

Effects of Forbush Decreases on Atmospheric Aerosols and Clouds as determined from PATMOS-x

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Cosmic rays are thought to affect cloud formation on Earth through ionization and aerosol interaction processes ¹.

Forbush Decreases (FDs) which are sudden decreases in cosmic rays, caused by solar eruption have previously been shown to affect cloud microphysics affect cloud fractions, aerosol optical depth, CCN, water content, and cloud effective radius in the atmosphere ².

Bootstrapping (Monte Carlo simulation) is applied to atmospheric parameters from **newly calibrated PATMOS-x data** from satellites from 1978 to 2018 to evaluate the existence of a significance response level to FDs from Achieved Significance Levels (ASLs).

Future work: Cloud processing theory might be able to beyond the scope of this study. We use DESCAM model to investigate if there are any agreement between the cloud microphysics and observations.

* Shadow area is integrated as signal in bootstrap analysis

