

Role of electrical discharges in cloud microphysics and electrical field strength changers

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Investigations to study the effect of electric discharges of various types on fog spectra have been carried out in cloud chambers.

Corona dischargers were produced in cloud chamber and freezing temperature of drops were measured. It was obtained that corona discharges can cause a rise of freezing temperature up to -5 - -6 C. The dependence of drops freezing temperature from distance to corona discharges was also studied.

Streamers were produced in Large Volume MGO cloud chamber with the help of high voltage Tesla transformer. Data analyze clearly show that one can observe fog particles enlargement due to streamers. They also provide great increase in fog volume charge and hence electrical field strength.

Theoretical investigations of the role of corona dischargers in cloud characteristics changers have been carried out with numerical cloud model. Results of these investigations have shown that corona dischargers can play significant role in cloud electrization.