 0.5°x0.5° resolved gridded precipitation back to the mid 17th century (Pauling et al. 2006) and 1766 (Casty et al. 2007) including Ireland. The period could be analysed where there is no overlap of predictors. That would be another benchmark test for the various datasets.

Different studies have shown, that the AMO/AMV are significantly correlated with precipitation/temperature downstream over the UK and Europe. It would be interesting to see whether the positive correlation within the instrumental period is also valid during the reconstruction period. There is new annual AMO/AMV reconstruction available that could be used (Wang et al. 2017). The data can be downloaded from this link

https://www1.ncdc.noaa.gov/pub/data/paleo/reconstructions/wang2017/wang2017amv-amo.txt

It is striking, that the L-SLP is the only index that shows a significant negative correlation. Why is this?

Decadal interpretations

I suggest you also consider the Casty et al. (2007) and Küttel et al. (2011) papers with respect to linkages between the large scale atmospheric circulation and precipitation in Europe back to the mid-18th century.

It would help the reader if the seasonal aspects and the comparison with other series could be shortly summarized, that would help the reader keeping the major features from the many numbers. This could be also in the form of a table that synthesis the results.

Minor comments:

Page 6, top: Jenkinson et al. (1979) applied a graded scaling system, similar to Brázdil et al. (2010), to both diaries.

In this context, please also cite Gimmi et al. (2007)

Please note that Luterbacher et al. 2002 was published in 2001 and the publication date should be changed accordingly.

Page 11: *All records were standardised (by mean and standard deviation) to the period 1900-1950 for visual comparison.*
Could you please specify why this period and if another more recent period would be chosen, if the results would be stable? Why only visually? What is the intention?

Concerning the precipitation conditions in 1816 in Ireland, please have a look at Veale and Endfield (2016) with additional information

Concerning the post precipitation conditions in Ireland after the Laki eruption, please have also a look at Brazdil et al. 2010

Potentially the following paper is of relevance and could be included/cited

Evaluating the Dendrochronological Potential of Taxus Baccata (Yew) in southwest Ireland (Galvin et al. 2014)

The authors use Maunder Minimum as a key word but only mention it once. I would thus remove it.

References used:

Barnston, A. G., and R. E. Livezey, 1987: Classification, seasonality and persistence of low frequency atmospheric circulation patterns, Mon.. Wea. Rev., 115, 1083-1126.

Brázdil, R., Demarée, G.R., Deutsch, M., Garnier, E., Kiss, A., Kolář, P., Luterbacher, J., Macdonald, N., and Rohr, C., 2010: Floods of the winter 1783/1784 in Europe: a scenario of an extreme event in the Little Ice Age, Theor. Appl. Climatol. 100, 163-189.

Casty, C., Raible, C.C., Stocker, T.F., Wanner, H., and Luterbacher, J., 2007: European climate pattern variability since 1766, Clim. Dyn., 29, 791-805.

Galvin, S.., A.P. Potito and K.R. Hickey (2014) 'Evaluating the Dendrochronological Potential of Taxus Baccata (Yew) in southwest Ireland'. Dendrochronologia, 32:144-152

Gimmi, U., Luterbacher, J., Pfister, C., and Wanner, H., 2007: A method to reconstruct long precipitation series using systematic descriptive observations in weather diaries: the example of the precipitation series for Bern, Switzerland (1760-2003). *Theor. Appl. Climatol.*, 87, 185-197.

Küttel, M., Xoplaki, E., Gallego, D., Luterbacher, J., Garcia-Herrera R., Allan, R., Barriendos, M., Jones, P.D., Wheeler, D., and Wanner, H., 2010: The importance of ship log data: reconstructing North Atlantic, European and Mediterranean sea level pressure fields back to 1750. Clim. Dyn. 34, 1115–1128.

Küttel, M., Luterbacher, J., and Wanner, H., 2011: Multidecadal changes in winter circulation-climate relationship in Europe: frequency variations, within-type modifications, and long-term trends. Clim. Dyn., 36, 957–972.

Luterbacher, J., Schmutz, C., Gyalistras, D., Xoplaki, E., and Wanner, H., 1999: Reconstruction of monthly NAO and EU indices back to AD 1675. Geophys. Res. Lett., 26, 2745-2748.

Pauling, A., Luterbacher, J., Casty, C., and Wanner, H., 2006: 500 years of gridded high-resolution precipitation reconstructions over Europe and the connection to large-scale circulation, Clim. Dyn. 26, 387-405.

Veale, L and Endfield, GH (2016) *Situating 1816, the 'year without summer', in the UK.* The Geographical Journal, 182 (4). 318 - 330.

Wang J, Yang B, Ljungqvist FC, Luterbacher J, Osborn TJ, Briffa KR and Zorita E (2017) Internal and external forcing of multidecadal Atlantic climate variability over the past 1,200 years. Nature Geoscience 10, 512-517