

The melt pond fraction and spectral sea ice albedo retrieval from MERIS data

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There is a lot going on here. Nice to see a dataset amalgamation effort. There appears to be some interesting trends, results, etc ... but the paper seems a bit long (I'm starting to lose the message at 30 figures). I might suggest the paper be split in two (one paper focusing first on validation of the MERIS algorithm itself) and then the second one using the validated algorithm to make the comparison between MERIS and the in situ MPF data). However, if I'm an outlier reviewer here with this opinion then I am fine to see it published the way its laid out now. Publish with minor revisions.

Pg 5234. Lines 3-8. I somewhat disagree that this situation is rare ... when snowfalls [during the melt pond season do not occur] very often. I've witnessed snowfalls following a cold front during the melt pond season on numerous occasions that completely cover the 'icescape' for days before the appearance of sufficient shortwave (ie. sunshine) to melt the snow cover (which is close to the melting point) and re-establish the pre-existing melt pond fraction.

Pg 5247. Line 13. Type. Should be FYI .. not MYI (for 0.8)

I suggest a few additional references be added to this paper to demonstrate the salient work to this paper by others.

Yackel, J. J., D. G. Barber, and J. M. Hanesiak (2000), Melt ponds on sea ice in the Canadian Archipelago: 1. Variability in morphological and radiative properties, *J. Geophys. Res.*, 105(C9), 22049–22060, doi:10.1029/2000JC900075.

Hanesiak, J. M., Barber, D. G., De Abreu, R. A., and Yackel, J. J. (2001). Local and regional albedo observations of Arctic first-year sea ice during melt ponding. *Journal of Geophysical Research (Oceans)*, 106(C1), 1005-1016.

Barber, D. G., and Yackel, J. J. (1999). The physical, radiative and microwave scattering characteristics of melt ponds on Arctic landfast sea ice. *International Journal of Remote Sensing*, 20(10), 2069-2090.