



Study of the January 2005 Forbush Decreases

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The declining phase of the 23rd solar cycle has been characterized by unusually intense periods of solar activity. Such a burst of solar activity was observed in January 2005. From 15-20 January 2005, Active Region 10720, as it rotated across the solar disk, produced numerous M and X-class solar X-ray flares, some of them associated with very fast halo CMEs, culminating with an X7.1/2B flare on January 20, located at W58, the most intense flare of this period associated with one of the largest Ground Level Enhancement (GLE) of solar cosmic rays. In this work we focus on the investigation of the characteristics of the intense Forbush effects observed by the neutron monitor network on the Earth in the context of the different manifestations of solar activity. In particular, the 21 January Forbush decrease exhibits unique characteristics. It has a common solar source with one of the biggest GLEs ever observed, it has the biggest magnitude of a Forbush decrease originating from a western solar source event and strong anisotropies with unusual behaviour.