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Cosmic Ray induced ionization in the upper, middle and lower atmosphere simulated with CORSIKA code

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Abstract content

Physical model for calculation cosmic ray induced ionization in the atmosphere is presented. The model is based on Monte Carlo simulation with CORSIKA 6.52 code using FLUKA and QGSJET hadronic interaction subroutines. On the basis of the simulation results the ion pair production in the atmosphere and the impact of the different shower components, precisely the electromagnetic, muon and hadronic is estimated. The simulations are carried out with realistic atmospheric model and following steep spectrum. The model is applicable in the entire atmosphere from the ground up to the upper atmosphere and ionosphere. A comparison with direct rocket measurements is provided. The validation of the proposed model is confirmed.

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

Summary

Reference

Proceedings of the 30th International Cosmic Ray Conference; Rogelio Caballero, Juan Carlos D'Olivo, Gustavo Medina-Tanco, Lukas Nellen, Federico A. Sánchez, José F. Valdés-Galicia (eds.); Universidad Nacional Autónoma de México, Mexico City, Mexico, 2008; Vol. 1 (SH), pages 749-752

Primary author(s) : Prof. VELINOV, Peter (Central solar terrestrial influences laboratory- BAS)

Co-author(s) : MISHEV, Alexander (INRNE-BAS)

Presenter(s) : Prof. VELINOV, Peter (Central solar terrestrial influences laboratory- BAS)

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