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Interactive comment on "Subgrid snow depth coefficient of variation within complex mountainous terrain" *by* Graham A. Sexstone et al.

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The authors used a lidar-derived snow depth dataset to investigate the subgrid variability of snow in complex mountainous terrain. They found that the snow depth coefficient of variation is well correlated with snow depth, topography and vegetation conditions/metrics, and can be parameterized by these factors/parameters. The results are interesting. However, recent studies also showed that deposition of light-absorbing aerosols (mainly black carbon and dust) exerts significant impacts on snow properties over mountains, which reduces snow albedo and hence accelerates snow melting (e.g., Painter et al., 2013; He et al., 2014; Liou et al., 2014; Lee et al., 2016). How would the heterogeneous distribution of light-absorbing aerosols affect the variability of snow? Would the parameterization be improved if the effect of light-absorbing aerosol deposition were included? I suggest adding some discussions on this aspect as well

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Discussion paper

as those recent studies, which could be helpful in understanding potential uncertainty associated with the estimate of snow variability in mountainous regions.

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