Long-term variation of galactic cosmic ray intensity observed with the Nagoya multidirectional muon detector

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We have recently developed the method of the correction of the atmospheric temperature effect on muon count rate by using the GMDN (Global Muon Detector Network) data (Mendonça et al., *Astrophys. J.*, **830**:88, 2016). This is a significant step, because it makes possible for the first time the analysis of the long-term variation of ~50 GeV cosmic ray density (i.e. isotropic intensity) which has been possible only for cosmic ray below ~10 GeV using the neutron monitor data nearly free from the temperature effect. In this report, we analyze the 11-year and 22-year variations of cosmic ray density observed with Nagoya muon detector during a period since 1970 which covers four solar activity cycles and discuss the energy dependence of variations by comparing the observation with the neutron monitor.

References

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