

## ***Interactive comment on “Seasonal prediction of winter extreme precipitation over Canada by support vector regression” by Z. Zeng et al.***

**Anonymous Referee #2**

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This is a lucidly written paper on a highly technical exercise, exploring several forecast skills of robust non-linear versus machine learning and versus linear (robust and non-robust) models, trained to predict the maximum 5-day accumulated precipitation of winters, at seasonal lead times of 3, 6, 9 and 12 months, based on historic data from 118 stations grouped so as to represent the six climatically distinct regions of Canada.

The authors have emphasized on explaining at several occasions (see Sections 1 and 2) their rationale of why the maximum 5-day accumulated precipitation is a suitable predictand (or seasonal statistic) of the rather noisy and non-Gaussian winter extreme precipitation anomaly, rendering their deep insights on potential sources of complexity (from regional climatic correlations to large-scale atmospheric and oceanic teleconnec-

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tions), which their test models aim to handle “skillfully”.

The objective of the paper is clearly stated in the final paragraph of Section 1, the analysis of forecast results is very clearly communicated through the provided set of Figures, commented in Section 4, while the methodology implemented is succinctly but effectively presented in Section 3. The conclusions justify the stated objective of the paper, suggesting that similar exercises may be carried out in other parts of the globe, for the purpose of comparative use with this study on winter precipitation, at least in Arctic regions, whose “linearity/lack of complexity” is attributed mainly to biases due to relatively dry snowfall and its advection by winds under clear skies.

Without any hesitation, I recommend acceptance of the paper.

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Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 7, 3521, 2010.