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Interactive comment on "Comparison of automatic segmentation of full polarimetric SAR sea ice images with manually drawn ice charts" *by* M.-A. N. Moen et al.

Anonymous Referee #1

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Overall, this is a good article that attempts to answer the very difficult problem of automated image classification for sea ice. The authors present their findings in a clear and concise manner with a sound methodology. Listed below are my specific comments and technical corrections:

1. Although the authors address the manual charts (completed by 2 different ice analysts), I am surprised that there is such a difference between both products. A couple of things come to mind: a) Is there a difference in the analysts' experience (ie. how long they have been doing ice analysis)? b) Could the disagreement between the manual charts be attributed to the fact that the analysis was done on RGB composite and a Pauli decomposition products? The authors mention that the analysts are experi-

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enced in using R-2 ScanSAR (probably single channel HH or dual-channel HH/HV) and optical data in their daily chart creation. Therefore, they are likely more comfortable analyzing grey-scale images and have less experience interpreting these colour SAR products. I wonder if the manual charts would have been more consistent if the SAR data had been presented as greyscale images.

2. I assume the decision to use 6 features is described in Doulgeris and Eltoft, 2010. It may be useful to include a couple of sentences describing this decision.

3. Can the author clarify the comment on Pg 5-Ln 450: "From a SAR imaging point-of-view, it is not possible to separate all these classes by visual inspection of RGB images from polarimetric channel combinations." For first-year ice types, MANICE identifies 4 types: (first-year (Code 6), thin fy (Code 7), med fy (Code 1.), thick fy (4.). National ice services regularly distinguish these first-year types from SAR data on their ice chart products. I recognize that the analysts in this study use different names for their first-year classes. Perhaps it would be useful to use the MANICE definitions rather than the types listed in Fig.4.

4. Technical Correction: Pg 2-Ln 64. R-2 ScanSAR Wide imagery is not 50m resolution. The beam mode has 50m pixel spacing. Resolution for SCW is 160-72.1m (Range) x 100m (Azimuth).

5. Spelling Correction: Pg 5-Ln 396. Change to "fourteen"

6. Spelling Correction: Pg 8-Ln 692. Change to "largest"

Interactive comment on The Cryosphere Discuss., 7, 2595, 2013.