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Solar Neutron Events recorded by Mt. Norikura Observatory during 2024

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The solar activity in the 25th solar cycle is now approaching its peak, with X-class flares frequently observed on the solar surface. As a result, high-energy ions are arriving on multiple stations. This paper, we report the neutron-associated events recorded at Norikura Observatory (2,700m). These events occurred on 8 (X1, twice), May 11 (X5.8), and October 24 (X3.1) of 2024. Additionally, a Solar Neutron Decay Proton event（SNDP) also recorded by monitors on May 11. Please note that a 1 m² area of scintillator, with a thickness of 50 cm, and a 12NM64 neutron monitor are currently in operation.

The two detectors used for the observation. *Left side* shows the 1m^2 50cm thiclk plastsic scintillator, while the *lright* picture shows the traditional neutron monitor 12NM64. They were operated by solar power during winter and spring.

The status of record of solar neutrons by the two detectors located at Mt. Norikura.

Event number #	Day 2024	JST	UT	GOES intensity	FERMI GRB	Significance excess
#1	May 8th	10:35	01:35	X1.0	○ received	12.8σ
#2	May 8th	13:22	04:22	X1.0	○ received	4.2σ
#3	May 11th	10:03	01:33	X5.8	○ received	17.7σ
#4	Oct. 24th	12:37	03:57	X3.1	○ received	6.7σ, 6.0σ