

Author Response:

We thank the editor, Dr. Passalacqua, for doing such a careful read of the manuscript and catching all of the errors and making suggestions. I have accepted all of the suggested edits and made some additional edits to the text that clarify the writing. New wording is highlighted in red in this version. All edits are for clarity and do not change content.

One notable change that I've made is exchanging references of the flux at the base of a hillslope, $q [L^2 T^{-1}]$ to $Q_s [L^3 T^{-1}]$ which we refer to as a volumetric sediment yield. This changes nothing about the theory, figures, or results, we just found that it is simpler to consider when we talk about sediment yield. Again, this edit is for clarity and changes nothing about the concepts.

Here are the minor comments made by the editor, Dr. Paola Passalacqua:

The main comments have been addressed but several parts of the text remain rough, particularly the new ones, but there are also numerous typos remaining after the previous revisions. Please make sure you address the edits below but also carefully read and edit as needed the manuscript throughout as I may have missed some. The number indicates the line.

8 - 'relationship'
Changed

17 - 'serve as'
Changed

21 - 'hillslope'
Reworded this sentence

27 - 'that are of the form' or 'a nonlinear relationship'
Changed

29 - focused with distance does not sound right:
Changed wording

46-48 - you could use this last sentence to express more clearly what knowledge gaps remained from those previous works:
Rephrased this sentence to discuss the underlying probability functions that drive sediment yield

62 - 'Addressing these goals involves'
Changed

91 - 'that model is unrealistic'
Changed

104 - this seems already stated above
Removed

118 - 'useful and simplified'
Changed

144 - 'a finite'
Changed

148 - 'know'
Changed wording of this sentence

158 - 'of the'
Changed

173 - 'increases'
Changed

175 - 'we obtain'
Changed

228 - 'detachment,'
Changed

390 - 'for the specific form adopted here' or 'for the value of six in the denominator'
Changed

394 - 'essence of'
Changed

409 - incomplete sentence
Holy cow. Yes. Changed.

411 - sentence needs to be revised
Oof. Yes, We have changed this.

447 - missing subject
added 'we have'