



## **A preliminary study of the solar cosmic ray enhancement of 13 December, 2006**

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During the descending phase of the 23<sup>rd</sup> solar cycle and almost onto its minimum, a new significant solar energetic particle event was recorded by the ground level neutron monitor network. This recent ground level enhancement of solar cosmic rays (GLE 70) occurred on 13 December, 2006 during a magnetically disturbed period manifested by a series of Forbush decreases of the cosmic ray intensity at neutron monitors, starting from 6 of December, 2006. Already from the second half of day 5 December 2006, Kp index had begun to rise up reaching values >4 on 6 December, 2006 at the time interval 9:00-12:00 UT denoting a severe magnetic storm. In Athens Neutron Monitor station the amplitude of the Forbush decrease was ~ 6 % reached on 15 December, 2006. In the same period a series of significant X-ray flares occurred starting from the second half of day 5 December 2006. The flare X3.4/4B in the AR 10930 resulted in a big proton flux increase in the vicinity of the Earth reaching the value of ~ 80 pfu in the energy range above 100MeV/particle on the basis of GOES-11 satellite records. The worldwide network of neutron monitors recorded GLE 70 on 13 December, 2006 starting from ~ 2:48 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 23<sup>rd</sup> solar cycle. 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 resulted in a preliminary determination of some GLE-parameters such as the rigidity spectrum and the location of the anisotropy source during different moments of the event.