

Corrections

1. Line 106/116/119/156/178/may be more : Does these “CESM” differ from “CESM1”? I wasn’t sure if this is intentional or mistake.
2. Line 169 -170 (“Aerosol emissions were very similar to those used by~) : Can you make it more clear what you mean by” very similar”?
3. Line 181 : “data base” → database
4. Line 183-184 : I think “by the addition of snow in new snowfall” sounds confusing. Perhaps “ by addition of new snowfall in the surface snow layer”? Or can you please rephrase that?
5. Line 184-185 (“wet-deposited BC is ~ only with new snow,”) : I guess that “new snow” means new snowfall? If you meant new snow in the surface snow layer, it will be also affected by dry-positied BC. I would suggest changing to “new snowfall”.
6. Line 220 and Line 231 : There is a dot in subscription of the denominator. Can you remove them?
7. Line 280 (“ ... the relative timing of BC versus snow deposition to the surface”) : I understand what the authors tried to say, but this phrase seems too vague. Can you please write that more descriptively?
8. Line 283 (“ ... Equation [5] and [MR..”) – I think “and” should be replaced with “comma”. Otherwise, the sentence is not correct.
9. Line 289 (“ have been increasingly time-averaged”) – this sounds strange to me. Perhaps “have been averaged over a longer temporal scale”? Please rephrase it.
10. Line 291: “ across multiple prognostic model run years” may be written to “across multiple years of the prognostic model run”?
11. Line 385: please place a comma in between “climatology” and “the mixing ratios”.
12. Line 401: “Figure 3-5”. Do you need to include Figure 2? Fig2 also show that.
13. Line 456: Lee et al. used year 1996-2000, not 2004-2009.
14. Line 503-506 (“As our offline ... snow BC mixing ratios (MRbc}”) : Can you cute “this anti-correlation .. not mean that”? So it will be like this: As our offline calculation have shown, low and high biased in MRbc,snowfall do not offset each other on surface snow BC mixing ratios (MRbc).
15. Line 523-526 : That sentence has a flaw. I think you need to put a comma in between “on albedo” and “most absorption” instead of “and”.
16. Line 553-554 : I can’t agree on this with the author. A reason for biased BC concentrations or mixing ratios in Tibetan Plateau could be biases in transport or neighboring emissions. So positive biases in precipitation may not necessarily result in positive biases in surface snow BC mixing ratio. Note that Lee et al. shows (rather implicitly) a systematically different transport of BC between the models and observation for the ice core data.
17. Line 567 – 575: I don’t understand why there is inconsistency in the mass balance of BC within the prescribed model runs. Can you explain more? The explanation provided inside the parentheses is not sufficient for me to

understand. Because I don't understand the "mass balance" issue, I also don't understand Line 572-575.

18. Unit in Figure 1 needs to be fixed : "/m2-day" to " $m^{-2} \text{ day}^{-1}$ "

19. Y-axis unit in Figure 4 and Figure 5: I suggest "Number of gridbox per season"