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Particle precipitation related to Pc2 pulsations: A case study

T.A. Yahnina (1), A.G. Yahnin (1), T. Bosinger (2), A.N. Voronin (1)

(1) Polar Geophysical Institute, Apatity, Russia, (2) Department of Physical Sciences, University of Oulu, Oulu, Finland (yahnina@pgi.kolasc.net.ru)

Localized energetic proton precipitation well inside the region of anisotropic fluxes has been recently found to be closely related to Pc1 pulsations. However, another type of proton precipitation adjacent to the isotropy boundary from equatorial side and, correspondingly, referring to at higher latitudes than those of the localized proton bursts, can also be considered as a signature of the EMIC wave activity, especially in the lower frequency range. During the isolated Pc2 event (f=0.1-0.2 Hz) occurred around 14 UT on 22 April 2005 both of the above types of the proton precipitation were observed by several NOAA POES satellites. To distinguish, which of the precipitation patterns is actually related to the Pc2 event, the data from the Finnish meridional network of search-coil magnetometers were used. It has been found that the amplitude of the Pc2 signal on the ground has its maximum at the latitude of the localized proton burst. This confirms that the proton bursts within the anisotropic flux region are also related to the low frequency extension of the EMIC waves observed on the ground.