

Interactive comment on “Rapid and objective characterization of channel morphology in a small, forested stream” by Carina Helm et al.

Anonymous Referee #2

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General Comments:

The paper presents a novel and useful methodology for mapping channel morphology that is well within the scope of ESurf. The methods were sound, logical and well presented. The introduction and discussion for the paper could use some adjustments, in particular clarification of the use of terminology such as channel morphology, morphological units, channel units, channel type, and morphology type. It was difficult to follow what was meant by each of these terms and if they were being used interchangeably or not. From the introduction I was expecting more of a reach scale channel type classification scheme, but I would argue that what this paper does would be better described as mapping or classification of morphological units (also called geomorphic units, channel units, habitat units, etc).

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Discussion paper



Specific Comments:

Title: I recommend the title including that the method uses a RPA or remote sensing

Abstract: Line 6 states "This paper seeks to demonstrate an objective method for characterizing channel attributes over large areas, using easily extractable data from RPA imagery collected under the forest canopy in a small stream, and to provide information on the spatial scale necessary to capture the dominant spatial morphological variability of these channels." - Rather than saying "characterizing channel attributes" it would be more precise for the author to say they are classifying or mapping channel morphological units. - provide clarification to what constitutes "large areas" - in "provide information on the spatial scale" does spatial scale mean longitudinal spatial extent?

Abstract: Line 14 "for characterizing these systems" it also would be better here to be more precise about mapping or classifying morphological units

Introduction: paragraphs 1 and 2 were confusing and misleading to me and could use clarification between reach scale stream classification and smaller, geomorphic/morphological/channel unit scale.

Methods: Line 146 says that in-stream wood was digitized, but I did not see this used or relevant later in the paper

Section 3.3: The author states that the 5 variables were chosen in part "because they reflect larger basin scale variables relevant to channel form, such as geology, climate and land use." A citation and/or examples here seem necessary

Analysis: Section 3.4: line 178 describes how a morphology type is attributed to each cluster. It would be helpful to lay out prior to this what the morphology types being used are, and the criteria used for them. The author does cite 3 papers for the criteria, but it isn't clear what specific criteria from those papers were used. Also, within this paragraph it isn't clear if morphology type is synonymous with channel type or not.

Figure 6: needs a scale bar

Conclusion: The conclusion would be easier to follow if it were organized in the same order as the rest of the paper.

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