

NATIONAL GEOGRAPHIC

Site Index

Subscriptions

Shop

Newsletters

About the Society

SEARCH

Parents! Give

NATIONAL GEOGRAPHIC

KIDS

DARE TO EXPLORE

ORDER NOW

for only \$15

Ages 6-14!

KIDS KIDS KIDS

Love KID

Order Now

Subscribe to National Geographic Magazine

\$15

HOME

ANIMALS

DAILY NEWS

ENVIRONMENT

GREEN GUIDE

HISTORY

KIDS

MAPS

MUSIC

PHOTOGRAPHY

SCIENCE & SPACE

TRAVEL & CULTURES

VIDEO

NATIONAL GEOGRAPHIC MAGAZINE

NATIONAL GEOGRAPHIC CHANNEL

MAGAZINES

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

CONNECTIONS PHOTO CONTEST

Share a shot that captures an authentic travel moment

NATIONAL GEOGRAPHIC

Wednesday, October 29, 2008

MAINANIMAL NEWSANCIENT WORLDENVIRONMENT NEWS CULTURES NEWS SPACE/TECH NEWS WEIRD

PHOTOSVIDEO

Electricity Found on Saturn Moon--Could It Spark Life?

Rebecca Carroll
for [National Geographic News](#)
October 28, 2008

Recently identified electrical activity on [Saturn's](#) largest moon bolsters arguments that Titan is the kind of place that could harbor life.

At a brisk -350 degrees Fahrenheit (-180 Celsius), Titan is currently much too cold to host anything close to life as we know it, scientists say.

[Enlarge Photo](#)

[Printer Friendly](#)

[Email to a Friend](#)

SHARE

[What's This?](#)

Digg

StumbleUpon

Reddit

RELATED

[Titan Forecast: Cold, Drizzly Mornings \(October 11, 2007\)](#)

[Saturn Facts, Pictures, More](#)

[Huygens Sends Images of Titan \(January 17, 2005\)](#)

But a new study reports faint signs of a natural electric field in Titan's thick cloud cover that are similar to the energy radiated by lightning on Earth.

Lightning is thought to have sparked the chemical reactions that led to the origin of life on our planet.

"As of now, lightning activity has not been observed in Titan's atmosphere," said lead author Juan Antonio Morente of the University of Granada in Spain.

But, he said, the signals that have been detected "are an irrefutable proof for the existence of electric activity."

Frozen, Prebiotic Casserole

Morente's team studied data returned from the European Space Agency's Huygens probe, which broke away from NASA's Cassini spacecraft in 2005 to become the first probe to go below Titan's clouds. (Read "[Voyage to Saturn](#)" in *National Geographic* magazine.)

As soon as the probe entered the moon's atmosphere, a strong wind tilted the device about 30 degrees.

This accidental motion enabled Huygens to detect the Earthlike electrical resonances that it otherwise would have missed, which Morente and colleagues describe their study, published in a recent issue of the journal *Icarus*.

Jeffrey Bada, of the Scripps Institution of Oceanography, believes the process that allowed lightning to spark life on Earth is universal and could happen in many environments—including on Titan.

[Confirmation earlier this year of Titan's hydrocarbon lakes](#) makes the Saturnian moon the first place other than Earth where open bodies of liquid have been found.

Continued on [Next Page >>](#)

LATEST NEWS VIDEOS

VIDEO: [Rebels Seize Gorilla-Park HQ](#)

VIDEO: ["Witchcraft"](#)

SOURCES AND RELATED WEB SITES

[NASA: Cassini-Huygens Mission to Saturn and Titan](#)
[Icarus](#)

LATEST PHOTO NEWS

[SPACE PHOTOS THIS WEEK: India's Moon Mission, More](#)

LATEST VIDEO NEWS

[Rebels Seize Gorilla-Park HQ](#)

Most Viewed News

ADVERTISEMENT

Guide them along their trip at

nokia.com/navigation

NOKIA

Connecting People

Nokia 6210 Navigator

LATEST PHOTOS IN THE NEWS

[TRAVEL/CULTURE PHOTOS WEEKLY: Halloween Dog Show, More](#)

[WEEK IN PHOTOS: Fastest Car, Wax Obama and McCain, More](#)

[PHOTO IN THE NEWS: New "Legless Lizard" Named](#)

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

SIGN UP

[Privacy Policy](#)

NATIONAL GEOGRAPHIC'S PHOTO OF THE DAY

[Today's Photo](#)

[Download as Wallpaper](#)

NEWS FEEDS

[XML](#)

[RSS](#)

Get our news delivered directly to your desktop—free.

http://news.nationalgeographic.com/news/2008/10/081028-titan-lightning-life.html

29/10/2008

NATIONAL GEOGRAPHIC

Site Index

Subscriptions

Shop

Newsletters

About the Society

► SEARCH

Parents! Give

NATIONAL GEOGRAPHIC

KIDS

DARE TO EXPLORE



Free Gift
with your order

KIDS

KIDS

KIDS

Love

Love

Love

Order Now

Subscribe to National Geographic Magazine

\$15



HOME

ANIMALS

DAILY NEWS

ENVIRONMENT

GREEN GUIDE

HISTORY

KIDS

MAPS

MUSIC

PHOTOGRAPHY

SCIENCE & SPACE

TRAVEL & CULTURES

VIDEO

NATIONAL GEOGRAPHIC MAGAZINE

NATIONAL GEOGRAPHIC CHANNEL

MAGAZINES

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



MAIN

ANIMAL NEWS

ANCIENT WORLD

ENVIRONMENT NEWS

CULTURES NEWS

SPACE/TECH NEWS

WEIRD

PHOTOS

VIDEO

Electricity Found on Saturn Moon--Could It Spark Life?

<< [Back to Page 1](#) Page 2 of 2

Hydrocarbons are organic molecules, and the fact that they exist in large quantities on Titan suggests that life could take root there under the right conditions.

"If you had lightning taking place in the atmosphere of Titan, you could make what we call precursor molecules," said Bada, who was not involved with Morente's study.

[Enlarge Photo](#)

 [Printer Friendly](#)

 [Email to a Friend](#)

SHARE

[What's This?](#)

[Digg](#)

[StumbleUpon](#)

[Reddit](#)

RELATED

[Titan Forecast: Cold, Drizzly Mornings \(October 11, 2007\)](#)

[Saturn Facts, Pictures, More](#)

[Huygens Sends Images of Titan \(January 17, 2005\)](#)

"To go any further than that," he said, "you need liquid water."

Titan's water is currently frozen into chunks as hard as granite. If those ice "rocks" were to melt, however, the environment could become more hospitable to the building blocks of life.

With liquid water, the planet could host the formation of amino acids and then full proteins, which drive all biochemistry and set the stage for more complex molecules.

"I look at Titan as a big, frozen, prebiotic casserole," Bada said, referring to the state before the emergence of life.

"The idea that life could be widespread in the universe, I think, is very credible."

A Field of Its Own

Advocates of theories about life on Titan note that various celestial events could temporarily warm up the moon enough to melt its ice into water.

Perhaps this happened in the past, they say—or it could happen in the future.

But study author Morente said it's impossible to precisely assess such possibilities with the

scientific knowledge available today.

What astronomers do know is that Titan does not have its own magnetic field, he said. The moon instead orbits within Saturn's magnetosphere at differing distances from the planet.

This means that the strength of Titan's magnetic field is constantly changing, leaving its surface more vulnerable to damaging cosmic rays.

Without stable protection from radiation, Morente said, "the existence of life is very unlikely."

LATEST NEWS VIDEOS

 [VIDEO: Rebels Seize Gorilla-Park HQ](#)

SOURCES AND RELATED WEB SITES

[NASA: Cassini-Huygens Mission to Saturn and Titan](#)

LATEST PHOTO NEWS

[SPACE PHOTOS THIS WEEK: India's Moon Mission, More](#)

LATEST VIDEO NEWS

[Rebels Seize Gorilla-Park HQ](#)

Most Viewed News

ADVERTISEMENT

 NATIONAL GEOGRAPHIC

 VISIT OUR VIDEO SITE

LATEST PHOTOS IN THE NEWS

[TRAVEL/CULTURE PHOTOS WEEKLY: Halloween Dog Show, More](#)

[WEEK IN PHOTOS: Fastest Car, Wax Obama and McCain, More](#)

[PHOTO IN THE NEWS: New "Legless Lizard" Named](#)

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

SIGN UP

[Privacy Policy](#)

NATIONAL GEOGRAPHIC'S PHOTO OF THE DAY

• [Today's Photo](#)

• [Download as Wallpaper](#)

NEWS FEEDS

[XML](#)

[RSS](#)

Get our news delivered directly to your desktop—free.

http://news.nationalgeographic.com/news/2008/10/081028-titan-lightning-life_2.html

29/10/2008