

Review (version 2)

SERGHEI v2.1: a Lagrangian Model for Passive Particle Transport using a 2D Shallow water Model (SERGHEI-LTP)

By Vallés et al.

I have read with care the new version of the paper and the point-by-point response to my earlier comments. In general, the authors have satisfactory responses for them and have made the necessary changes in the text. However, I still have a suggestion related to my previous comments 8 and 9. In those comments, I remarked that “test cases” in Sections 4.2 and 4.3 were not really used to analyze the accuracy of the numerical schemes and the algorithm implementation, which is stated as a primary objective. The author’s response was that, in particular, for the case in section 4.3, it was not a “formal verification benchmark”. Hence, I would suggest that the authors rephrase the sentences in lines 5-8 and 71-76. It would seem to me that the primary objective of this paper is to introduce the capabilities of this new Lagrangian particle model and that, as part of that, you analyze the accuracy and computational efficiency of the numerical schemes and algorithm.

In addition, I have a couple of minor comments:

Line 196. Change “articles” to “particles”

Line 247. It reads “The turbulence term can displace the particle vertically upward relative...”. I was confused there because the particles are always on the “surface”, so there should be no vertical motion caused by the turbulence. Could you clarify/correct?