The scale sizes reported in section 3.2 were a lower bound. They were larger than the latitudinal scale size reported in Blake et al. [1996], and similar to the scale size reported in Parks [1967]. Furthermore, the latitudinal scale size in this study was roughly ∼ 2.6 times larger than other simultaneous microbursts reported in Crew et al. [2016] and ∼ 10 times larger than reported in Dietrich et al. [2010]. No energy dependence on the scale size was observed.

The microburst scale size obtained in Section 3.2 and scaled to the geomagnetic equator can be compared with the scales of plasma waves presumably responsible for the rapid burst electron precipitations. The direct connection of chorus waves to burst electron precipitation was reported by Nishimura et al., [2010, 2011] and Liang et al. [2010] from correlated THEMIS wave observations and pulsating aurora dynamics. A strong correlation between pulsating aurora and lower band chorus waves was found. The azimuthally elongated patches with ∼ 100 km size in the ionosphere were scaled to ~1000-3000 km to the geomagnetic equator at L shell about 9–10. The direct estimations of the chorus source scales were started based the coordinated measurement by ISEE-1,2 [Gurnett et al., 1979]. The wave power correlation scale was estimated to be about several hundred kilometers across the background magnetic field. Later [Santolík and Gurnett, 2003; Agapitov et al., 2010, 2011b, 2017] used data from coordinated spacecraft observations. Santolík and Gurnett [2003] determined the correlation lengths of chorus-type whistler waves based on multipoint CLUSTER WBD measurements near the chorus source region during the magnetic storm of 18 April 2002 at L shell about 4 (in the region around the plasmapause). Correlation scales were obtained to be around 100 km from the dependence of the chorus wave amplitude correlation coefficient on the distance between the CLUSTER spacecraft. The later observations showed that the spatial extent of chorus source region can be larger: from ~600 km in the outer radiation belt [Agapitov et al., 2011, 2017] to more than 1000 km in the outer magnetosphere [Agapitov et al., 2010]. The azimuthal and latitudinal scales obtained in Section 3.2 and scaled to the magnetosphere were similar to the whistler-mode chorus source scale sizes reported in Agapitov et al. [2011, 2017]. Using the evidence from this analysis, this microburst was most likely scattered by a whistler-mode chorus wave packet.

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