The Cryosphere Discuss., 9, C3308–C3309, 2016
www.the-cryosphere-discuss.net/9/C3308/2016/

The Cryosphere Discussions
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EGU

Interactive comment on "Evidence of recent changes in the ice regime of lakes in the Canadian High Arctic from spaceborne satellite observations" *by* C. M. Surdu et al.

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Received and published: 24 March 2016

Response to the First Reviewer

We thank Reviewer 1 for providing the positive feedback on our paper. We addressed Reviewer 1's comment regarding the Mann-Kendall test and revised the manuscript to reflect the suggested changes. Detailed answer to Reviewer 1's comment has been copied below. I thought this paper to be very well done. It was a pleasure to read. I thought the structure of the paper to be well done and had an easy and logical flow. The figures and tables were adequate, well presented and supported the discussions and conclusions.

I really only have one small comment. For those who are not familiar with various Imagery analysis techniques and statistical evaluation, I would suggest that when introducing the "Mann-Kendall test using Sen's slope" on page 6233, that a statement be made about why this test is the chosen one? The authors refer to it being used previously. Perhaps obvious to those who know this test well but would be useful for others and could be as simple as saying was "successfully been used"? Or perhaps a single statement as to why this is the preferred test in this research analysis?

Following reviewer 1's comment, we added additional information on why the Mann-Kendall test was the preferred statistical method for trend analysis. As a result, the text now reads: "This non-parametric statistical test, widely used for detecting monotonic trends in hydrological long-term time series (Hirsch et al., 1982; Zhang et al., 2001), was deemed to be one of the most powerful trend tests (Hess et al., 2001) as it can deal with data that is not normally distributed and has minimum sensitivity to data gaps related to inhomogeneous time series (Tabari et al., 2011), or values below a detection limit. The method has previously been used successfully for detecting the presence of trends in historical records of river and lake ice freeze-up and break-up dates (Smith, 2000; Futter, 2003; Duguay et al., 2006; Noguchi et al., 2011)."

Interactive comment on The Cryosphere Discuss., 9, 6223, 2015.