Geophysical Research Abstracts, Vol. 9, 05231, 2007
SRef-ID: 1607-7962/gra/EGU2007-A-05231

The relationship between cloud-to-ground lightning and flash-flood events in Romania

B. Antonescu, C. Oprea and A. Stan-Sion

National Meteorological Administration, Bucharest, Romania
(bogdan.antonescu@meteo.inmh.ro / Fax: +40-21-3163143 / Phone: +40-21-3163116)

Because flash floods develop at space and time scales that conventional observing systems are not able to monitor for rainfall, the objective of this study is to improve rainfall estimation under severe cases by using lightning data. The lightning networks coverage and the short time between observations and their availability make lightning data a useful tool for short-term forecasting of flash-flood. The relationship between cloud-to-ground lightning (CG) and rainfall was analyzed for flash-flood events in Romania for 2003-2005, using rainfall accumulation per CG lightning. This study is based on a dataset gathered using C- and S-band radars and rain gauges combined with the CG data from Romanian National Lightning Detection Network. All the flash floods analyzed are extreme events from the warm season (May–September). The temporal and spatial distribution of flash location relative to rainfall was also analyzed. The rainfall estimation results were tested for a flash-flood event occurred on 23 August 2005 in an ungauged basin.