

This is an interesting scientific paper in which the authors investigated the radiative feedbacks of dust in snow over East Asia by using CAM4 model simulations. The results are helpful for the scientists to understand the impact of dust-in snow on radiation balance and climate over East Asia. However, some details and figures should be supplemented and explained before published. (see specific comments).

Specific comments:

part of this study focus on TP, e.g. Fig.1~4, while other results are presented over East Asia, I suggest to present these results in a consistent way.

Sec.2.2. have you assessed the modeled AOD against satellite retrievals? The model results and conclusions in this study really depend on the modeled dust AOD.

Additionally, absorption AOD (AAOD) also need to be assessed.

p.4, line.28. 'It is noted that the dry deposition of dusts is much larger than the wet deposition probably because of less rain over Northwest China'. It should be straightforward to present the comparison of precipitation to confirm this statement.

p.4 line.33. what is CRU? It should be explained before you cite it.

Sec.3.1 and Fig.5: how do you define the term trans in Fig.5?

p.5, line 30: 'Figures 5c, 5f, 5i and 5l show the changes in dust cycle induced by the dust total radiative forcing. The dust emissions are significantly enhanced (in Figure 5c) by the dust total radiative forcing over East Asia ...', what are the physical mechanisms? It would be helpful to provide the dust emission scheme in the model and explain in detail why the dust EF enhance the dust emission.

p.6, line 12-15: 'The decrease in snow albedo mainly results from a positive feedback process: absorbing aerosols deposited on snow - reducing surface albedo - increasing surface net solar radiation - increasing surface temperature -reducing snow fraction and depth- finally reducing surface albedo...'. I would suggest to present the physical variables listed above to support your conclusions. For example, surface net solar radiation, etc.

p.6, line 20: the authors mentioned that dust emissions are influenced by PBL mechanism, but never show that how PBL changes and how it modify the dust emission.

p.7, line 2: above -15%, change to 15% since you have stated it is decrease.

p.7, line 3: '...', and then expands the dust source region area...', where can you see the expanding?

Line 14: this is NOT recently, this is actually over 5 years ago.

Line 18: please define Omega before use it.

p.8 and Fig.12, please also give the total dust emission and the percentage of dust emissions induced by SRF to the total emission.