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Characteristics of near real-time cutoff calculations on a local and global scale

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Abstract content

A procedure was developed to compute in near real-time the effective vertical cutoff rigidities for a world grid with a mesh size of 5 x 5 degrees in geographic longitude and latitude. The evaluation is made every three hours. The cutoff rigidities are calculated by the backward trajectory tracing method, where the geomagnetic field is represented by the IGRF model for the internal sources and by the Tsyganenko 1989 model for the external part. The Kp indices derived at the U.S. Air Force Space Forecast Center are used as input parameters for the Tsyganenko model to describe the current degree of geomagnetic disturbance. In addition to the near real-time results, the procedure also allows to obtain the world grid for a specific time in the past as well as the cutoff values at a specific location during a specific time period. In the paper we investigate the possibilities and limitations of these cutoff calculations, in particular during times with a strongly disturbed geomagnetosphere.

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 769-772

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