Interactive comment on "Identifying ENSO Influences on Rainfall with Classification Models: Implications for Water Resource Management of Sri Lanka" *by* Thushara De Silva M. and George Hornberger

Anonymous Referee #2

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See attached pdf

This paper examines the use of climate indices to predict a high or low rainfall period. Classification tools are used for this.

The results that are obtained are not very impressive, but the authors argue that, for the local farmers and water managers, this will still be of value, which is a fair point. So while the scientific interest of this paper is limited, it has some clear practical value.

The paper in its current form suffers from: (i) an insufficiently detailed presentation of the methodology which would not enable a reader, even in principle, to understand how the methods work unless the reader had prior knowledge of them; (ii) a strange organisation of the material so that the presentation of the study area is given under a 'methods' section for instance. This may be because the authors seem to be wedded to organising the paper according to some standard headings: methods, results, discussion, etc. But this is not always helpful and here, as with the obligatory conclusion section which is just a repetition of material just above that section, I would urge the authors to feel free to adapt the structure to their needs.

Some detailed comments follow.

Page	Line	Comment
1	21	something missing in this sentence, perhaps 'to' before 'climate variability' (without 'the')
2	56-61	It is not clear here whether you are making a methodological point here. It seems that you are identifying two reasons for your methodological approach: (i) the weakness of the linear regression approach when the scatter is large and (ii) the nature of the forecasts available to water managers, which may just be of some broad category of rainfall rather than actual quantities. Based upon these two reasons, you are advocating a method based upon classification models. If that is the case, please spell this out as these are key issues for understanding your chosen approach.
2-5		Secontion 2 until the middle of page 5 (the start of subsection 2.3) is not about methods. Please choose a more appropriate title for the section, such as 'Hydrometeorology and climatology of the study area'. Subsection 2.3 can then become a section 3 entitled 'Methods'.
5	117-8	I am not sure why you mention a minimum and a maximum in the table. Given that we have no idea what these might be, I suggest taking out any reference to them (so the first class is just defined for standardised anomalies below -0.5C, and similarly for the third class with standardised anomalies large then 0.5C)
5	122	Capital letters are required here: 'Atmospheric' and 'Administration' as well as a comma after the latter word
6	138-45	To make this presentation of the QDA clearer to someone who has, for instance, some idea of Bayesian statistics, but does not know this method, I suggest adding the the quadratic discriminant function is therefore proportional to the logarithm of the a posteriori density function of class k conditional upon the value of the observed predictor x: this logarithm is the product of the prior probability of x and the density

Fig. 1.