

## **On the spectral width of HF echoes from high latitudes**

**P. V. Ponomarenko and C. L. Waters**

*School of Mathematical and Physical Sciences, University of Newcastle  
Callaghan, 2308, NSW, Australia,*

*E-mail: [phpp@alinga.newcastle.edu.au](mailto:phpp@alinga.newcastle.edu.au)*

The sharp latitudinal gradient in spectral width from the Super Dual Auroral Radar Network (SuperDARN) has been used to identify the ionosphere footprints of various magnetosphere boundaries. The large spectral width values above 200 m/s observed poleward from the boundary still lack comprehensive physical interpretation. In this work we applied multi-frequency sounding of the ionosphere in an attempt to clarify the dependence of spectral width magnitude on the scale size of the ionospheric irregularities. The observed spectral width values decrease with transmitter frequency contrary to theoretical predictions. A possible explanation may be connected with the effect of electron precipitations on the generation and/or lifetime of the irregularities.