

Dear Editor,

This note is to explain a few minor changes to the manuscript that have been carried out after the response to reviewers process was complete.

In the round of revisions, reviewer 1 had the following comment:

Line 191: May be you can get in touch with the producer and ask what the reason may be?

This was in reference to the following sentence in the manuscript:

“While such an increase in MYI extent can occur mid-winter due to diverging ice drift, neither the NSIDC_age data nor the model show such an extensive increase, potentially indicating random errors in the CDR dataset.”

We followed the advice of the reviewer and contacted the producer of the CDR dataset about why “such an extensive increase” was appearing in their data. At the time of completing our reviews, we had not had a response, so could not add details in the manuscript to inform readers as to why there was a discrepancy. However, after the review process was complete, we received an answer to our query. In order to be able to answer the reviewer’s original comment, and to ensure the manuscript was as informative and accurate as possible, we requested to be allowed to incorporate the response to our query into the manuscript. This involved two very minor changes to the manuscript (along with one in the data availability section and one in the references), which do not in any way change the message in the text but rather serve to clarify the wording and provide some reason as to the difference we see.

Change 1 (Lines 167-168)

“We use the Ocean and Sea Ice Satellite Application Facilities (OSI-SAF) Climate Data Record ice type product (Aaboe et al., 2019)”

has been changed to

“We use version 1 of the sea ice type Climate Data Record from the Copernicus Climate Change Service (C3S) Climate Data Store (CDS) (2020), hereafter CDR”

The dataset is the same, we have just updated the reference and made the wording more specific.

Change 2 (Lines 212-216)

“potentially indicating random errors in the CDR dataset”

has been **changed** to

“Note that in this study we use version 1 of the dataset, which is now deprecated and fully replaced by an upgraded version. The recently released version 3 of the dataset has major improvements relative to version 1, including both gap filling (bringing it to a level 4 product)

and correction schemes based on temperature and ice drift information to correct for misclassifications and to improve the early autumn classification (S. Aaboe, personal comms)."

Change 3 (Data availability, lines 466-467)

"The ice type product from the [OSI-SAF Climate Data Record](https://thredds.met.no/thredds/c3s/c3s.html) is available at <https://thredds.met.no/thredds/c3s/c3s.html> (last visited June 2020)."

has been changed to

"The ice type product [Climate Data Record \(version 1\) from the Copernicus Climate Change Service \(C3S\) Climate Data Store \(CDS\) \(2020\)](https://thredds.met.no/thredds/c3s/c3s.html) is available at <https://thredds.met.no/thredds/c3s/c3s.html> (last visited June 2020)."

Change 4 (reference, lines 560-561)

We added a reference to the ice type dataset, in addition to the original reference to the documentation:

"Copernicus Climate Change Service (C3S) Climate Data Store (CDS): Sea ice edge and type daily gridded data from 1978 to present derived from satellite observations, version 1.0, <https://doi.org/10.24381/cds.29c46d83>, [Accessed on 30-06-2020], 2020."

We are grateful for having the opportunity to make these small but important changes to the text.

Kind regards,
Heather Regan