

## ***Interactive comment on “SAR image observations of the A-68 iceberg drift” by Ludwin Lopez-Lopez et al.***

### **Anonymous Referee #2**

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Report on “SAR image observations of the A-68 iceberg drift” by Lopez-Lopez et al.

The paper presents a method to automatically derive iceberg area changes and iceberg drift parameters from Sentinel-1 SAR scenes. The method consists of a contrast enhancing procedure and an automated segmentation.

This is a very technical paper, and the drift of the iceberg is merely used as a case study. In the introduction and the abstract the authors try to bring the results into the scientific perspective, but not in a satisfactory manner. I guess it is Ok to publish a technical paper in the Cryosphere, but then I would expect a discussion of how this new method does really improve the status quo (as this is not the first work on automated iceberg detection) and extend it to a bigger dataset. Is this method really better than previous ones? This is not clear from the manuscript. One example: in the caption

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of figure 3 it is stated: “Even with the low contrast of the original scenes, the detection appears homogeneous with no spurious pixels”. Then why bother with contrast enhancing techniques at all? Figure 2 shows an overview of different enhancement algorithms, and yes, the fuzzy one looks best in the image, but what does it improve for the segmentation process? There is no comparison shown. If the actual parameters, which have been measured, like iceberg area, path of drift and rotation of the iceberg would have been analyzed in relation to the scientific questions briefly mentioned in the introduction, like ocean currents, wind and sea ice drift, ocean temperature and so on, this would be a more suitable paper for The Cryosphere in my view. But this is not the case, there is only a display of the data, without discussing what this information could be actually used for.

The structure of the paper is not very clear, which also comes from the dilemma of trying to make a technical paper look more like a data focused one. The implementation of the segmentation process is first described in the discussion, but would rather belong to a “Methods” chapter. In the discussion I would expect evidence for the improvement this method provides in comparison to others, or the interpretation of the iceberg drift data. What is also not clear to me: Why not include more scenes, the iceberg has since been drifting further north between March 2019 and the submission date. During this time it also did lose more mass. As the method is automated this should be not such a big task. I would also recommend to include a table (maybe as an appendix) where all used scenes are listed, instead of mentioning them all in the text with just the dates. When analyzing the area loss along the iceberg drift it should be considered that the Polar Stereographic projection (I guess this is what the authors mean by stereo-polar projection) is not area preserving, or are you adapting the latitude of true scale for each scene? This is not clear from the text.

In summary I would recommend to either put more effort into interpreting the results of the drift tracking, or stay technical, but then show a more convincing summary of the benefits of the introduced method, in order to make it a suitable contribution for The

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Cryosphere. In both cases it would need major rewriting, thus I do not see the benefit in going into more detail here.

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