

### **General feedback**

The authors have done a good job largely addressing reviewer comments and improving the manuscript. There are still some organizational issues with the writing that need to be addressed, in particular in the introduction. Find examples below. There are some small writing style changes that still need attention, which I have also highlighted below, and one general point still needs refinement. Once these have been addressed I think the paper is ready for publication.

It was stated in the response to reviewer comments that you will clarify that Flow-Py is considering the dense core flow of the avalanche and any potential runout associated with a powder cloud is not considered. The manuscript has not (as far as I can tell) been updated to reflect this. I don't think it needs elaboration or a discussion of the powder cloud, but rather a simple statement in the introduction of Flow-Py to clarify it models the dense core, as well as how the AutoATES v2.0 is based on dense core runout extents.

### **Specific points to be addressed**

Lines 23-26: Sentence should be split to make interpretation easier.

Line 30. 'Large-scale mapping' is used, though you said you would use 'regional-scale mapping' in the response to reviewer. It is fine to use 'large-scale' to discuss something covering a large area, but 'large-scale mapping' specifically refers to map scale (and covers small areas). Maybe referring to large-scale ATES classification and avoiding use of the 'mapping' term solves the problem.

Section 1 has several small paragraphs (including lines 79-81 which is a single sentence) that needs combining.

Section 1.1 has duplicate sentences/information (lines 95- and lines 103-). The same information is again repeated at the start of Section 2.4.1. where your customized implementation of PRA is introduced.

Section 1.1 needs reorganizing to aid interpretation. For example the PRA is discussed in specific terms before being introduced in a general sense. The sentence beginning in line 113 should come at the start of the section before discussing the various methods of implementing a PRA with terrain and forestry data.

Line 123: Citation does not need to be italicized.

Line 130: Typo 3-dimensional

Lines 131-133: While the computational power required to apply the process-based models over large areas is a factor, it is being done at regional scales (e.g., Bühler et al. 2022).

Table 4: Square meters looks to be using subscript instead of superscript m<sup>2</sup>

Table 4: Inconsistent use of comma as thousands separator.

Line 402: Typo ' ; model, or model'

Lines 438-439: Typo, end of sentence unclear.

Line 535: Avoid conjunctions; "We don't know why this is..." could be "The reason for this is unclear..."

Line 547: Typo ‘boundaries’

Line 597: This is the first mention that Flow-Py is computationally ‘heavy’. One argument for using Flow-Py presented in section 1.2 is that it is more computationally inexpensive compared with process-based models. I suggest re-phrasing the sentence or adding specifics for this limitation to have more utility to potential users. For example, reporting the run-time and computer specs for the benchmark sites.

Line 560: Avoid emotive word choice (“Blindly applying the parameters...”) by deleting ‘Blindly’

Line 604: Same comment as above. Sentence could read “Users should not adopt the input parameters provided in the paper without thorough testing.”

Line 617: Typo, missing ‘of’

## **References**

Bühler, Y., Bebi, P., Christen, M., Margreth, S., Stoffel, L., Stoffel, A., Marty, C., Schmucki, G., Caviezel, A., Kühne, R., Wohlwend, S., and Bartelt, P.: Automated avalanche hazard indication mapping on a statewide scale, *Nat. Hazards Earth Syst. Sci.*, 22, 1825–1843, <https://doi.org/10.5194/nhess-22-1825-2022>, 2022.