

# Clemson rocket launches test Alaskan auroras

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It may have been 40 degrees below zero at the Poker Flat Research Range in Alaska, but aurora and weather came together one recent winter night in a perfect match for Clemson University researchers and students who launched four rockets to study heat in the upper atmosphere.

Four 30- to 40-foot-long NASA suborbital sounding rockets were

launched into the night sky within a period of 16 minutes as part of the HEX 2 project, a collaborative effort between the University of Alaska at Fairbanks and Clemson.

"We had absolutely ideal conditions for the launches," said Clemson physics professor Miguel Larsen. "We are interested in the auroral displays because they produce electrical currents that heat the atmosphere. Wind patterns become altered as the atmosphere heats up, and this can cause changes in satellite orbits and interference with radio communications."

The rockets carried chemical tracer experiments from Larsen and instruments from Clemson assistant physics professor Gerald Lehmacher. At 60 miles above the ground, the chemical tracer glows and can be tracked as it is carried by winds high up in the atmosphere. The instruments measured the changes in atmospheric pressure created by the heat.

The rocket range is located 30 miles north of Fairbanks. The data will be analyzed to yield a three-dimensional picture of the neutral winds and density changes that occur during auroral disturbances.

Source: Clemson University

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