Response 2:
Thanks for taking the time to review our manuscript. Please find our response to the reviewer's comments below (answers black text, review comments blue italic).

Review 2 summary:

This paper is an important advancement in the study of GMF and snow avalanches, especially for studies at larger scales and in data space areas. Specifically the work has significant potential to assist with further automation of regional avalanche terrain exposure scale mapping at larger spatial scales. I'm glad to see open-source, object-orientated code allowing for further development and adaptation.

The paper was well written, at the validation methods applied were appropriate. I agree with other commentators that it would also have been interesting to see a comparison of processing times for the same study path using different models. It would have been interesting to see a comparison of the raster output of the model against other GMF approaches, such as TauDEM.

Looking at the literature for TauDEM it is a hydrological tool for terrain based routing. The routing model is the D-infinity multiple flow direction method which allows flow from a parent raster cell to more than one neighbor cell. The TauDEM D-Infinity Avalanche tool has also been adapted for the use of simulating the run out of snow avalanches which uses a simple alpha angle stopping criteria (Tarboton et al., 2015). However, no analysis on the TAUDEM D-Infinity Avalanche performance is available. An in depth model comparison would be interesting but is not within the scope of this work – however the openly available test cases (AVAFRAME, Wirbel et al. 2021) would allow for such an effort. A first step of model performance evaluation (FlowPy, Com1DFA AvaFrame) is described in the answer to reviewer 1.

The code was well documented and there was sufficient guidance to configure the parametrization. I was able to run the code run on both Linux and Windows machines and replicate the sample studies. In practice, I found it was most efficient to conduct simulations over larger spatial scales using an AWS cloud computing implementation to fully benefit from the parallel processing.

Thank you. We would be interested to learn more about the study on the AWS cloud system and are happy that Flow-Py already finds its way into application.

Technical corrections:

ln 15 - topograhies -> topographies
ln 86 - modeling -> modelling
ln 399 the these -> these

These corrections were made in the manuscript (We used the American spelling (modeling) throughout the manuscript).

References:

Tarboton, David G., Pabitra Dash, and Nazmus Sazib. "TauDEM 5.3: Guide to Using the TauDEM Command Line Functions." (2015).).

Wirbel, A., Oesterle, F., Tonnel, M., and Fischer, J.-T.: avaframe/AvaFrame: Version 0.5, https://doi.org/10.5281/zenodo.5094509, 2021.