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Identification of solar cosmic ray ground level enhancements at the middle latitudes.

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Abstract content

This work is directed toward the experimental and theoretical investigation of the ground level solar cosmic ray enhancements (GLE). Relativistic protons (>1 GeV) are generated in powerful flares more often than they are observed at the Earth. Especially it concerns to observation at the middle latitudes. Although recorded magnitudes of ground level enhancements are usually very small at these geomagnetic latitudes the high statistical accuracy of the 18- tube NM-64 Alma-Ata neutron monitor, located at 3340 m altitude, make possible detection of these events at this point. Except for it the possible solar proton contribution into general flux of galactic cosmic rays registered by means of Alma-Ata high altitude neutron monitor has been investigated in those events when difficultly visually to notice GLE events. GLE were investigated using Student's criterion. Some last GLE on November 1997, on August 1998 and December 2006 were analyzed. It is shown that using of Student's criterion allows to reveal effectively GLE at the middle latitudes and to defined upper limit energy spectra of particles.

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 245-248

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