The Cryosphere

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Discussions

EGU

Interactive comment on "Open Source Algorithm for Detecting Sea Ice Surface Features in High Resolution Optical Imagery" *by* Nicholas C. Wright and Christopher M. Polashenski

Anonymous Referee #3

The manuscript entitled "Open Source Algorithm for Detecting Sea Ice Surface Features in High Resolution Optical Imagery" offers an open source software package to process high resolution optical imagery of sea ice, so that providing a standardized, automated, and reproducible technique and sea ice products. This work is valuable and significant in polar research community. I especially appreciate authors provide a complete set of training sample on Github, and even an interface to collect more user-input training samples. This reflects the true spirit of Open Source. I would like to recommend this manuscript to be published after author address my several major concerns as follows – 1) Please note that there is a previous effort to realize an open source package for sea ice feature detection: Sea Ice Imagery Classification with Machine

Learning and High-Performance Computing, XSEDE 2016 Polar Compute Hackathon - Sea Ice Team, Contributers: Alek Petty, Andrew Barrett, Xin Miao, Phil McDowall, Vivek Balasubramanian, https://github.com/polar-computing/SeaIce

Is there any relationship between the author's package with the XSEDE 2016 package? Please cite it if necessary.

2) L9: What is "dm-scale"? 3) The terms used in manuscript are not consistent. L13: ...melt ponds and submerged ice, so this is definition used in (Miao, 2016). This includes two subclasses: melt pond (MP) and coastal submerged ice. So how did author calculate MP coverge in L364? How to extract MP from the broad category of "melt ponds and submerged ice"? Please make it clear.

4) L165: Did author consider the possible image distortion due to tilting of sRGB and other images?

5) L191&L255: Did author consider the shadow issues? Shadow is an interesting sea ice feature, please refer to Xin Miao, Hongjie Xie, Stephen F. Ackley, Songfeng Zheng, "Object-Based Arctic Sea Ice Ridge Detection From High-Spatial-Resolution Imagery", IEEE Geoscience and Remote Sensing Letters, 13(6): 787-791, 2016.

6) L225: One of the major feature of RF is that it only need a small amount of samples, very suitable in labor-intensive remote sensing project like sea ice detection.

7) L236: How did you separate regular melt pond (fresh water) and melt-through MP (salt water)? Why not use the technique provided in (Miao, 2016)?

8) L 256: I think it makes sense to combine 3.3.4 and 3.3.5 to 3.3.3.

9) L307: Can you provide an example? I don't understand why.

10) L367: Section 3.6 is very confusing. What do you mean by "larger sample"? Is it "larger number of samples"? What is "metric" here? L374: you mean 'observer' not 'user', rite?

11) L381: Figure 7 refer to Figure 8? Very confusing here.

12) L 389: Fig. 8??

13) L405: Only 4.1 not 4.2? Then author could remove this subtitle.

14) Comment: L596: Very positive contribution by sharing the training set!

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Discussion paper