

Interactive comment on “The effects of additional black carbon on Arctic sea ice surface albedo: variation with sea ice type and snow cover” by A. A. Marks and M. D. King

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General Comments The authors used model to illustrate the effects of additional black carbon on Arctic sea ice albedo considering different sea ice types and snow cover, which is new and fresh

to me. From this point of view, this work should be published at last. However, there are still many points needed to be addressed before the formal publication. So I suggest a minor revision at this stage. And if the authors can present some experimental data to support the modeling results, which would be much better.

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Although I'm not an English-speaking person, I got confused by the English grammar at some places in this paper. I suggest the authors to check them carefully.

Detailed comments L11-15 in P944. Would the authors like to address "the albedo of first-year sea ice is more sensitive to BC or that of multi-year sea ice is"? I don't understand. Please also

see the relevant sentence in the conclusion part.

L27-28 in P945. The authors should add the time span for BC climate forcing specially regarding to the IPCC report. As far as I know, the IPCC report addressed the time period

of 1750-2005.

The first sentence in P946. The references should be reordered by time.

The last sentence in P946. Also, the time span should be given out according to Holland et al. (2012).

The first paragraph in P947. When reviewing the previous work, the authors should point out they are referring to bare ice or ice with snow covered.

The first paragraph in P948. This sentence should be reorganized. The grammar here is a total chaos.

L21 in P954. Why can this equation be used to calculate BC concentration? The authors had better present a reference.

L7 in P956. What is HULIS? Please give out the completely spelled name when it is firstly appeared.

L4-6 in P960. This paragraph is confusing for its grammar.

Interactive comment on The Cryosphere Discuss., 7, 943, 2013.

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