



SuperDARN measurements of convection during intervals of high density at geosynchronous orbit

M. Lester (1), S. Imber (1), S.E. Milan (1) and M. Denton (2)

(1) University of Leicester, Leicester, UK

(2) Lancaster University, Lancaster, UK

In a recent piece of work Borovsky and Denton (2006) proposed that intervals of high density measured at geosynchronous orbit result in lower levels of convection as measured by the AE magnetic indices. They argue that the density measurements indicate plumes of cold plasma escaping from the plasmasphere towards the magnetopause and result in the reduction in the reconnection rate at the magnetopause. In this paper we test this hypothesis more directly by using direct measurements of the ionospheric convection by SuperDARN during the intervals of high plasma density measured at geosynchronous orbit and comparing them with measurements during more standard conditions. Ionospheric convection on the dayside is a direct indicator of reconnection rates at the dayside magnetopause. A five year interval has been selected during which the most extensive SuperDARN coverage in the northern hemisphere is available and only intervals when there is high coverage of observations in the in the 09 – 15 MLT window. Measurements of the cross polar cap potential are made using these intervals and comparisons will be presented between the two sets of plasma conditions at geosynchronous orbit.