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Solar transient events: The connection among measures obtained at sea level and space

Abstract content

We report, a survey on transient events measured at sea level using a new technique on the basis of a muon telescope with a tracking system and working with a high counting rate (~ 100 kHz). Results during the solar events on 2005/05/13 are presented. Although we have only the data in the last 12 hours under ideal condition (telescope always oriented to the IMF lines), it is possible to see with a high confidence level the association between two solar flares (whose X-ray prompt emissions are classified by GOES satellite as C1.5 and M8.0) and sudden increases in the muon flux, as well as the beginning of a pre-Forbush increase in the muon flux due to the arrival of a big solar disturbance of MeV protons observed in the ACE spacecraft. These ground level enhancements (GLEs) suggesting that the solar energetic particles extend in energy to well above 10 GeV, because they produce muon in the Earth's atmosphere, even when the GLE is associated with solar flare of small scale.

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

Summary

Reference

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