

The manuscript has been improved as compared to the previous version. However, there are still points to which I would like to hear from the authors:

1. The authors do not give guidance as to the accuracy of the NIC chart ice type information. It is difficult to assess the quality of the classifier output when it is trained with, and evaluated against, only NIC charts. The accuracy could be investigated by comparing NIC charts with Canadian ice service charts for regions/dates on which both are available. Alternatively, the output from the classifier (ice type) should be compared against another data source (eg. OSI-403-c).
2. The contribution of the study still needs to be clarified. I don't feel that the main technological innovations claimed in the conclusions have been demonstrated. There is no clear demonstration that the time in running the semi-automated method is much less than the manual approach (in particular given that there is a manual step in the method, and given the tools available to pull samples from images that could be used in a study that is manually generating samples), nor is it clear to me how the evaluation of the classifier is more objective (more objective as compared to what? another method? or independent data? - see above comment).
3. This study does demonstrate several important problems that need to be resolved when using ice type from operational charts to train a classifier. For example, the labels from NIC have accuracy issues (or inconsistency issues as stated in the conclusions), there seem to be possible issues with the incidence angle correction etc. How do the authors propose moving forward? For example, if the authors are really proposing a higher resolution three-class classification, how are they first planning to overcome the problems observed in the present study? A thoughtful discussion of these issues would be a nice contribution.

Specific comments:

- page 2: line 18, What evidence is there that previous studies were less generalizable than the current one? This statement should be backed up.
- page 2: line 22, Public ice charts are generated manually. I don't see how using them to train a classifier enables automation.
- page 3: line 25: objective identification → I assume what the authors are referring to is the way that a large quantity of training labels are pulled from the charts objectively? as compared to manually. Please make this more clear.
- page 7: line 33: The method is semi-automated in part because of the way the samples are generated, but also because of the use of manually generated ice charts as training data.
- page 11: lines 5-6: 'This is because ay of year might not correspond to the same temperature...' - Might be better stated 'because SAR image features, which partially reflect temperature fluxes and weather regimes, might not correspond to day of year.'
- page 11: line 8: Please refer to the figure number.

- Figure 8: there are clearly some problems regarding wind roughened water (misclassifications in Fig 8) - The authors acknowledge this, but don't suggest a future path to resolve this issue. There is also some water identified in what might be ice cover in this same figure.

English language (not an exhaustive list):

- abstract: line 18, dataset → datasets
- page 1: line 7, is impacting seriously → can seriously impact
- page 2: line12, statistics thus → statistics, and thus
- page 2: line 14: works → studies
- page 3: line 9: images from the first year is → images from the first year are
- page 3: line10: is used for validation → are used for validation
- page 3: line 22: each steps → each step
- page 6: each polarization images → each polarization image
- page 6: 'In the literatures about sea ice classification' → Previous studies about sea ice classification
- page 8: line4, 'better recognizable' → 'more easily identified'
- page 8: line 11 'raters' → rasters
- page 8: line 11, 'trained classifier' → output from the trained classifier
- page 9: line 32, Do not start a sentence with a Greek letter (please correct at other locations in the manuscript).
- page 10: line 31, 'ices' → ice
- page 11: line 11: ANSWRS (use of acronym).