

THE CHARGED AEROSOL RELEASE EXPERIMENT

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The radar scatter from dusty plasmas will be studied with the Charged Aerosol Release Experiment (CARE) launched from Wallops Island, Virginia in Spring of 2009. A dusty plasma will be produced in the ionosphere by releasing an expanding shell with 66kg of Aluminum Oxide particulates. The expansion velocity of the shell will be 2.5 km/s. Ground radars and optical systems as well as in situ dust detectors, electric field booms, and a Langmuir probe will diagnose the experiment. Numerical simulations have shown that several types of fluid and kinetic instabilities will be excited the high speed dust release.