



The recent ground level enhancement of solar cosmic rays in January 2005

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Despite the fact that the current solar cycle is very close to its minimum, a burst of solar activity took place recently in January 2005. Giant sunspot 720 unleashed a series of X-class solar flares starting from January, 15. After a powerful X7-class solar flare on the 20th of January the network of cosmic ray neutron monitors recorded a ground level enhancement (GLE 68) that in some stations reached almost 100% (e.g. South Pole, Apatity). This enhancement occurred during the recovery phase of a series of Forbush effects having started on January, 15 and seems to be the greatest GLE of the current solar cycle. Geomagnetic activity was moderate during the time span of the event ($\sim D_{st} = -58\text{nT}$). Therefore, the possibility of a magnetospheric effect on the 20th of January is absent. In this work the results of a joint analysis of data from ground level stations (neutron monitors) and satellite measurements is presented. The amplitude and the anisotropy of the event are calculated, as well as the energy of the fasted particles arriving at the Earth. Finally, a comparison between this great event and the ground level enhancements of 2003 (GLE 65, GLE 66, GLE 67) is made.