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Study of Cosmic Ray Muon Flux Variation with Atmospheric Weather XIAOHANG ZHANG, MATHES DAYANANDA, XIAOCHUN HE, Georgia State University — Global climate change, driven by a variety of natural factors both on the planet and from outer space, has been a constant throughout the history of the earth. The variability of and interactions among these factors have been researched for decades. The relationships between cosmic ray radiation and other climate factors have been studied by many researchers, such as atmospheric pressure and temperature [1], low cloud coverage [2], and ozone depletion [3], etc. Over the past several years, various cosmic ray telescopes were built and have been measuring long-term cosmic ray muon flux at different spots in Georgia State University (GSU), A series of correlations between cosmic ray muon flux and local atmospheric weather have been being studied. The preliminary results from our recent measurement and research will be presented.

[1] Serap Tilav, et al., Atmospheric Variations as Observed by IceCude, Proceedings of the 31st ICRC, (2009).
[2] Nigel D. March and Henrik Svensmark, Low Cloud Properties Influenced by Cosmic Rays, Phys. Rev. Lett. 85, 23 (2000).
[3] Q.-B. Lu, Correlation between Cosmic Rays and Ozone Depletion, Phys. Rev. Lett. 102, 118501 (2009).

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