

IONIZATION OF LOW-MID ATMOSPHERE DUE TO STRONG SOLAR PARTICLE EVENTS

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Using a new precise reconstruction of the energy spectrum of major solar energetic particle (SEP) events, based on thorough fitting of a wide set of data from ground-based and space-borne instrumentations, we quantitatively evaluate the possible effect of the SEP events on the low and middle atmosphere. The computations of the effect are based on the numerical 3D OuluCRAC:CRII model. It is shown that the direct ionization effect is negligible or even negative, due to the accompanying Forbush decreases, in all low- and mid-latitude regions. The effect is positive only in polar atmosphere, where it can be dramatic in the upper atmosphere during major SEP events.

cosmic ray induced ionization

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