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Study of the Atmospheric Electric Field and EAS particle increase during thunderstorms with ARGO-YBJ

Abstract content

The study of the Atmospheric Electric Field (AEF) and EAS particle increase during thunderstorms is very significant to understand the effects of AEF on secondary cosmic rays detected on ground. In this paper, the short term variations of scaler mode counts are studied during thunderstorms when the AEF has violent changes. Since April 1st to August 14th, 2006, lightnings have been recorded more than 20 times in Yangbajing (P.R. China, 4300 m a.s.l.) by the ARGO-YBJ experiment. We analyzed the relationship between AEF during thunderstorms and scaler mode counts. It results that during the lightnings there are many times enhancements in counting rates of low multiplicity $n \geq 1$, and several times enhancements in counting rates of higher multiplicity $n \geq 2$, the increases being from 1% to 9%. Otherwise, no enhancements are observed for $n \geq 3$, and $n \geq 4$. These results are the basis for further physics analysis.

If this papers is presented for a collaboration, please specify the collaboration

ARGO-YBJ Collaboration

Summary

Reference

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