

[16th Conference on Planned and Inadvertent Weather Modification](#)

4.6

**Artificial Atmospheric Ionization: A Potential Window for Weather Modification****Phillip Kauffman**, Ionogenics Corp., Bedford, MA; and A. Ruiz-Columbié

Galactic cosmic rays have been positively correlated to the Earth's low cloud cover. It is now evident that cosmic ray ionization is linked to lowering nucleation barriers and promoting early charged particle growth into the Aitken range. There is a substantially high probability that some of the charged particles grow beyond the 100 nm range to become CCN. There is also evidence that electrically charged aerosols are more efficiently scavenged by cloud droplets, some of which evaporate producing evaporation aerosol, which are very effective ice formation nuclei.

The assumption is made that artificially generated, corona effect ionization should act in much the same way as cosmic ray ionization, with some differences that might make unipolar corona effect ionization a more powerful catalyzer of cloud microphysical processes and, consequently, climate. There is much further work required to understand the cause and effect relationship between artificial ionization and weather, including electrical, chemical and physical measurements at the nanoparticle level and beyond, as well as mathematical modeling to describe the observed, measured or hypothesized atmospheric phenomena at different levels of artificial ionization, and, hopefully equal levels of cosmic ray ionization.

 [Extended Abstract \(340K\)](#) [Recorded presentation](#)

[Session 4, Planned weather modification including promising new technologies such as the recent hygroscopic and winter orographic seeding experiments and evaluation methods for seeding experiments](#)

**Tuesday, 11 January 2005, 8:30 AM-10:00 AM**

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