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Discussions

Interactive comment on "Co-detection of micro seismic activity as early warning of gravitational slope failure" *by* Jérome Faillettaz et al.

Anonymous Referee #1

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The authors present an interesting study assessing the potential of the co-detection of elastic waves emanating from micro-cracks within a moving mass of soil or rock for slope stability early warning purposes. The results are discussed considering monitoring data from a network of 6 geophones distributed near the tongue of the an active rock glacier. Although the experimental data are limited, as the data have been collected in the test area for just a few months, the analysis of the monitoring data show results that are worth to be published. My overall recommendation is that the manuscript should be accepted subject to minor revisions (see following comments).

MAIN COMMENTS The title and the Abstract should be modified to better fit the content of the manuscript. In particular, they should emphasize that the research findings only refer to an active rock glacier (not to all "gravitational slope failures") and that the

extend of the monitoring data does not allow a generalization of the results. In the Introduction, references to currently adopted monitoring strategies for local landslide early warning systems are missing and must be added. To this aim, a simple google scholar search would be useful to find the most recent references on this topic. In section 3.2 the Authors introduce "detection thresholds" and they write "the numbers given - 500 to 2000 - are arbitrary, without unit". This statement is not sufficient to understand the meaning of the parameter used to define the thresholds. Is it the sum of the (0.1s-long) short periods? If yes, it would be better define a time-length parameter (i.e. the used number divided by 10) having time units (e.g., seconds). If not, what is it? Please clarify. The terms "exogenous failure" and "endogenous failure" are not used in slope stability practice. When they are first introduced, their meaning should be clearly defined. To this aim, significantly expand the initial sentence in Section 3.3.

FIGURES Figure 2 can be extended in width (full page with) for clarity. Figure 5. What is the meaning of the numbers shown in the two comparisons? In other words, what is the parameter being monitored? Add parameter in the figure above the legend bar. Modify caption to clarify. Figure 6. The precipitation record does not show anything and the reader can be confused by seeing the rain legend and the caption mentioning the precipitation record. I understand that when there is no rain the white color is indicative of this condition, yet it would be more appropriate in this case to either: i) delete the rain/precipitation part of figure and caption from this figure; or ii) write "no rainfall recorded" in the figure where the color-scheme items were supposed to appear.