Text Size Average Rating: 4.2 / 5 (6 ratings)

Night Time Artificial Cloud Study Using NASA Sounding Rocket **09/10/09**

A rocket experiment that may shed light on the highest clouds in the Earth's atmosphere will be conducted Sept. 15 from NASA's Wallops Flight Facility in Virginia.

The Charged Aerosol Release Experiment (CARE) will be conducted by the Naval Research Laboratory and the Department of Defense Space Test Program using a NASA four-stage Black Brant XII suborbital sounding rocket. Using ground based instruments and the STP/NRL STPSat-1 spacecraft, scientists will study an artificial noctilucent cloud formed by the exhaust particles of the rocket's fourth stage at about 173 miles altitude.

The launch is scheduled between 7:30 and 7:57 p.m. EDT. The backup launch days are Sept. 16 through 20. The rocket flight and the resulting cloud may be seen throughout the mid-Atlantic region. The artificial noctilucent cloud also may be visible the following morning just before sunrise.

Ground based cameras and radars will be based at various observation stations along the Atlantic coast and in Bermuda. Because of the optical observations, the launch will require clear skies not only at Wallops but also at the multiple observation stations.

The Spatial Heterodyne IMager for MEsospheric Radicals instrument on the STPSat-1 spacecraft will track the CARE dust cloud for days or even months. The SHIMMER instrument has previously viewed natural noctilucent clouds for the past two years. The CARE will be the first space viewing of an artificial noctilucent cloud.

Data collected during the experiment will provide insight into the formation, evolution, and properties of noctilucent clouds, which are typically observed naturally at high latitudes. In addition to the understanding of noctilucent clouds, scientists will use the experiment to validate and develop simulation models that predict the distribution of dust particles from rocket motors in the upper atmosphere.

Natural noctilucent clouds, also known as polar mesospheric clouds, are found in the upper atmosphere as spectacular displays that are most easily seen just after sunset. The clouds are the highest clouds in Earth's atmosphere, located in the mesosphere around 50 miles altitude.

They are normally too faint to be seen with the naked eye and are visible only when illuminated by sunlight from below the horizon while the Earth's surface is in darkness.

A team from government agencies and universities, led by the Naval Research Laboratory, is conducting the experiment. In addition to the Naval Research Laboratory, participants include the DoD STP, NASA, University of Michigan, Air Force Research Laboratory, Clemson University, Stanford University, University of Colorado, Penn State University and Massachusetts Institute of Technology/Haystack Observatory.

The launch will be web cast, beginning one hour before the opening of the launch window, at http://sites.wff.nasa.gov/webcast

In addition, the launch status can be followed on Twitter at: http://twitter.com/NASA_Wallops

› Back To Top