Geophysical Research Abstracts, Vol. 9, 07943, 2007
SRef-ID: 1607-7962/gra/EGU2007-A-07943

Dynamics of Cosmic Rays in Thunderstorm Atmosphere

A.S. Lidvansky and N.S. Khaerdinov

Institute for Nuclear Research, Russian Academy of Sciences, Moscow, Russia

We discuss the effects occurring at the propagation of different components of secondary cosmic rays through electric fields in the atmosphere during thunderstorm periods. Experimental data for the soft and hard components obtained in the Baksan Valley (North Caucasus) are analyzed and their interpretation is suggested. It is shown that these data cannot be interpreted without invoking a mechanism of cycling generation of elementary particles by thunderclouds. This mechanism which may play a fundamental role in the thunderstorm atmosphere dynamics is described in some detail. It can exist everywhere provided that the following factors exist simultaneously: the strong electric field, permanent flux of seed particles, and quasi-neutral strongly scattering medium.