

## ***Interactive comment on “Watershed classification for the Canadian prairie” by Jared D. Wolfe et al.***

**Anonymous Referee #3**

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This study focuses on the classification of watersheds into homogeneous regions sharing the same climatic and physiographic characteristics. While well-structured and well written, this paper does not add very much to the existing knowledge. Moreover, the proposed approach has some fundamental issues that need to be vigorously addressed: 1) Ambiguity: It has been mentioned that the CCA was used for estimating hydrologic variables since only a few observing stations are available. These variables will be considered later in the classification approach to provide a watershed classification system that will be used, among other purposes, to estimate the hydrological response of a given watershed. What is confusing and contradicting here is to first estimating hydrological variables, and then using classification outputs to understand the hydrological behavior! A regionalization approach is more suited for this purpose. 2) I feel inconsistency in using CCA (the most appropriate classification method as recognized in regionalization studies) to estimate hydrological variables, and using another

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classification method, hierarchical cluster analysis, for classification. 3) Equation in Line 319 is not very convincing since no precipitation or water-related variable is introduced. Also, only 11 observations have been considered for calibration. Assessment of the uncertainty is not consistent too.

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