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The Response of IMP-8 Penetrating Proton Channel to Cosmic Ray Modulation

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Abstract content

At the 29th ICRC, Pune, India, a new methodology was presented for investigating the rigidity dependence of galactic cosmic ray (GCR) modulation on all time scales. The methodology uses the median rigidity of response (Rm) of cosmic ray detectors deployed at global sites. We define Rm as the GCR rigidity below which lies 50 % of the detector counting rate. It is computed from the latitude survey carried out at sea level and higher altitudes. We pointed out that the values of Rm for neutron monitors of the global network reported in the literature are underestimates. We presented a list of Rm values computed by us for neutron monitors at the different sites. Since then we have discovered that the mean energies of response for IMP-8 penetrating proton channel reported in the literature are also underestimates. We present our computations of the mean energies of response for the IMP-8 Cosmic Ray Nuclear Composition instrument to galactic cosmic ray protons for 1973 - 1998 period, encompassing two solar cycles (21 and 22). We find that the mean energy of response of penetrating proton channel changes by a factor of two over this period whereas the corresponding change for Climax neutron monitor is only 21 %.

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 331-334

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