

## ***Interactive comment on “High-resolution hydrometeorological modelling of the June 2013 flood in southern Alberta, Canada” by V. Vionnet et al.***

### **Anonymous Referee #1**

Received and published: 26 June 2019

General comments: This paper investigates the current modelling techniques available for flood forecasting and the associated required inputs. The evaluation was performed on a well documented significant flood in Canada in 2013, which resulted in large losses and damages in the affected area. The topography of the study area is very complex and addresses the limitation of the current flood prediction system used at ECCC. The material presented would benefit the modelling community working on refining and adjusting models to better predict floods in similar conditions and in complex terrain. In general the paper well written and relatively clear.

Specific comments: On page 8, OPL and SND are introduced, its not clear what they

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mean. On page 9 and 10 section 3.2 , could the authors give some more details for the cumulative underestimation of the stations. Also some possible explanation why going from a 10km Capa grid to 2.5km grid provided better results. Why does the Red Deer basin have a decrease in cumulative precipitation. How much does convection potentially play in these underestimates. On page 12, it seems that the river routing is a large unknown, in these simulations, are there ways to determine the actual routing for this event and apply it to the simulation. Is this even feasible? What is the frequency of reporting of the precipitation stations?

Technical corrections: Page,3 line 20. Use "Another objective" rather than "Another main objective" Page 8, what does OPL and SND stand for. Page 10, line 1. Remove "in", should read foothills of the Red Deer Basin. Page 10, line 11. "in particular in", remove the second "in". Page 10, line 20, use analyzed instead of analysed. Page 11, line 17. "with to that " is awkward. Page 12, line 14. Remove space between 59 and %. Page 12, line 30 . Remove space between number signs. Page 12, line 33. Comma after however. Page 25, line29. "Radar data was" Page 14, line 12. Theses should be These. Page 15, line 13, similarly should be similar. Page 15, line 26. Calibration of these parameters. Page 15 Lines 1-10. This sentence is very long and the entire section doe snot flow well. Consider rewriting to make the flow better. Page 17 Line15. remove "are" to read forecasting systems can be expected. Also remove SVS from the sentence.

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