30th International Cosmic Ray Conference

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Application of the NM-BANGLE model to GLE70 study

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Abstract content

A new significant ground level enhancement was recorded by the worldwide neutron monitor network during the minimum phase of the 23rd solar cycle, on 13 December, 2006. The event, also known as GLE70, started at ˜ 2:48 UT, whereas the neutron monitor flux in most stations reached its maximum in ˜3:00-3:10 UT. In northern Europe the event was registered with big amplitudes that in some cases reached ˜ 70-90%, rendering this recent enhancement in one of the greatest GLEs of the 23rd solar cycle. The low latitude neutron monitor station in Athens seems to have recorded some enhancement during the time period of the event providing possible evidence of the existence of high energy solar particles. In this work some preliminary results of a ground level neutron monitor data analysis for the event of 13 December, 2006, are presented. The application of the NM-BANGLE model to GLE 70, using data from thirty four neutron monitor stations widely distributed around the globe, resulted in the determination of some GLE-parameters such as the rigidity spectrum and the location of the anisotropy source during different moments of the event. The morphology of this event seems to have similarities with that of GLE69 in January 2005. It seems that during the initial phase of the event the solar cosmic ray rigidity spectrum was quite hard whereas later its evolution was rather complicated. Moreover the very first energetic particles seem to have arrived in a narrow beam.

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 281-284

Primary author(s) : Dr. EROSHENKO, Eugenia (Cosmic Ray Department, IZMIRAN)

Co-author(s) : Dr. PLAINAKI, Christina (Nuclear and Particle Physics Section, Physics Department, Athens University Pan/polis15771 Athens, GR); Prof. MAVROMICHALAKI, Helen (Nuclear and Particle Physics Section, Physics Department, Athens University Pan/polis15771 Athens, GR); Dr. BELOV, Anatoly (IZMIRAN); Dr. YANKE, Victor (IZMIRAN)

Presenter(s) : Dr. EROSHENKO, Eugenia (Cosmic Ray Department, IZMIRAN)

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