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# Temperature Effects on 10BF3 and 3He Neutron Monitor Counter Tubes at 16.8 GV Cutoff Rigidity

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Abstract
A neutron monitor aims to determine the time-dependent flux of cosmic rays impinging on the atmosphere with high precision. This requires a precise understanding of atmospheric or environmental effects on the count rate. We have analyzed data from the Princess Sirindhorn Neutron Monitor (PSNM) at Doi Inthanon, Thailand, an 18-NM-64 monitor that uses 10BF3 neutron counter tubes and has the world's highest vertical geomagnetic cutoff rigidity (16.8 GV) among fixed neutron monitor stations. At this location, a calibration monitor has also been operated, which consists of a 3He neutron counter tube surrounded by lead and polyethylene and has an energy response similar to the NM-64 configuration. We investigate the temperature correction needed for the two types of neutron counter tubes and compare the results with those obtained at lower cutoff rigidities, i.e., for less energetic primary cosmic rays. Partially supported by the Rachadapisek Sompoj Fund of Chulalongkorn University, the Thailand Research Fund, and the South African National Research Foundation.

Key words: cosmic rays, neutron monitors, temperature corrections.