



Classification of atmospheric discharges according to patterns of the near-surface electric field disturbances

Hripsime Mkrtchyan and Ashot Chilingarian

Yerevan Physics Institute, Cosmic Ray Division, Yerevan, Armenia (hripsime@yerphi.am)

Registration of near surface electric field associated with thunderstorms and lightning are performed 24 h daily and 12 months yearly in three different locations of the Aragats Space Environmental Center. Such measurements have been used previously to understand charge distribution in the thundercloud. “Stormy” patterns of disturbances of the near surface electric field are attributed to different types of atmospheric discharges: negative or positive, intracloud or cloud to ground.

In the presented report we discuss the patterns of the lightning occurrences as measured by the network of the electric mills located on the earth’s surface, differences of positive and negative flashes and shapes of the recovery curves using data from a stormy day on Aragats - May 23, 2015. Our observations show that after-lightning near surface electric field recovery curves besides exponential shape sometimes has a form of power law or linear dependence. Positive discharges are stronger and have shorter duration comparing with negative ones.