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[Abstract]

Temperature correction of neutron monitor count rates

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Abstract: The worldwide neutron monitor network is engaged in studies of cosmic ray variations caused by interplanetary and geomagnetic conditions.

A proper understanding of variations of atmospheric origin is an important component of these studies. While the correction of neutron monitor count rates for atmospheric pressure changes is routinely performed today, most neutron monitors do not perform temperature correction at all. In this paper, we introduced a completely empirical correction method, based on Principal Component Analysis (PCA), utilizing available temperature data from the GDAS database.

Keywords: Cosmic rays, Neutron monitors, Atmospheric effects, Principal component analysis