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Forbush Decreases: The View From Space

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Short term (<˜1 week duration) decreases, typically of a few percent, in the intensity of galactic cosmic rays (GCRs) were first observed by Forbush (1937) and Hess and Demmelmair (1937) using ionization chambers. They were later shown, using neutron monitors, to originate in the interplanetary medium (Simpson, 1954) and to be of two types: "Recurrent", which recur with the solar rotation period and are associated with corotating high-speed streams, and "nonrecurrent", caused by the passage of transient solar wind structures associated with coronal mass ejections at the Sun. Events in the latter class are generally termed "Forbush decreases", although this term has also been used to include recurrent depressions. A focus of this presentation will be observations of Forbush decreases made by spacecraft, which do not suffer from the diurnal intensity variations present in neutron monitor observations on the ground, and can be related directly to solar wind structures passing the observing spacecraft.

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