

Poleward-Moving HF Radar Flow Bursts in the Cusp: Transient Changes in Flow Speed or Direction?

Gareth Chisham, Mike Pinnock, and Alan S Rodger
British Antarctic Survey, High Cross, Madingley Road,
Cambridge, CB3 0ET, U.K.

G.Chisham@bas.ac.uk; M.Pinnock@bas.ac.uk; A.S.Rodger@bas.ac.uk

Abstract

Poleward-moving line-of-sight velocity "flow bursts" have been observed in the cusp by two southern hemisphere SuperDARN HF radars with overlapping fields-of-view. This has allowed the estimation of unambiguous two-dimensional velocity vectors in the vicinity of the "flow bursts". Rather than showing enhancements in the flow magnitude, the velocity vectors suggest that the line-of-sight velocity enhancements are a result of a change in the direction of the flow associated with latitudinal motion of the convection reversal boundary. These observations may have important implications for understanding the ionospheric footprint of flux transfer events, and also illustrate that caution is needed when interpreting line-of-sight velocity data from single radars.

Paper Details

The bulk of this presentation has already been published in *Geophysical Research Letters*, Vol 27, No.7, Pages 919-922, April 1, 2000. However, this paper does not contain the following schematic representation of a possible interpretation of the results.

Possible Interpretation of Results

- Imaging the poleward motion of the cusp field-aligned current system associated with a flux transfer event.
- This motion corresponds to that of the poleward-moving transients seen in cusp aurora.

 Downward FAC
 Upward FAC

