

ROLLOVER THE REAR SEATS OF THE VENZA TO SEE ITS SPACIOUS CARGO AREA.
 TOYOTA moving forward
 DISCOVER MORE

Subscribe to National Geographic Magazine **15**

- HOME
- ANIMALS
- DAILY NEWS**
- ENVIRONMENT
- GREEN GUIDE
- HISTORY
- KIDS
- MAPS
- MUSIC
- PHOTOGRAPHY
- SCIENCE & SPACE
- TRAVEL & CULTURES
- VIDEO

Monday, June 22, 2009

MAIN ANIMAL NEWS ANCIENT WORLD ENVIRONMENT NEWS CULTURES NEWS SPACE/TECH NEWS WEIRD PHOTOS VIDEO

Laser Triggers Lightning "Precursors" in Clouds

Rebecca Carroll
 for [National Geographic News](#)
 April 16, 2008

Scientists say they have triggered early stages of [lightning](#) by shooting lasers into clouds over New Mexico.

The apparent breakthrough brings the decades-old goal of causing lightning with lasers closer, according to a new study.



[Enlarge Photo](#)

- [Printer Friendly](#)
- [Email to a Friend](#)

- SHARE** [What's This?](#)
- [Digg](#)
 - [StumbleUpon](#)
 - [Reddit](#)

- RELATED**
- [Lightning Photos, Facts, and Video](#)
 - [Mysterious "Sprites" Light Shows Captured on Film \(June 18, 2007\)](#)
 - [Ball Lightning Mystery Solved? Phenomenon Created in Lab \(January 22, 2007\)](#)

"This was an important first step," said Jérôme Kasparian of the University of Geneva, lead author of the study.

"What we observed were kind of precursors of lightning."

If achieved, lightning control could eventually make airports, power plants, and other sites safer, scientists say.

If bolts could be conveniently triggered, the controlled strikes might deplete storm clouds of charged particles that naturally initiate the bolts—possibly preventing uncontrolled and dangerous lightning around sensitive areas.

Affordable and reliable laser-triggered lightning would also be a boon to scientists who study the still largely mysterious phenomenon ([lightning facts](#)).

Rocket Science First

Lightning occurs when storm clouds separate negative and positive electrical charge ([interactive guide to lightning](#)).

In cloud-to-ground lightning ([see photos](#)), a "leader" starts in the cloud, sending a hot, negative charge downward. If the electrical field on the ground is strong enough, a positive charge rises up to meet the leader, completing an electrical circuit that is visible as a lightning bolt.

Scientists can already trigger lightning with rockets. But the process is cumbersome and only works about half of the time, according to Joseph Dwyer, a professor of physics and

space sciences at the Florida Institute of Technology who was not involved in the study.

Typically, Kevlar-coated copper wire coils are attached to rockets that are launched into storm clouds.

LATEST PHOTO NEWS
 WEEK IN PHOTOS: [Tomato Fight, Toxic Lake, More](#)

LATEST VIDEO NEWS
 New Snakes, Butterflies Found in African Mountains

[Most Viewed News](#)

ADVERTISEMENT

LATEST PHOTOS IN THE NEWS
 WEEK IN PHOTOS: [Tomato Fight, Toxic Lake, More](#)

MARS LAKE PICTURE: First Proof of Ancient Shores Found

FATHER'S DAY PICTURES: "Best" Animal Dads

[More Photos in the News](#)

EMAIL NEWSLETTER

Photos and News of the Week

Get the top photos and news of the week from National Geographic News, plus occasional breaking-news alerts. [See Sample >>](#)

Enter Your Email Address

[Privacy Policy](#)

NATIONAL GEOGRAPHIC'S PHOTO OF THE DAY

- [Today's Photo](#)
- [Download as Wallpaper](#)

NEWS FEEDS

- [XML](#)
- [RSS](#)

- NATIONAL GEOGRAPHIC CHANNEL
- MAGAZINES
- NATIONAL GEOGRAPHIC TRAVELER ADVENTURE
- SHOP
- SUBSCRIPTIONS
- TV & FILM
- TRAVEL WITH US
- OUR MISSION

Shop Our Store

- [Books & Atlases](#)
- [Clothing & Accessories](#)
- [DVDs](#)
- [Maps](#)
- [Catalog Quick Shop](#)

Sign up for free Newsletters

Once a month get new photos and expert tips.
[Sign up](#)

ADVERTISEMENT

[Continued on Next Page >>](#)



LATEST NEWS VIDEOS



New Snakes, Butterflies Found in African Mountains



Whales Tagged to Prevent Collisions



Jackass Penguins Freed After Rehab

More Videos in the News

SOURCES AND RELATED WEB SITES

Optics Express

Joseph R. Dwyer

University of Geneva

Get our news delivered directly to your desktop—free. [How to Use XML or RSS](#)

WHICH GREEN EFFECT IDEA WILL GET YOUR VOTE?



On July 7 we will reveal our ten finalists and allow YOU to begin voting for your favorite idea. Your votes will determine one of the winners, and a panel of esteemed judges will select four others.

[Meet the Judges](#)



Sponsored Links

[Laser Diodes, 405nm-840nm](#)

3mW- 80W good quality industrial diodes - fair prices, fast shipping www.photonic-products.com

[All About Lightning](#)

Get lightning facts, photos, news, wallpapers, videos and safety tips. NationalGeographic.com

[Lightning Bolt](#)

Search multiple engines for lightning bolt www.webcrawler.com



Ads by Google

[Email the News Staff](#) [Contact Other Staff](#)

ADVERTISEMENT



[Home](#) | [Animals](#) | [Daily News](#) | [Environment](#) | [Green Guide](#) | [History](#) | [Kids](#) | [Maps](#) | [Music](#) | [Photography](#) | [Science & Space](#) | [Travel & Cultures](#) | [Video](#)

[Mobile](#) | [Magazines](#) | [Shop](#) | [Subscriptions](#) | [TV & Film](#) | [Stock Footage Sales](#) | [Travel With Us](#) | [About the Society](#) | [Educators](#)

[Give to NGS](#) | [Contact Us](#) | [Newsletters](#) | [Jobs](#) | [Site Index](#) | [Press Room](#) | [Customer Service](#) | [Advertise With Us](#) | [Global Sites](#) | [Terms of Service](#) | [Privacy Policy](#)

© 1996-2009 National Geographic Society. All rights reserved.