

Dear Luis Millan,

We gratefully thank you for giving us the opportunity to revise the manuscript again, your expertise and thoughtful suggestions have greatly contributed to the improvement of our work. We carefully reviewed and considered each of your suggestions and recommendations. We are pleased to inform you that we have incorporated your feedback into the revised version of the paper, and the entire manuscript has been thoroughly checked. Below the comments are responded point-by-point and the revisions are indicated.

Public justification (visible to the public if the article is accepted and published):

Please address the following:

1. Since the manuscript is only studying about daytime cloud fraction, I suggest adding "daytime" to the title;

**Response:** Thank you for your suggestion, we have added "daytime" before the words "cloud fraction", the title is "*A monthly 1-degree resolution dataset of daytime cloud fraction over the Arctic during 2000–2020 based on multiple satellite products*" now. **Line 1, Page 1.**

2. Line 748: "underestimation of ground and satellite observations by satellite data, particularly ISCCP-H data". This reads misleading. Please rephrase.

**Response:** We are sorry for the confusion brought to you, we have revised this sentence to "We attribute these discrepancies primarily to the underestimation of satellite observations, particularly the ISCCP-H data, by around 10-30% in the central zone of Greenland." **Lines 747-749, Page 30.**

We have checked the manuscript and made some revisions, all of which are marked up in yellow.

Some slight revisions can be seen in Line 29, Page 1; Line 124, Page 3 and Line 181, Page 5.

At the end paragraph of the discussion of **5.3 The uncertainties of the fusion CF**, we added the discussion about the uncertain of fused CF in the Greenland region, "*It should be noted that our fused data shows an overestimation in the Greenland region. This is mainly because the fusion process prioritizes consistency between the fused data and ground observations. In specific applications, users can make corresponding adjustments based on active sensor data for calibration purposes.*" **Lines 754-757, Page 30.**

We also added two financial support in **Lines 850-851, Page 33:** *Hubei Natural Science Foundation Grant (2021CFA082) and National Key Research and Development Program of China (2020YFA0608704)*

**Thank you again for your constructive comments and suggestions on our manuscript. There is no doubt that these comments are valuable and very helpful for revising and improving our manuscript. We hope you will find our revised manuscript acceptable for publication.**