

## ***Interactive comment on “Developing a Decision Support Tool for Assessing Land Use Change and BMPs in Large Ungauged Watersheds” by Junyu Qi et al.***

### **Anonymous Referee #1**

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The manuscript entitled “Developing a Decision Support Tool for Assessing Land Use Change and BMPs in Large Ungauged Watersheds” presents development of decision support tool to estimate the impacts of land use change and best management practices on both water quantity and quality related issues of ungauged watersheds from Canada. The authors are putting their great efforts in this study. This type of research can help for making better informed decisions regarding future watershed management strategies. However, I have some comments and suggestions as given below, and want the authors to address thoroughly before considering this manuscript for further processes.

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My major suggestions are: (1) Since calibration and validation of process-based models are crucial steps for further model simulation studies I suggest the authors to provide more details of these processes. (2) I expect to have some text about model parameters' sensitivity analysis and model prediction uncertainties. (3) I suggest to include more concrete outputs of the research in “Abstract” section, not the general statements. Specific suggestions are: iČŸ Title: The term “Large Ungauged Watersheds” in the title is confusing to me because the larger watershed taken for this study is only 380 km<sup>2</sup> and I don't find any statement to define a criteria whether a watershed is large or small in size. iČŸ Abstract section, line 3: The term “water resources” should have some specifics. iČŸ Materials and Methods section, line 104: “statistical equations”. This should be clearly defined. iČŸ Materials and Methods section, line 107: “water quantity and quality”. These should be defined. iČŸ Study Sites and Data Collection section, lines 123-124: I also want to include both minimum and maximum temperature and precipitation. iČŸ Figure 3: I suggest making topographic slope in degrees. iČŸ Study Sites and Data Collection section, lines 159-161: I suggest either to include website of data source or citation. iČŸ Study Sites and Data Collection section, lines 161-162: I suggest to include more details. iČŸ Modification of SWAT section, lines 176-177: Include some supportive document for this. iČŸ SWAT Setup, Calibration, and Validation section, lines 197-198: Need more details of this. iČŸ SWAT Setup, Calibration, and Validation section, lines 202-203: What are threshold values of land use, soil, and slope categories to define 32 sub-basins in the watershed? Need to explain. In summary, I find this manuscript within the scope of this journal and would like to go further if the authors would thoroughly address each suggestion provided above to better improve the manuscript from the present form.

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