

## Reply to the Reviewers

### RC1

I suggest the manuscript could be accepted after a minor revision.

Reply: We greatly appreciate those insightful comments from Dr. Zhuang Yu. In the acknowledgement, we would like to express our appreciation “We would like to sincerely acknowledge and express our deep appreciation to Dr. Zhang Yu, Dr. Jakob Steiner and the anonymous reviewer for their thorough review of this work.”

### RC2

The main point raised in RC2, which is the investigation of the concurrence of ice-collapses with weather anomalies or extreme events, has been addressed by the authors. This matter has been subject to debate. The authors have successfully demonstrated that there are no significant correlations between the collapse and any weather conditions. They state, "The main triggers of ice-rock collapse are worth investigating from the instability of temperate glaciers, rock properties and associated freeze-thaw weathering, pre-event seismic activity, the cumulative role of climate change and other possible factors." This will be the focus of the team's future research. Figure 8 in the new section 5.1 and Table S1 in the Supplement provide insights into these hazards, contradicting the common belief that heavy rainfalls alone are responsible. Instead, cumulative processes such as freeze-thaw, seismic activity, and soil moisture play a significant role in the mid to long term leading up to these events. Overall, this very interesting and informative article is now more consistent and suitable for publications, with technical corrections only.

Reply: Thank for the anonymous referee’s positive assessment of our work and your constructive comments. In the acknowledgement, we would like to express our appreciation “We would like to sincerely acknowledge and express our deep appreciation to Dr. Zhang Yu, Dr. Jakob Steiner and the anonymous reviewer for their thorough review of this work.”

Few technical points to correct in the revised manuscript:

- In the objective section, the authors propose the new sentence: ‘ “The aim of this study is to introduce the structure of three EWSs installed near/inside the Sedongpu Valley, to analyse the performance of different monitoring’ . They must choose between near or inside.

Reply: we choose the term of near in the revised manuscript.

- ‘supply facilities and forced the evacuation of at least 6000 local resident’ , please correct residents

Reply: Done

- ‘On 22 March 2021, massive ice-rock collapses totaling 50 Mm<sup>3</sup> occurred in the Sedongpu’ prefer ‘a massive 50 Mm<sup>3</sup> ice-rock collapses occurred’

Reply: We have revised it according to your suggestion.

**The comments from the editorial support team on 29 June 2023**

Please ensure that the colour schemes used in your maps and charts allow readers with colour vision deficiencies to correctly interpret your findings. Please check your figures using the Coblis – Color Blindness Simulator (<https://www.color-blindness.com/coblis-color-blindness-simulator/>) and revise the colour schemes accordingly.

Reply: Thanks for your suggestion. We used the Coblis – Color Blindness Simulator to check all Figures. Figure 1 and Figure 6 was therefore redesign for the readers with color vision deficiencies. Please see the new Figures in the revised manuscript.