

## ***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**

Received and published: 8 July 2018

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

Printer-friendly version

Discussion paper



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.

Printer-friendly version

Discussion paper

