



Variations of intensity of cosmic ray muons due to thunderstorm electric fields

N.S. Khaerdinov and **A.S. Lidvansky**

Institute for Nuclear Research, Russian Academy of Sciences, 60th October Anniversary pr.
7a, Moscow, 119312 Russia (lidvansk@sci.lebedev.ru / Phone: 7-095-1358560)

The effect of thunderstorm electric field on the intensity of cosmic ray muons observed at the ground level is considered. Experimental data are obtained for muons with three energy thresholds for several seasons of observations in Baksan Valley (North Caucasus). It is demonstrated that both linear and quadratic effects are present in the intensity as a function of the near-earth electric field and the potential difference between the ground level and the altitudes of muon production. The resulting effect is predominantly negative (decrease of intensity) and its amplitude increases with decreasing threshold energy of muons, in accordance with the data of the Baksan experiment. Since the flux of muons is sensitive to electric fields of the atmosphere, it can be used for investigations of their vertical profile and effective altitude.