

Dear Yevgeny Aksenov, Jenny Hutchings and Referees,

thank you for giving all the hands-on advice for improving the paper. All changes are highlighted in bold text within the track-changes file. Here, we want to present an overview of the major changes for the second manuscript:

- We restructured the introduction, discussion and conclusions of the paper
- We included three different flow charts to explain the data selection and processing (Figure 1, Figure 2 and Figure 3) in Section 2 and 3. Therefore, we made changes within Figure 1, added Figure 2 and replaced Figure 3 with a completely new figure. Section 3.1 was then rewritten and restructured to fit the flow charts
- We changed the names of the sea-ice types used for the surface-type classification according to the WMO Sea Ice Nomenclature
- We gave new names to the two used TOA-thresholds
- We re-calculated the power-law exponents and their standard deviation (see Section 3.2.)
- We extended the discussion in regards to the difference between the values for the Arctic and in regards to our results for the Weddell Sea and their possible representation for the Antarctic sea ice
- We removed Section 4.3 and shifted its contents to Data (Section 2) and the discussion (Section 4)

A point-by-point response to the Editor Comment and the Referees can be found in our answers (AC1 – AC3), where we also indicated our planned and then realized changes.

Thank you for your time and kind regards,
Marek Muchow, Amelie Schmitt, Lars Kaleschke