

Interactive comment on “A long-term and reproducible passive microwave sea ice concentration data record for climate studies and monitoring” by G. Peng et al.

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We thank the Anonymous Referee #1 for the positive feedback and constructive comments and suggestions on our manuscript.

Although we agree that it will be useful to provide more detailed analyses of the CDR sea ice concentrations in region and time, it is beyond the scope of this journal. However, spatial distributions of CDR sea ice concentrations in the Arctic regions are re-done with more detailed color palette to better reveal the spatial variability in the sea ice concentration fields.

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We agree with Referee #1's recommendation of being more self-contained. In the revised manuscript, the basic procedure of generating the CDR is outlined in section 2.

Below is the one-to-one response to Referee #1's detailed comments:

Page 96 Line 6, p96 and P 98 L22: 25x25 km ->5x25 km²

Reply: It is intended to show the grid size. Therefore, they are modified to 25 km x 25 km for clarity.

P100 L6-7: references for the weather filters and land spillover corrections should be given.

Reply: Good suggestion. The following references are added to the revised manuscript.

Cavalieri, D. J., Parkinson, C. L., Gloersen, P., Comiso, J. C., and Zwally, H. J.: Deriving long-term time series of sea ice cover from satellite passive-microwave multisensor data sets. *J. Geophys. Res.*, 104(C7), 15,803-15,814, 1999.

Comiso, J. C., and Nishio, F: Trends in the Sea Ice Cover Using Enhanced and Compatible AMSR-E, SSM/I, and SMMR Data. *J. of Geophys. Res.*, 113, C02S07, doi:10.1029/2007JC0043257, 2008.

Cho, K., Sasaki, N., Shimoda, H., Sakata, T., and Nishio, F: Evaluation and improvement of SSM/I sea ice concentration algorithms for the Sea of Okhotsk. *J. Rem. Sens. Of Japan*, 16, 133 – 144, 1996.

P101 L 2-3: Give typical values for variabilities under freezing and melting conditions as examples.

Reply: Good suggestion. Typical values for CDR sea ice concentration variability under freezing and melting conditions are provided, shown below, in the revised manuscript: “In cold, winter conditions, the variability is generally <5%, while in melting conditions,

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it generally increases to 10-20%.”

P102 L16: source code package: give more explicit the place (I could not find it) and programming language used.

Reply: More explicit instruction, i.e., click on the document icon under the “Source Code” column next to “Sea Ice Concentration” under the “Oceanic CDRs” column to download the source code package, is provided in the revised manuscript for downloading source code package along with information on programming language used.

Figure 2: Consider using a more detailed color table for ice concentrations.

Reply: A more detailed color palette is used to better reveal the spatial variability in the sea ice concentration fields.

Interactive comment on Earth Syst. Sci. Data Discuss., 6, 95, 2013.