

**LATITUDE SURVEY IN DECEMBER 1996-MARCH 1997, 1. CUT-OFF
RIGIDITIES FOR DIFFERENT AZIMUTH AND ZENITH ANGLES**

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Vertical and non vertical effective cutoff rigidities have been calculated by tracing particle trajectories through the summarized magnetic field of the International Geomagnetic Reference Field model (IGRF95, IAGA Division 5 Working Group 8, 1996) and the Tsyganenko (1989) magnetosphere model. The computation was done or every day of the Italian Antarctic expedition 1996-1997 for zenith angles 0, 15, 30, and 60 degrees, and azimuth angles from 0 to 360 degrees with 45 degrees step for geographic points corresponding to the daily average coordinates of the expedition ship. Secular variation of the main geomagnetic field was taken into account by extrapolating IGRF95 to the time of cosmic ray intensity measurements. The Tsyganenko (1989) model takes into account the contribution from the magnetosphere current systems inside the magnetosphere as well as in the magnetosphere tail and in the magnetopause. This model allows to take into consideration seasonal and diurnal changes of the magnetospheric field and also geomagnetic activity level K_p . Calculations were done for the time of measurements for a quiet geomagnetic field condition $K_p=0$. The effective cutoff rigidity is defined by taking into account penumbra and coupling functions according to Dorman et al. (1972). For every day of the expedition we evaluate the diurnal changes of vertical upper cutoff rigidities R_{uv} . The R_{uv} diurnal variation amplitudes are not more than 0.1 GV at geographical latitudes from 40 N to 40 S and 0.15 GV at latitudes (40-53) S. It was found that R_{uv} value at 12 LT is about equal to the daily average R_{uv} for every point. Taking to be so for inclined particles we calculate R_{eff} for 12 LT considering it as daily mean value.

REFERENCES

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