

COSMIC RAY SPECTRA AND INTENSITY IN MIDDLE ATMOSPHERE (CORSIMA) MODEL. USE AND APPLICATION FOR GALACTIC CR

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This investigation is based on a new model CORSIMA (COsmic Ray Spectra and Intensity in Middle Atmosphere). Numerical simulations of Galactic Cosmic Ray (GCR) spectra and intensity for the middle atmosphere and lower altitudes of the ionosphere (30-100 km) are presented. These altitudes are above the Regener-Pfotzer maximum.

The full GCR composition (protons p, alpha particles α , and heavier nuclei groups: light L, medium M, heavy H, very heavy VH) is used.

Analytical expressions for the energy interval contributions are provided. An approximation of the ionization function on six energy intervals is used and the charge decrease interval for electron capture is studied.

The development of this research is important for a better understanding of the processes and mechanisms of space weather. GCR has an impact on the ionization and electrical parameters in the atmosphere and also on the chemical processes (ozone formation and depletion in the stratosphere) in it.

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