

Cosmic Ray Intensity Increase Associated with Slow Coronal Mass Ejection

*Wataru Kihara¹, Chihiro Kato¹, Kazuoki Munakata¹, Yukino Ko¹, Ryuho Kataoka², Akira Kadokura², the GMDN collaborations -

1. Department of Physics, Shinshu University, 2. National Institute of Polar Research

Shinshu University installed a cosmic ray detectors at Syowa Station in the Antarctic, in cooperation with the National Institute of Polar Research, and started muon and neutron observations at the same point in February 2018. As a result we observed cosmic ray fluctuations due to coronal mass ejection on 2018 August 25. This event caused a large geomagnetic storm with a Dst index of -174nT despite of a minor coronal mass ejection that occurred during the solar minimum. Furthermore, satellite observations showed that the coronal mass ejection was slow and the high-speed solar wind from the corona hole was catching up. From these perspectives, this event is a very interesting. In this study, we analyzed this coronal mass ejection event by using the global muon detector network and neutron monitors installed around the world and Syowa Station in the Antarctic. As a result, it was found that the cosmic ray density increased in the latter half of the period when this coronal mass ejection event was observed. We discuss the cause of the increase in cosmic ray intensity.

Keywords: Space Weather, Coronal Mass Ejection, Cosmic Ray