

UA Geophysical Institute Rocket Barium Shots Light Up Skies

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Staff Writer

During the early evening hours of March 5, the weather observatory at Whitehorse, Yukon Territory reported what it thought to be a strange auroral phenomenon in the sky to the Northwest. The report read as follows: "Low on the Northwestern Horizon, two bright yellowish green spots or glows were observed connected by a dim red path."

Although they did not realize this at the time, the Whitehorse observers had witnessed one of the first man-made auroral displays in the Northern auroral zone.

These displays, which have been widely viewed throughout Northern Alaska and Yukon Territory, are the results of rocket firings sent into the earth's atmosphere by the Geophysical Institute of the University of Alaska.

The rockets, six during the month of March, are used to inject barium into the earth's upper atmosphere at altitudes ranging from 70 to 120 miles.

The purpose of the barium releases was explained by Dr. Neil Davis, assistant director of the Geophysical Institute and project head.

"When the rocket reaches the intended altitude, the powdered chemicals are ignited and the barium is vaporized." Two clouds each ten miles in diameter are created. "The higher cloud," Davis said, "is positively charged and drifts under the influence of the electronic field."

"We're using the clouds to map and measure the electric field," Dr. Davis continued.

The method is compared with the use of barium in hospitals to study a patient's digestive tract.

The most colorful display to date was created by the firing of March 14. The barium release occurred as anticipated shortly after 7:00 p.m. The two clouds appeared with the lower cloud remaining stationary.

Unexpected auroral activity greatly increased the intensity of the electric field. The barium in the upper cloud was then charged and moved across the sky in a reddish-purple band, disappearing in the horizon to the northwest, having achieved speeds of 1600 miles per hour.

Rockets containing the barium are launched from the Poker Flats facility, 30 miles north of Fairbanks on the Steese Highway.

Fairbanks on the Steese Highway. At the site are several buildings housing telemetry tracking equipment, as well as instruments for measuring activity of the electric field.

The most interesting construction at the site is the movable launcher cover. It is an A-frame, 55 feet high by 70 feet long. Prior to the launching, the cover is moved away to expose the rocket on railroad tracks. The tracks on which the launcher moves are the same rails used during early gold mining activity



BARIUM RELEASE—The colorful displays in the earth's upper atmosphere which are being seen over much of Alaska during the month of March are created by the element barium, released from rockets launched at Poker Flats by the University of Alaska's Geophysical Institute. The circular cloud is one-hundred miles high and over 10 miles wide. The cloud to the left is barium which has been charged by the earth's electric field and will travel across the sky at over one thousand miles per hour.

—THOMAS RICHARDS, JR. Photograph

at Chatinika.

The two and three staged rockets launched from the site have been of the Nike series. The largest was an Honest John-Nike-

Javelin III three stage combination. The rocket was powered by over a ton of fuel and released 100 pounds of barium element into the upper atmosphere.