

# Simultaneous observation of cosmic rays with muon detector and neutron monitor at the Syowa station in the Antarctic

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Since February 2018, simultaneous observation of cosmic ray (CR) muon and neutron is continued. The operation is quite stable and its duty cycle is higher than 94%. These detectors are showing their usefulness by responding to, for example, a peculiar CME event in August 2018. There is another interesting event in September 2019. A Sudden Stratospheric Warming (SSW) was observed and muon counts responded to the SSW. This response is caused by that muon counts on the ground are affected by high altitude temperature. Temperature effect on CR muon now can be corrected with high altitude temperature data. There is, however, some matter of research about how the method works. This event seems to be valuable to improve correction method. We describe a character of muon and neutron data accumulated during the last three years and discuss potential use in studying atmospheric effect on CR muon and neutron count rates.

## Keywords

cosmic ray;atmospheric effect;

## Collaboration

## other Collaboration

## Subcategory

Experimental Methods & Instrumentation

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