Jing's paper produced a daily cloud-free Normalized Difference Snow Index (NDSI) product with 500 m spatial resolution based on MODIS C6 snow cover datasets in China. So far as we know, the NDSI threshold is the crucial parameter for snow detection by use of optical remote sensing data. The paper in its current version needs major revision and resubmission to meet the level expected of ESSD, for the following reasons：

Firstly, the importance of NDSI needs to be clarified in introduction and using data. NDSI is different form NDVI. The readers are more concerned about binary snow cover or fractional snow cover than NDSI itself. Therefore, it is difficult for me to evaluate whether this dataset is uniqueness or usefulness. Secondly, the current validation scheme is insufficient to support the Spatio-Temporal Adaptive fusion method.

The two issues must be addressed for this dataset to be published on ESSD.

General comments

1. The importance of the NDSI research is insufficiently described, and why NDSI is more important than binary and FSC products should be further described in the introduction.
2. The NDSI value in either MODIS C5 or C6 is the NDSI without atmospheric correction. How this NDSI differs from NDSI by the atmospheric corrected from MOD09GA/MYD09GA? Has the author compared it, and which NDSI value is more useful to readers?
3. The current validation plan (in-situ snow depth observations and Landsat NDSI maps) is insufficient to support the Spatio-Temporal Adaptive fusion method. Please add the improved validation plan.

Minor comments

1 L 95. "The daily snow cover datasets of C6 were used in this study." There are NDSI_Snow_Cover and NDSI scientific data sets in the C6 by MODIS C6 User Guide (Riggs, 2015). The NDSI_Snow_Cover and NDSI is different, the author need to describe the data used in the study. This is related to the subsequent results.

2 Fig.1. It is recommended to remove the NC snow area cover. This is only an administrative division rather than a snow region (https://essd.copernicus.org/articles/13/4711/2021/). The in-situ observations of this area were not used in this study. In addition, TP suggests replacing by QTP?

3 What does the dashed half-frame line in Fig.2 mean?

4 L 118. The description of fusion method and rules is not clear, only the priority is determined at L 123. It's better to describe the fusion method first, and then introduced the interpolation used by Aqua.

5 L158. What does NDSIP mean?

6 L 216. What does "snow-clad pixels" mean？ Are there any reference?

7 L 214. Section 3.1 The validation method need to be improved.
The in situ snow depth derived from 49 and 92 CMA station from BJ and QTP. However, the validation date need to be clear. Due to snow-free period is long,

many stations record no snow in one year. In fact, the most useful and most concerned should be the NDSI recovery during the snow cover period. The author should focus on the NDSI recovery during the snow cover period and a detailed confusion matrix needs to be given. In addition, the authors need to focus on the accuracy comparison of the product itself (TAC, L 218, “the cloud-covered areas in the TAC NDSI dataset are considered to be snow-free”. Here the cloud-covered areas should be eliminated without comparison) and the final spatial continuous product (STAR). The reader is concerned with the loss of NDSI accuracy after STAR interpolation.

8 L 248. Section 3.2. The validation method need to be improved.
The focus of validation in the study should be whether the STAR method is reliable. Therefore, a reasonable verification scheme is to select actually cloud-free the Landsat NDSI maps as a reference maps, then artificially set a random 20%, 50% or 80% cloud cover (only my suggestion) on the corresponding MODIS data. The different cloud ratio maps were recovery after STAR interpolation and validated by reference Landsat NDSI maps, and the conclusions is convincing.