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CORONAS-F measurements of high-energy solar proton spectra

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Abstract content

Fluxes of protons at the energies 0.8 - 4 GeV accelerated during solar flares of October-November 2003 were detected onboard the CORONAS-F satellite (polar circular orbit with an altitude ˜450 km). The SONG instrument had sufficient geometric factor (˜1500 cm2•sr) to detect directly solar protons as a count rate exceeding above a background level when the satellite crossed a wide range of geomagnetic rigidities. We measured solar proton spectrum dynamics on 28 October as well as proton fluxes on 29 October and on 2 November using the geomagnetic cut-off. Cut-off rigidities were calculated in geomagnetic field described by IGRF and Tsyganenko models, the Boberg extension was included for the October 29 event. Measured spectra are in a good agreement with ones calculated from neutron monitor network data. Beside SEP we observed variations of GCR fluxes due to the Forbush effect produced by the shock wave passed the Earth on October 29.

If this papers is presented for a collaboration, please specify the collaboration

Summary

Reference

Proceedings of the 30th International Cosmic Ray Conference; Rogelio Caballero, Juan Carlos D'Olivo, Gustavo Medina-Tanco, Lukas Nellen, Federico A. Sánchez, José F. Valdés-Galicia (eds.); Universidad Nacional Autónoma de México, Mexico City, Mexico, 2008; Vol. 1 (SH), pages 71-74

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