

## Reviewer's comments

Ref: egusphere-2024-3103

Title: *The Parraguirre ice-rock avalanche 1987, semi-arid Andes, Chile -A holistic revision*

### General Comments:

In this study, the authors simulated the 1987 Parraguirre Debris flow by using existing records with hydro-climatological data, remote sensing observations, and process-based modeling. For simulation, the *r.avaflow* (open access software) has been used. Their simulated model has been validated with existing results of previous studies and field observations. The research is interesting and important to predict the future ice-rock avalanche for global warming due to climate change, but not a novel one.

### Specific Comments:

1. There are grammatical errors and typos (such as line 2 (Abstract): instead of 'is' here will be 'are'). The authors should go through a thorough editing of the manuscript to correct grammatical errors and improve the readability of the paper, using a professional English editor as appropriate.
2. The 30-m resolution Digital Elevation Models (DEM) generated from a 1:50,000 scale topographic map and aerial photographs have been used in this study. The volume of debris and water calculations of the 1987 avalanche using re-registering (resampling) of a 30-m resolution DEM is not accurate and precise. Therefore, the volume of debris and water is much higher than in the previous studies. Describe this limitation in the discussion section.
3. The weather stations are sparsely distributed in the study areas. The weather parameters, such as temperature, precipitation taken from 40 to 50 km away from the areas where the volume of melt ice was calculated. The temperature within 40/50 km may vary several degrees. Therefore, this limitation should be explained in the discussion section.
4. This type of limitation is also observed in the hydrological data; the limitation of the hydrological data (discharge) should be explained in the discussion section.
5. The caption of the figure should be numbered first, and then write the text of the caption, such as (a) *Southern South America* and (b) *inset of the Metropolitan*
6. Technically, I think the method described in the manuscript is sound, but not innovative.

**Decision: Major revision**