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Cosmic rays and variations of aerosol optical depth

Abstract content

One of the main questions which is interested to the cosmic rays community is the possible impact of cosmic rays of solar and galactic origin on Earth's atmosphere and climate. Here we investigated one of the mechanisms that relay (solar and galactic) cosmic rays variability and optical atmospheric changes. This link seems to be of great importance for the overall solar-terrestrial relationships. Even a small deviation in the optical properties of the atmosphere can shift the balance between absorption, transparency and albedo. This gives a physically motivated scenario for an enhanced triggering effect of solar activity in the Earth atmosphere. The objective of our investigation is analysis of the effect of short- (some days) term variations of solar and galactic cosmic rays on the optical properties of aerosol and atmospheric optical depth. It is taking into account solar proton events, ground level effects of solar protons and Forbush decreases of galactic cosmic rays. The results explain how strong are the optical atmospheric parameters response to the solar-cosmic signals, how stable are these relationships (both spatially and temporarily) and whether they are affected by other external forces.

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

Summary

Reference

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