R010-26
C 会場 ：11/5　AM2 （10:45-12:30）
12:05〜12:20

#宗像　一起 [1)], 小財　正義 [2)], 加藤　千尋 [1)], 片岡　龍峰 [3)], 門倉　昭 [2,3)]
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Bidirectional cosmic-ray anisotropy observed with world-wide networks of neutron monitors and muon detectors in November, 2021

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We analyze the cosmic-ray variations during a significant Forbush decrease observed with world-wide networks of ground-based neutron monitors and muon detectors during November 3-6, 2021. Utilizing the difference between primary cosmic-ray rigidities monitored by neutron monitors and muon detectors, we deduce the rigidity spectra of the cosmic-ray density (or omnidirectional intensity) and the first- and second-order anisotropies separately, each as a function of time. A clear two-step decreases is seen in the cosmic-ray density with the first 2 % decrease after the interplanetary shock arrival followed by the second another 5 % decrease inside the magnetic flux rope (MFR) at 15 GV. Most strikingly, a large bidirectional streaming along the magnetic field is observed in the MFR with a peak amplitude of 5 % which is comparable to the total density decrease inside the MFR. The peak anisotropy and density depression in the flux rope are both consistent with the rigidity spectrum inversely proportional to the rigidity, which is expected from the betatron deceleration selectively working on non-zero pitch angle particles. The spectra outside the MFR varies dynamically indicating that the temporal variations of density and anisotropy look different in neutron monitor and muon detector data. This is the first attempt to quantitatively deduce the rigidity spectra by analyzing the neutron monitor and muon detector data together.