



Electric field at mounting peak during thunderstorms and gamma ray glows

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We show an analysis of simultaneous measurement of potential gradient (PG) at rocky mountain peak (Lomnický peak, 2634 m, Slovak Republic) and on its slope (observatory of Skalnaté Pleso at the altitude of 1780 m), and measurement of secondary cosmic rays – gamma ray glows by the detector system SEVAN (Space Environmental Viewing and Analysis Network) located on Lomnický peak. Results of observations for summer seasons in 2017 and 2018 are presented. It is shown that a necessary condition for gamma ray glows to occur is a large value of PG at Lomnický peak and/or at Skalnaté Pleso. If nearby lightning occurs, gamma ray glow is terminated. It was found that there is much larger probability of gamma ray glow – enhancement of secondary cosmic rays during large negative PG rather than during large positive PG. The PG at Lomnický peak and PG at Skalnaté Pleso are not always well correlated on small time scales. Significant enhancements of gamma ray glows are usually observed when large PG is measured both at Lomnický peak and at Skalnaté Pleso. In general, better correlation between gamma ray glows and high values of PG is for Lomnický peak, however, examples when PG at Skalnaté Pleso plays an important role can also be found.