Atmospheric
Chemistry
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Discussions

Interactive comment on "Black carbon-induced snow albedo reduction over the Tibetan Plateau: Uncertainties from snow grain shape and aerosol-snow mixing state based on an updated SNICAR model" *by* Cenlin He et al.

Anonymous Referee #3

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The authors implement a set of new parameterizations in the widely used SNICAR model to account for effects of snow grain shape and the mixing state of BC-snow. Then, they apply the updated SNICAR model with in-situ measurements of BC concentrations in the Tibetan Plateau snowpack to quantify the present-day snow albedo effects. Generally, the results are of great significance, and it's a very interesting paper with well written, and the expression is clear. I suggest that this manuscript could be accepted with minor revisions. Minor comments to author: 1) My major concern is that the historical snow sampling sites are very limited in the TP regions, and some of the

sampling sites are only representative the high glacier regions. The author should be very careful to use the surface measurement to represent the regional averages. So I don't think it is quite useful to divide the entire TP and surrounding areas into six sub-regions as shown in Figure 1 and Table 2. 2) The conclusion is a little repetitive, which should be reconstructed.

Interactive comment on Atmos. Chem. Phys. Discuss., https://doi.org/10.5194/acp-2018-476, 2018.