

The comparative analysis of 2.05.1998 and 14.07.2000 GLEs on data of closely spaced neutron monitor stations in Apatity and Oulu

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Last two GLEs (Ground Level Enhancements) of 23 cycle of solar activity: 2.05.1998 and 14.07.2000 observed by the neutron monitors in Apatity and Oulu have been analyzed along with the worldwide neutron monitor data and the asymptotic acceptance cones of these stations calculated with a help of the Tsyganenko 89 magnetospheric model.

Both considered events have taken place on the disturbed interplanetary and geomagnetic background. In both cases the beginning of event was preceded by Forbush effect in galactic cosmic rays. Last circumstance can explain possible loopelike IMF structure and connected with it a bidirectional anisotropy of relativistic solar protons in interplanetary space.

Attention is paid to rather unusual distinction in effect of increase at stations Apatity and Oulu which was observed during an initial phase of events 2.05.1998 and 14.07.2000. And the station, on which was registered the increased intensity: Oulu in event 2.05.1998 and Apatity in event 14.07.2000 was in the so called 14 MLT region (14-16 hours MLT) where the maximum of a dayside auroral intensity occurs. It is hypothesized, that in the given sector of the midday magnetosphere there is an anomaly in its structure, facilitating penetration to the Earth of cosmic ray protons from the dayside magnetopause.