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Interaction of GeV Protons with Circumsolar Dust Grains

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Abstract content

A population of dust grains produced by asteroids and comets is continually orbiting the Sun to within several Rsun. The grains scatter sunlight and make up the solar F corona, which shows only slow variations with time. Grain dynamics are due primarily to interactions with solar photons and the solar wind, but they are also bombarded by the E > 1 MeV energetic particles propagating antisunward after acceleration in CME-driven shocks during SEP events. We consider the effects of the interaction of high energy protons on dust grains during such events. To calculate the maximum expected effects, we calculate the proton energy spectrum of the 20 January 2005 ground level event (GLE) and consider the gamma ray fluxes produced in such an event. The size distribution of the grains in the circumsolar environment is poorly known, so we use several popular models in our calculations.

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 225-228

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