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# NASA Creates Clouds For Experiment

by Fraser Cain on July 2, 2003

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Image credit: NASA

NASA scientists created false clouds on Sunday to study the near [space](#) environment in the Earth's ionosphere. Four rockets were launched from NASA's Wallops Flight Facility, and they released a chemical called trimethylaluminum (TMA) at various altitudes: from 90 to 175 kilometres. These false clouds were visible for hundreds of kilometres and allowed scientists to better understand wind movements in the high atmosphere. TMA is non-toxic, and used as heartburn medicine and a water purifier.

Did you see strange clouds in the sky last night?

Four NASA sounding rockets carrying experiments to study Earth's near-space environment, called the ionosphere, were launched from NASA's Wallops Flight Facility, Sunday night and Monday morning. The launch times were: 11:19 p.m., 1:41 a.m., 2:50 a.m., and 3:07 a.m. Three of the rockets released trimethylaluminum, (TMA) forming clouds that could be seen for hundreds of miles.

The clouds allow scientists to monitor the Earth's winds at the edge of space, said Dr. Gregory Earle from the University of Texas in Dallas, the lead researcher for the project.

"Winds in the ionosphere impact space weather just as the winds on Earth impact our weather. Space weather in turn can affect satellites orbiting the Earth and communication and electrical systems on the ground," Earle said. "The clouds will act as a tracer and allow us to view the winds at various altitudes over a period of time."

"The data gathered from this project will aid in our understanding of the relationship between the winds and ionospheric activity. This research may one day lead to the ability to forecast space weather, just as forecasters do today for Earth weather. If we can forecast space weather, then we can better protect our systems in space and on Earth," Earle said.

The milky white clouds formed from the release of the TMA on the first, third and fourth rockets. The second rocket carried only scientific instruments. The TMA was released over the Atlantic Ocean at altitudes from 56 miles (90 kilometers) to 109 miles (175 kilometers). NASA has used TMA for decades from sites worldwide to study the near-space environment. TMA burns slowly and produces visible [light](#) that can be tracked visually and with special camera equipment.

The products of the reaction, when TMA is exposed to [air](#) or water, are aluminum oxide, carbon dioxide and water. Aluminum oxides are commonly used to combat heartburn and to purify drinking water. TMA posed no threat to the public during preparation on the ground or during the release in space.

The project is a NASA and multi-university effort. In addition to the University of Texas, students and personnel from Clemson University and Utah State University are participating in the mission.

Original Source: [NASA News Release](#)

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