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The Study on the correlation between Solar wind velocity and Cosmic rays flux

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Abstract content

GRAPES-3 experiment is situated at Ooty in South India 76.7 East 11.4 North. Effective observation area of our muon telescopes is 560 m^2. They are the largest detector in the world of its kind. There were several reports that increase of the solar wind velocity suppresses the intensity of cosmic rays. But there are few which studied qualitatively. We have analyzed the variation of daily mean of counting rate of low energy muons >~1GeV along with Solar wind velocity. Our muon telescope data are used together with Kiels'neutron monitor for 2000 to 2005. These 6 years correspond to solar maximum to minimum. Period for Forbush decrease has been removed from analysis to avoid unusual response of muons rate during those periods. In case of muons their intensity decreases with Solar wind velocity -0.0013% per km/s with relative coefficient of 0.97. For Neutron Monitor it is -0.0032% per km/s with relative coefficient 0.96. These results suggest there is clear correlation between Solar wind and the intensity of cosmic rays. Significant change in their slope were seen between first 3 years data and latter 3yeras one. We describe about them in detail in the report.

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 557-560

Primary author(s) : Prof. KOJIMA, Hiroshi (Nagoya Women's University)

Co-author(s) : HAYASHI, Y (Graduate School of Science, Osaka City University); OSHIMA, A (Graduate School of Science, Osaka City University); SHIMIZU, N (Graduate School of Science, Osaka City University); GUPTA, S.K (Tata Institute of Fundamental Research); IYER, A (Tata Institute of Fundamental Research); JAGADEESAN, P (Tata Institute of Fundamental Research); JAIN, A (Tata Institute of Fundamental Research); KARTHIKEYAN, S (Tata Institute of Fundamental Research); MOHANTY, P.K (Tata Institute of Fundamental Research); MORRIS, S.D (Tata Institute of Fundamental Research); NAYAK, P.K (Tata Institute of Fundamental Research); HAYASHI, K (Graduate School of

Science, Osaka City University); RAO, B.S (Tata Institute of Fundamental Research); RAVINDRAN, K.C (Tata Institute of Fundamental Research); SIVAPRASAD, K (Tata Institute of Fundamental Research); TANAKA, H (Tata Institute of Fundamental Research); TONWAR, S.C (Tata Institute of Fundamental Research); SHIBATA, S (Engineering Science Lab., Chubu Univ); MORISHITA, I (Department of Information Management, Asahi University); ITO, N (Graduate School of Science, Osaka City University); KAWAKAMI, S (Graduate School of Science, Osaka City University); MATSUYAMA, T (Graduate School of Science, Osaka City University); MINAMINO, M (Graduate School of Science, Osaka City University); NONAKA, T (Graduate School of Science, Osaka City University); OKUDA, T (Graduate School of Science, Osaka City University); OGIO, S (Graduate School of Science, Osaka City University)

Presenter(s) : NONAKA, T (Graduate School of Science, Osaka City University)

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