

Letter to the Editor:

Dear Dr. Wickert,

We would like to thank you for your support and dedication during the review process of our manuscript titled “*Development of an under-ice river discharge forecasting system in Delft-Flood Early Warning System (Delft-FEWS) for the Chaudière River based on a coupled hydrological-hydrodynamic modelling approach*” and sharing your insightful comments leading to further improvements in the quality of our work.

We have now incorporated your comments in our revised submission. Below, we provide a detailed point-by-point response to each of the comment received in the recent review round.

Topic Editor:

Correction 1: Lines 14–16.

The reviewer asked the authors to address the existence of other methods to develop under-ice rating curves. I would suggest not spending so much space on this here in the abstract (see my note below about shortening it): the authors would be much better served by citing studies giving other methods for under-ice rating curves and discharge relationships later in the manuscript than by stating in the abstract, without having space to provide supporting details, they are subjective. Please ensure that you have addressed the referee's question in the scientific paper itself. I found some references that might help here.

Response: Thank you very much for the clarification of the comment from the reviewer. We have modified the abstract accordingly. The various methods that are in practice for the estimation of under-ice discharge in Canada and other countries have been discussed in the paper from lines 60 to 77.

Reviewer 1, Correction 5:

A simplified model may still be process-based. Please check the accuracy of your statements. This may be a good place to add further citations (re: the above note) about methods of managing sub-ice hydraulics.

Response: The statement has been modified as follows:

“Operational forecasters prefer to adopt less complex modelling approaches and simulate river hydraulics under the assumption of a fully developed ice cover.”

The change is reflected in lines 111-112 of the marked-up file.

A short description on recent models developed to estimate under ice velocity profiles which can eventually lead to improved discharge estimation has also been included in the paper. This is reflected in lines 104-109 of the marked-up file.

Abstract.

Your abstract is long and narrative; it will significantly improve your paper to convert it to a tight, short, and dispassionate summary of your work and findings.

Response: The abstract has been revised. The changes are reflected in lines 11 to 42 of the marked-up file.

Reference.

Klemeš: lowercase last letter?

Response: Thank you for pointing out the case mistake in the reference. This has been corrected in the revised manuscript. Change reflected in line 334 of the marked-up file.

Additional Changes:

Change 1: Additional space has been removed in the section heading in line 303 of the marked-up.

Change 2: In line 401, a long sentence was shortened by breaking it into two sentences.

Change 3: In line 470-471 of the marked-up version Chaudière river has been changed to Chaudière River.

Change 4: Reference to the Delft-FEWS configuration file has been updated in the Code and Data Availability section. This reference was previously missing. The change is reflected in line 790 of the marked-up file.

Change 5: The supplemental figures for Figure 10 and Figure 12 have been placed in a single PDF file with proper labels.

We are hopeful that these changes to the manuscript will be up to your satisfaction. We are thankful to your cooperation.

Best regards,

Kh Rahat Usman and co-authors.