

Response to the Editor's Comments

Dear Editor,

Thank you very much for your comments. Below please find the point-by-point responses (marked in blue).

1. Please undertake one minor change related to the title. Instead of ‘Data and Code for paper "A satellite-based ice fraction record for small water bodies of the Arctic Coastal Plain"' change it to a title without ‘paper’ to A satellite-based ice fraction record for small water bodies of the Arctic Coastal Plain (2017 to 2023) – Dataset and code and link to the ESSD discussion paper (later to the final ESSD publication).

Thank you for the suggestion. We have revised the dataset title accordingly and added a link to the ESSD manuscript on the Zenodo page. A screenshot of the Zenodo webpage is shown below:

<https://doi.org/10.5281/zenodo.17033546>

The screenshot shows the Zenodo dataset page. At the top is the Zenodo logo and a search bar. Below the header, there is an info bar stating: "Info: Zenodo's user support line is staffed on regular business days between Dec 22 and Jan 4. Response times may be slightly longer than normal." The dataset is published on December 29, 2025, and is version v6. The title is "A satellite-based ice fraction record for small water bodies of the Arctic Coastal Plain (2017 to 2023) – Dataset and code". The authors listed are Lin, Hong; Du, Jinyang; and Kimball, John S. There are buttons for "Dataset" and "Open". Under "What is this?", it states: "This file contains both the ice fraction dataset for small water bodies on the Arctic Coastal Plain and the associated production code." It also mentions the source article is available at <https://doi.org/10.5194/essd-2025-503>. The "Data Introduction" section describes the dataset as fractional ice cover of small water bodies (900 m² to 25 km²) within each 1-km grid cell in the Arctic Coastal Plain of Alaska (ACP) from 2017 to 2023. It mentions the 1-km ice fraction was aggregated from 10-m ice cover maps. The final released dataset is provided in GeoTIFF format with a spatial resolution of 1 km, a temporal resolution of about 6 days, and is projected in the Alaska Albers Equal Area projection (EPSG: 3338). Each GeoTIFF image, named as YYYYMMDD.tif, represents the ice fraction of small water bodies in the ACP on a given day, observed by both ascending and descending Sentinel-1 passes, and recorded as the fraction of ice-covered area within small water bodies in each 1-km grid cell. Each image contains two bands: (1) ice fraction, with values ranging from 0 to 1, and (2) the proportion of small water bodies within each 1-km grid cell, also ranging from 0 to 1. The quality flag layer is also provided as a GeoTIFF at a spatial resolution of 1 km, with the band named "RRMSE" representing the data quality of each 1-km grid cell.

2. You could also introduce the time frame 2017 to 2023 in the title of your ESSD paper: A satellite-based ice fraction record for small water bodies of the Arctic Coastal Plain (2017 to 2023)

Thank you for the suggestion. We have revised the manuscript title accordingly.

The first page of the revised manuscript:

1 **A satellite-based ice fraction record for small water bodies of the**
2 **Arctic Coastal Plain (2017 to 2023)**[←]
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The first page of the revised Supplementary Materials:

Supplementary Materials for[←]
[←]
A satellite-based ice fraction record for small water bodies of the Arctic
Coastal Plain (2017 to 2023)[←]
[←]
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