

New insights from cross-correlation studies between solar activity indices and cosmic-ray fluxes during Forbush decreases

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Observed galactic cosmic rays intensity can be subjected to transient decrease, called Forbush decreases, which can be driven by solar activity and shockwaves in Heliosphere with solar origin, in terms of flares and coronal mass ejections (Miteva et al., 2018 [1]). By combining in-situ measurements, using space borne instruments, of solar energetic particles with ground-based observations we investigate the relationship between solar activity indices, as well as event-integrated spectra of solar energetic particles (Belov et al, 2021 [2]) with intensity measurements of cosmic rays during these strong transient decreases. We present cross-correlation studies (Veselinović et al, 2021 [3]) using data from the SOHO/ERNE measurements at 19 energy thresholds between 1.6 and 90 MeV/n, neutron monitors and solar observatories collected during strongest Forbush decreases over last two solar cycles.

References

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