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Discussions

Interactive comment on "Improved cloud detection over sea ice and snow during Arctic summer using MERIS data" *by* Larysa Istomina et al.

Anonymous Referee #2

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General comments:

The authors presented a new cloud detection method for MERIS. The method adopts the Bayesian concept with the feature vector including three parameters: O2 A-band ratio, MERIS differential snow index, and brightness and whiteness. The authors also developed a new method to correct the smile effect. It is found that the new method improves the current one significantly. The paper is relevant to the community. I recommend publication after addressing the issues listed below.

When applying the O2 A-band ratio for cloud detection, as the authors pointed out, rox is dependent on the reflectance at 779 nm, but I didn't see where this is reflected. It

seems the data were not binned by the 779nm reflectance. How is it taken into account in the cloud detection algorithm?

There are many acronyms not having the fully spelt version. Please check.

Specific comments:

P2, L14-16: why would "the retrievals of MPF and albedo discussed in this work misinterpret the cloud contamination as melting sea ice"? Doesn't melting sea ice have very different spectral signature with cloud?

P4, L1: Since MERIS does not have SWIR channels, how is NDSI derived?

P7, L6: Please consider changing "uniformly distributed" to "well mixed"

P9, L5: "Clear sky pixels that show open water are excluded during this step". Is there a pre-step that determines clear vs cloudy? How does this work inside the cloud detection algorithm?