

## CONJUGANCY OF THE HIGH LATITUDE >30 KEV PROTON PRECIPITATION AND THEIR RELATION TO THE POLAR CAP AURORAL ARCS

A.G. Yahnin, I.V. Despirak, T.V. Miroshnikova (*Polar geophysical Institute, Apatity, Murmansk region, 184200, Russia*)

V.A.Sergeev (*Institute of Physics, University of St.-Petersburg, St.-Petersburg, Russia*)

On August, 1979 the antarctic station Vostok ( $\Phi = -84^\circ$ ) provided the observations of the auroral sun-aligned arcs in the central polar cap latitudes ( $\Phi > 80^\circ$ ) during about 40 hours. Several tens of orbits of the TIROS/NOAA satellites crossing those latitudes at the time of the aurora observations were available for the analysis of the particle precipitation. It has been found that in about 70 percents of the southern polar cap crossings the auroras were embedded into the wide region of the >30 keV proton precipitation. At the same time the northern crossings showed the same percentage in the energetic protons occurrence. Moreover, during the aurora observations just every event of the energetic proton registration over southern (northern) polar cap corresponded to the similar event in the opposite hemisphere during the preceding or sequent pass.

In addition, the dependence of the energetic proton precipitation at latitudes  $> 80^\circ$  on the Interplanetary Magnetic Field has been considered independently on whether the auroras were observed or not. It has been found that there was no difference in the proton precipitation occurrence depending on the IMF between northern and southern polar caps.

These findings and the detailed analysis of particular events allowed us to conclude that the considered proton precipitation were conjugated and originated from the plasma sheet as well as the related polar cap auroral arcs.

This study has been supported by the Russian Basic Research Foundation (grant 94-05-16637).