

Interactive comment on “Brief Communication: Early season snowpack loss and implications for over-snow vehicle recreation travel planning” by Benjamin J. Hatchett and Hilary G. Eisen

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I appreciate the opportunity to review this brief communication, as there is very limited work on the implications of changing cryosphere for the multi-billion dollar over-snow vehicle (OSV) ('snowmobile') industry. This industry is far more at risk to cryosphere changes than the ski industry, which has much higher adaptive capacity through cost-effective snowmaking. I concur with G. Patterson that the paper is very well written and the comments on methods and interpretation, and will build on those remarks.

The dual data sources are very important to enable the exportability of the method to other regional markets across North America (mostly via reanalysis, as Snotel stations

C1

are limit in Eastern markets) that would allow inter-regional market comparisons.

A limitation to the paper is that literature review is not comprehensive and given how limited this literature is, it should be complete in my opinion. While I acknowledge space is limited in a brief communication, this will provide future authors with a complete and current state of knowledge to build on. This will also strengthen some of the threshold assumptions made in this paper and comparisons with other regional markets. Specifically, the authors should consider the work on snowmobile tourism under climate change that was completed in New England (Scott et al. 2008. *Mitigation and Adaptation Strategies to Global Change*, 13, 5-6, 577-59) and parts of Canada (McBoyle et al. 2007. *Managing Leisure*, 12, 4, 237-250) about 10 years ago.

Discussion of impacts for visitor experience or economic impacts could be strengthened. Analyses of the impacts of recent record warm winters on the ski industry have revealed that shorter, more varied seasons result in increased congestion, which has adverse impacts on visitor experience (and thus economic surplus). The same impact is likely with OSV (particularly at trailheads) if demand remains stable. Have recent record warm winters revealed any impacts on visitor use patterns or increased impacts on landscapes/ecology?

The adaptation table is very useful for resource managers to consider appropriate responses. I fully agree with the authors that there is no one-size-fits-all approach, and that climate adaptation has to be informed by local circumstances and stakeholders. Other options the might be included in this table could include: (1) improve smoothness/durability of trailhead and corridor trails, so to require less snow and reduce impacts; (2) restrict access to marked trail areas in early/late season or during mid-season low snow periods; (3) if trail groomers are not used in this region, introduce them to improve the durability of corridor trails.

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C2