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COMPARATIVE STUDY OF THE PHASE OF DIURNAL ANISOTROPY ON QUIET AND DISTURBED DAYS ON A LONG TERM BASIS UPTO RECENT PERIOD

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ABSTRACT

The data from the world-wide grid of neutron monitoring stations have been analysed for a comparative study of the phase of diurnal anisotropy on quiet and disturbed days on a long term basis upto recent period. It has been observed that the phase of the diurnal anisotropy on disturbed days where the value of the Ap-index is higher, is found to shift towards earlier hours in comparison to the phase of the diurnal anisotropy on quiet days where the value of Ap-index is lower on all the stations from 1965 to 71. Such a trend is not observable for the later period. This affect is found to be more pronounced on equatorial stations, in particular, in comparison to high latitude stations. It has been derived from these observational facts that the relationship between Ap-index and the phase of the diurnal anisotropy is not invariant throughout the period of consideration. Furthermore, the exact cause of such a drastic change is not known, but it demonstrates very clearly that the interplanetary conditions which are responsible for both, diurnal anisotropy of cosmic ray intensity and the geomagnetic Ap-index variation, have drastically changed during the period 1971 and onwards.

Key words: Ap-index, latitude, phase

☐ Theoretical ☐ Observational ☒ Both

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