



Contribution ID: 895

The Astroparticle Physics Conference 34th International Cosmic Ray Conference July 30 - August 6, 2015 The Hague, The Netherlands

Type: Poster contribution

Interplanetary shock manifestation in cosmic rays and geomagnetic field

Saturday 1 August 2015 15:30 (1 hour)

The analysis of groundbased measurements of cosmic ray intensity and geomagnetic field during the 96 interplanetary shocks passing by Earth was fulfilled. It was shown that most part of the shocks (49 of 96) were accompanied by simultaneous effects –decreases in the cosmic ray intensity and geomagnetic field. But there was no amplitude accordance: more part of the strong and moderate geomagnetic storms with amplitude more then 60 nT (44 from 60) did not observed together with the cosmic ray intensity decreases or these effects were very week. Nearly a half of the shocks (40 of 96) had effects only in cosmic ray or in geomagnetic field, and 7 shocks had no any ground effects. The difference of our approach consists that our purpose is to clarify the role of the geometrical factor of moving solar wind structure intersections respect to the Earth by the ratio of their geoeffective manifestations in the geomagnetic field and in the cosmic rays. Thus were obtained new data confirming our preliminary conclusions that the region responsible for the generation of geomagnetic storms and cosmic ray Forbush decreases of are spatially separated in the interplanetary disturbances.

Collaboration

- not specified -

Registration number following "ICRC2015-I/"

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Session Classification: Poster 2 SH

Track Classification: SH-EX