

Characteristics of dynamics of fast westward flows in the subauroral region during the 2018 August geomagnetic storm

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The geomagnetic storm during August 25-27, 2018, with the minimum Dst=-169 nT (tentative value) is the latest geomagnetic storm with Dst<-100 nT, and might be the last one during the present solar cycle. During the main phase of this storm the SuperDARN HOKkaido Pair of (HOP) radars, consisting of Hokkaido East and Hokkaido West radars, succeeded in registering fast westward flows at 60 to 65 geomagnetic latitude (presumably Sub-Auroral Polarization Streams, although we need to compare the location of the flows relative to particle precipitation regions) continuing for about 2 hours around 06 UT. It is also interesting to note that the fast flows contains recurrent intensification with the period of about 5 minutes; such kind of flows has been reported in the previous literature (e.g., Foster et al., 2004; Makarevich and Bristow, 2014) but the present event was observed obviously at earlier local times than the previous cases. The detailed characteristics of these flows, in comparison with other events, and their possible generation mechanisms, will be presented.

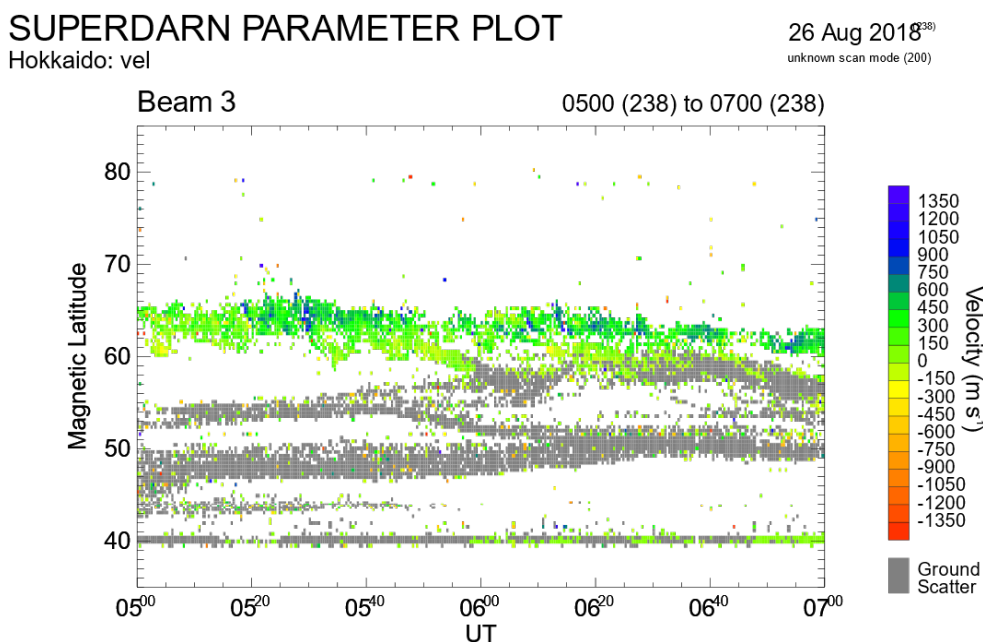


Figure 1. Range-Time-Intensity plot of the Doppler velocity observed by beam 3 of the SuperDARN Hokkaido East radar.

References

Foster, J.C., P.J. Erickson, F.D. Lind, and W. Rideout (2004) Millstone Hill coherent-scatter radar observations of electric field variability in the sub-auroral polarization stream, *Geophys. Res. Lett.*, 31, L21803, doi:10.1029/2004GL021271.

Makarevich, R.A., and W.A. Bristow (2014) Fine structure of subauroral electric field and electron content, *J. Geophys. Res. Space Phys.*, 119, 3789–3802, doi:10.1002/2014JA019821.