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Environmental Correction of Neutron Monitor Leader Fractions

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Cosmic rays are high energy particles from space that we can measure by ground-based detectors, including neutron monitors. The leader fraction represents the fraction of the neutron count rate that is not associated with a previous neutron count in the same tube from the same nuclear interaction. The leader fraction includes new and exciting information about the cosmic ray energy distribution. However, environmental factors including atmospheric pressure and water vapor also affect the leader fraction. We have developed methods to correct the leader fraction to remove these environmental effects. Partially supported by Grant RTA5980003 from the Thailand Research Fund.

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