

## A loss-cone precursor of the Forbush Decrease on June 7, 2014 observed with the Global Muon Detector Network (GMDN)

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The Global Muon Detector Network (GMDN) consisting of four multi-directional muon detectors recorded a Forbush decrease (FD) of 60 GeV galactic cosmic ray (GCR) density with an amplitude about 1.5% following the interplanetary shock arrived at the Earth on June 7, 2014. During this FD, the solar wind speed increased to over 600 km/s and the geomagnetic storm was recorded with a peak Kp index of 6+. We analyze the loss-cone (LC) precursor of this FD event using the "two-dimensional map" of the GCR intensity which is produced after removing the contribution from the diurnal anisotropy. We find the LC anisotropy being successively observed with multiple detectors in the network according to the Earth's spin and confirm the precursor continuously existing in space from more than a day prior to the storm sudden commencement (SSC) onset. In this presentation, we discuss the physical origin of the characteristic GCR anisotropies including the LC anisotropy accompanied by the interplanetary shocks.