

## ***Interactive comment on “Seismo-acoustic energy partitioning of a powder snow avalanche” by Emanuele Marchetti et al.***

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To Whom It May Concern:

The authors compare infrasonic and seismic observations of a dry snow avalanche. This work constitutes a substantial contribution to scientific progress and deserves to be published in ESD.

I would suggest caution when considering the partitioning of radiated energy between infrasonic and seismic waves for several reasons. The results are somewhat limited by the use of a geophone which is relatively insensitive to low frequencies. I furthermore would generally expect the seismic signal to be lower frequency than the infrasound. The simple equation used in Equation 1 does not account for the frequency depen-

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dence of waves through a porous snow layer and should be taken with a grain of salt. It also does not account for the specific generation of surface waves which the authors later claim to be important.

I would generally recommend clarifying the distinction between observations and interpretations/results/models. Examples include: First paragraph of Section 4 talks about seismo-acoustic records and their interpretation at the same time. Section 3 (line 104 on) talks about the model. Section 5 largely consists of discussion points. It would improve the readability of the paper to follow a more traditional structure; i.e., Data, Methods, Results, Discussion.

Figure 6 is in units of counts rather than m/s, which makes it difficult for the reader to assess the scale.

Line 92-93 Two seconds error seems like rather poor timing. Did any of the instruments use GPS for timing?

Could the observations be related to recent work suggesting a more nuanced avalanche classification system (i.e., Kohler et al., 2018 10.1002/2017JF004375)?

I applaud the authors for putting their data in an Open Science Framework Repository.

Sincerely,

Brad Lipovsky

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Interactive comment on Earth Surf. Dynam. Discuss., https://doi.org/10.5194/esurf-2019-61, 2019.

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