

R006-53

Zoom meeting B : 11/4 AM1 (9:00-10:30)

10:00-10:15

Study of the seasonal dependence of SAPS occurrence using the SuperDARN radars

#Kento Oya¹⁾, Nozomu Nishitani¹⁾, Tomoaki Hori¹⁾

¹⁾ISEE, Nagoya Univ.

We make a statistical study on occurrence characteristics of Sub-Auroral Polarization Streams (SAPS), using the Super Dual Auroral Radar Network (SuperDARN) data. We use several years of SuperDARN data and study the seasonal dependence of SAPS type flows. We identify the equatorward aurora oval boundary using the precipitating energy fluxes data of the NOAA POES satellites and use only the SuperDARN echoes equatorward of this boundary. We set criteria to identify SAPS events, i.e., the flow speed exceeds 150 m/s [Nagano et al., 2015] and has a westward component ($-45 \text{ deg} < \Delta \theta < +45 \text{ deg}$). Some past studies suggested existence of the seasonal dependence of SAPS, e.g., SAPS-like high velocity flow occurs over a larger MLT extent during winter months [Koustov et al., 2006], lower velocity flows are observed more often in the summer Northern Hemisphere than in the winter Southern Hemisphere [Kunduri et al., 2012], but these results are in slight disagreement with another interhemispheric study [Parkinson et al., 2005], who showed that summer Southern Hemisphere velocities are slightly higher than in the winter Northern Hemisphere. Yet complementary study on statistics of the seasonal dependence has not been made very much. To the best of our knowledge, the present study is the first comprehensive statistical study focusing on the seasonal dependence of SAPS using the mid-latitude SuperDARN radars. Our results show the clear seasonal dependence of SAPS; SAPS occur over a larger MLT extent in winter months than other months and rarely occur at lower latitude in summer months. In addition, the SAPS speed distribution obtained by the present study is consistent with those of Koustov et al. [2006] and Kunduri et al. [2012].