Interactive comment on "Towards Objective Identification and Tracking of Convective Outflow Boundaries in Next-Generation Geostationary Satellite Imagery" *by* Jason M. Apke et al.

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"This work represents a unique application of an optical flow technique to high spatiotemporal geostationary imagery for the problem of identifying and tracking outflow boundaries. This paper is very well written and the work is well executed for the single case study described. Clearly, there is much more to be done and the author highlights these things, but I think this work is a great start and worthy of publication. Recommend publication with only minor updates needed."

We would like to thank the reviewer for the kind words and feedback provided on this article. Below is a detailed list of comments made and the authors' replies with details

on modifications made to the first submission of the papers.

"Line 10: change 15 min full disk to 10 min full disk (ABI Mode 6 is now used operationally)"

This has been fixed. (see Line 79)

"Line 255: It is not clear to this reviewer how you define a "convective area". The word, "area", is used which would imply a group of pixels (presumably convective in this context). When working backwards toward this convection "area", is the convective area found when coming to the first pixel meeting the brightness temperature threshold?"

In this paper, we define a convective area as any region within 50 km of a brightness temperature pixel < -50 °C. This is not represented as a group of pixels here, rather a two-dimensional Haversine distance from all pixels below the brightness temperature threshold in the 10.3-μm image. This way, we can determine whether or not backward trajectories of targets we think are OFBs which are not forced to step along the pixel grid occur near deep convection. To alleviate reader confusion, we have reworded the sentence at Line 254 to: "If a back-traced pixel of the linear feature arrived within 50 km great-circle distance of a 10.35 μm brightness temperature (BT10.35) pixel lower than 223 K (-50 °C; using previous satellite imagery matched to the back-trajectory time), the original point was considered an OFB. The area subtended by the 50 km great circles derived from BT10.35 is hereafter referred to as the "deep convection area."

"- Technical Corrections The following references cited in the text were not found in the References section: Rotunno et al, 1988 Smalley et al 2007 Baker and Matthews, 2004 Van Den Broeke and Alsarraf, 2006"

Good catch. A problem with the citation management software used has since been fixed and these references have been added to the reference section. To ensure this is not repeated on the next draft, all other in-text citations have been double checked for accompanying references.

"Line 165: Remove "spatially" from this sentence: "Thus,most optical flow computations initially spatially subsample images to where all displacements 166 are initially less than 1-pixel (Anandan, 1989; discussed more in Section 3.1), which can cause fast moving small features to be lost." "

Removed spatially from the sentence.

"Line 285: replace ",etc." with ",for example"."

For clarity, we decided to just remove "etc." all together, the sentence now reads:

"The combination of these model and observation datasets is employed to confirm the presence of a distinct convective OFB, rather than some other quasi-linear feature, such as a bore or elevated cloud layer." (Line 284)

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