Natural Hazards
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Sciences

Discussions

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Interactive comment on "Brief Communication: Dynamic magnification factors for tree blow-down by powder snow avalanche air blasts" *by* Perry Bartelt et al.

Anonymous Referee #1

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General comments: The manuscript describes a simple method to determine the dynamic response of tress to impulsive loads, in particular related to avalanche impact. Although there exist a few papers dealing with forest damage due to snow avalanches, less attention was drawn to the powder avalanche air blasts. But those effects are of great relevance for quantifying powder avalanche pressures from case studies. Main objective of this manuscript was to identify how short duration powder avalanche blasts can break and overturn trees. The authors found that tall trees are prone to avalanche air blasts; dynamic magnification factors should be considered when back-calculating avalanche impact pressures. Although further field examinations will be necessary, this paper is a very good first approach; it can be accepted with minor revisions.

Specific comments and technical corrections:

page 1, line 22: it should mean: '…figs. 2 und 3.'

page 2, line 1: it should mean: 'The eigenfrequency of the tree is a function of…'

page 3, line 29: it should mean: '… from the ground (see figures 2 and 3).'

page 4, line 17: it should mean: '… is composed of two parts containing the stem energy Tsmax an the branch energy Tbmax of the tree, ...'

page 4, equation 12: I assume it should be 'ω_{sb2}' instead of 'ω_2'

page 4, equation 13, last term in the denominator: it should mean 'ms' instead of 'm'

page 5, equation 17: I assume it should be 'ω_{ro2}' instead of 'ω_2'

page 7, line 29: it should mean: '… application of Eq. 23, we find…'

page 8, Table 1: in the fifth column it should mean 'kg/m' instead of 'kg'

page 8, line 1: it should mean: '… and from Eq. 23, we find…'

page 8, line 14: it should mean: 'When using tree blow-down to estimate…'