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Multi SuperDARN radar observations of an interval of Poleward Moving Radar Auroral Forms: Implications for pulsed magnetic reconnection

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Poleward Moving Radar Auroral Forms (PMRAFs) have been identified as the signature in Super Dual Auroral Radar Network (SuperDARN) of flux transfer events. As such they are particularly important in understanding the time dependence of reconnection at the dayside magnetopause. Few intervals where more than one radar observe these events have been published, however. The interval on 1 October 2002 is unusual in at least three respects: one is that at least 3 of the southern hemisphere SuperDARN radars simultaneously observe the events, a second is that there are observations in both hemispheres of these events, and the other is that the interval is unusually long over which these events are observed, over 4 hours. In this paper we report the observations of these events. Further, by comparison with the overall SuperDARN estimates of the ionospheric convection and the motion of the polar cap boundary from global auroral images, we estimate the contribution to the total transpolar voltage each individual PMRAF event.