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Atmospheric Chemistry and Physics Discussions

Interactive comment on "The impact of atmospheric mineral aerosol deposition on the albedo of snow and sea ice: are snow and sea ice optical properties more important than mineral aerosol optical properties?" *by* M. L. Lamare et al.

Anonymous Referee #2

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In this paper, the authors try to figure out how important of mineral aerosol in snow and sea ice. Generally, this is a scientific paper with well written on discussing the optical properties of the mineral aerosol and snow/sea ice. This paper fit the scope of the journal, and I recommend this paper could publish without any changes, but only explain the following question.

Question 1: Page 23137 equation 2: As I know, the snows and sea ice samples were collected based on field studies (Marks and King, 2014). So the light-absorbing impuri-

ties in sea ice were not only include mineral aerosol, but also black carbon and organic carbon. But in this paper, the authors only mentioned the optical properties of mineral aerosol in snow and sea ice samples. Please explain or how to separate the optical properties of BC and OC in sea ice.

Question 2: An important reference by Wang et al., 2013 should be cited because of the optical property of mineral dust in seasonal snow was investigated in that paper.

Wang X., S. J. Doherty, and J. Huang, 2013: Black carbon and other light-absorbing impurities in snow across Northern China. J. Geophys. Res. Atmos., 118, 1471–1492.

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