Novel methods to study sea ice deformation, linear kinematic features and coherent dynamic elements from imaging remote sensing data

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Final response to reviewer Andy Mahoney

I thank the review for his investment in the review, a very positive review and a large number of valuable suggestions.

Here are the major comments addresses one-by-one:

1. Methods section would benefit from restructuring

Here I understand that the structure is not ideal – since it confused the reviewer that is a sea ice deformation expert. However, instead of complete restructuring, I will introduce the noise limit calculation and the definition of displacement, drift and deformation in the beginning of the method section (3). This introductory part of the methods refers to all the data described in the Data section (2). The buoy data and ship radar require no specific methods novel to this paper. Section 3.1 is then listing the specifics of the novel SAR deformation calculations and is sequential. I will include statements to make this more clear in the manuscript.

2. More detail needed regarding definition of damage parcels

I will add a figure where I explain the sequence (in time) how the deformation is tracked on a map.

3. Clearer definitions of spatial scales

I agree. I will explain that 10 km is used as it is an order of magnitude larger than 679m. I review if the definition of lambda is sufficient.

4. Definition and use of CDE shape parameters could be improved

I really appreciate the input the reviewer made to this point! These are all excellent comments that will be taken into account and by doing this greatly improve the paper. I will also add a schematic (similar as under major comment 2) here with drawings of the diameters, distances etc.

5. Figure sub-panels

Yes, figure sub-panels will be marked with alphabetic indexes for the final version of this paper.

Minor comments:

All minor comments are relatively easy to adapt and will be taken into account.