

SPATIAL DISTRIBUTION OF THE AURORAL PRECIPITATIONS ZONES DEPENDING ON DIFFERENT SOLAR WIND STREAMS

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The dynamics of the spatial distribution of the different auroral precipitations zones during different solar wind streams was studied by DMSP satellites data. The examination was implemented depending on the geomagnetic disturbance level, expressed by the AL- and Dst indices. Three precipitation zones were determined: 1) DAZ zone, coinciding with the diffuse auroral glow zone; 2) AOP zone, coinciding with the statical discrete auroral forms oval; 3) the band of soft diffuse precipitations SDP, enveloping the poleward boundary of the AOP zone.

The solar wind streams (recurrent streams from coronal holes and magnetic clouds) were defined by Wind satellite data. The spatial localization of auroral precipitation zones was obtained during two recurrent streams, observed in January and February 1997, and during two magnetic clouds, observed 10 January 1997 and 15 July 2000. The last case was connected to the development of a strong geomagnetic storm excited by the magnetic cloud with extremely high values of the solar wind parameters ($V_x \sim 1200$ km/s, $B_z \sim -60$ nT). The different precipitation structure during the specified events was discussed.

auroral precipitation zones, recurrent solar wind streams, magnetic clouds

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