

# COSMIC DIMENSIONS



May 2023  
V. 2 Issue 5



**CENTI ASTRO-SPACE  
ACTIVITIES**

PHONE:  
(716) 338 - 7596

WEBSITE:  
[www.centiastrospace.com](http://www.centiastrospace.com)

Welcome to the May issue of COSMIC DIMENSIONS. Earlier in the week of April 23<sup>rd</sup> the Aurora Borealis (Northern Lights) was supposed to be visible in my area, but of course I didn't get the chance to view it. It was cloudy, which is a problem where I live. I am wondering if anyone had the opportunity to view this. SpaceX launched the much-awaited Starship which was deemed successful even though it exploded a few minutes after launch. This reinforces the idea that failures and mistakes lead to learning, which eventually leads to success. Below is a list of what is covered in this issue. Enjoy!

- WHAT'S UP IN THE NIGHT SKY FOR MAY
- MISSION TO JUPITERS ICEY MOONS
- SPACEX STARSHIP LAUNCH ATTEMPT
- CHRIS HADFIELD ON SPACEX LAUNCH
- FAMOUS ASTRONAUT
- SPACE PIC OF THE MONTH
- INTERESTING MOON FACTOIDS
- WOULD YOU TAKE A TRIP INTO OUTERSPACE?
- INTERESTING QUOTES

## WHAT'S UP IN THE NIGHT SKY FOR MAY

Presented by

Adventure Science center - Bill McClain  
<https://www.youtube.com/watch?v=rCJ-UI4bqcw>

Tonight's Sky: May  
<https://www.youtube.com/watch?v=uiyWUYA8QBY>

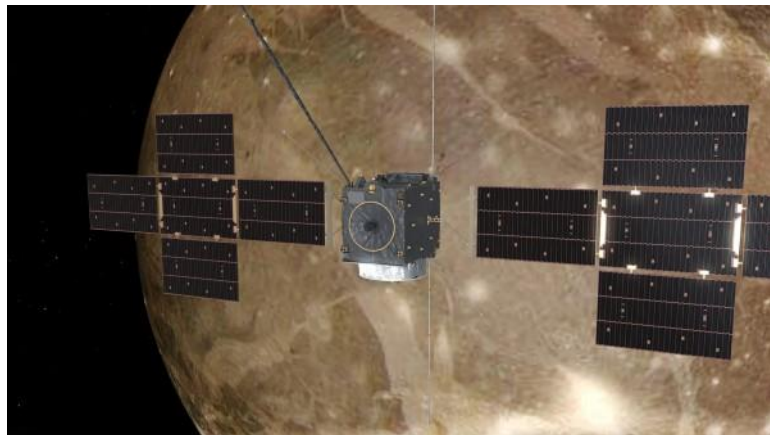
# JUICE LAUNCHES ON MISSION TO EXPLORE JUPITER'S ICY MOONS

Jason Davis • Apr 14, 2023

A new era of icy moons exploration is underway following the successful launch of [Juice](#), the Jupiter Icy Moons Explorer. The European Space Agency-led mission blasted off from Kourou, French Guiana atop an Ariane 5 rocket on Friday, April 14 at 8:14 a.m. EDT (12:14 UTC).

Juice will explore Jupiter's moons [Europa](#), Ganymede, and Callisto, all three of which may harbor subsurface oceans. [The mission will investigate](#) whether conditions on these moons may be suitable for past or present life. The results will teach us what to expect on similar icy worlds orbiting distant exoplanets. Click on the link to read more:

[https://www.planetary.org/articles/juice-launches-icy-moon-mission?autologin=true&utm\\_campaign=download&utm](https://www.planetary.org/articles/juice-launches-icy-moon-mission?autologin=true&utm_campaign=download&utm)



JUICE GANYMEDE FLYBY Juice, the Jupiter Icy Moons Explorer, flies past Jupiter's moon Ganymede in this artist's concept by the European Space Agency. *Image: ESA / ATG Medialab*

## SPACEX STARSHIP HAS EXPLOSIVE FIRST SPACE LAUNCH ATTEMPT, TEST STILL SUCCESSFUL



SpaceX's first fully integrated Starship launches from Starbase in South Texas on April 20, 2023. (Image credit: SpaceX)

SpaceX's fully integrated Starship and Super Heavy rocket launched for the first time on April 20, 2023. The test flight successfully launched but failed to separate and ended with Rapid Unscheduled Disassembly (RUD) a few minutes into flight. Full Story: <https://www.space.com/spacex-starship-first-space-launch> The Starship deep-space rocket system launched from SpaceX's Starbase facility near Boca Chica, Texas.

To view on YouTube: <https://www.youtube.com/watch?v=0PPCP0ZDdUI>

# **CHRIS HADFIELD ON SPACEX ROCKET EXPLODING: IT WAS 'ENORMOUSLY SUCCESSFUL'**

Canadian retired astronaut Chris Hadfield explains why SpaceX will learn so much from their giant rocket exploding after liftoff.

<https://www.youtube.com/watch?v=iiDGb1CXw4I>



## **FAMOUS ASTRONAUT**

### **INTERVIEW WITH BERNARD HARRIS, THE 1ST AFRICAN-AMERICAN SPACEWALKER**

By Mike Wall



Official NASA photo of former astronaut Bernard Harris, the first African-American to perform a spacewalk. (Image credit: NASA)

Bernard Harris is a spaceflight pioneer.

Harris was part of NASA's 13th astronaut class, which the agency selected in 1990. He became an astronaut in 1991 and flew for the first time two years later, racking up 10 days off Earth on the [space shuttle](#) Columbia's STS-55 mission.

He launched for the second and final time in February 1995, on the STS-63 mission of the [shuttle Discovery](#). It was on this flight that Harris carved his name into the history books:

On Feb. 9, he took a lengthy excursion outside Discovery, becoming the first African-American ever to perform a [spacewalk](#).

Harris is a medical doctor, having served as a flight surgeon and clinical scientist at NASA's [Johnson Space Center](#) in Houston before becoming an astronaut. He also earned a master's degree in biomedical sciences in 1996, the same year he retired from the astronaut corps.

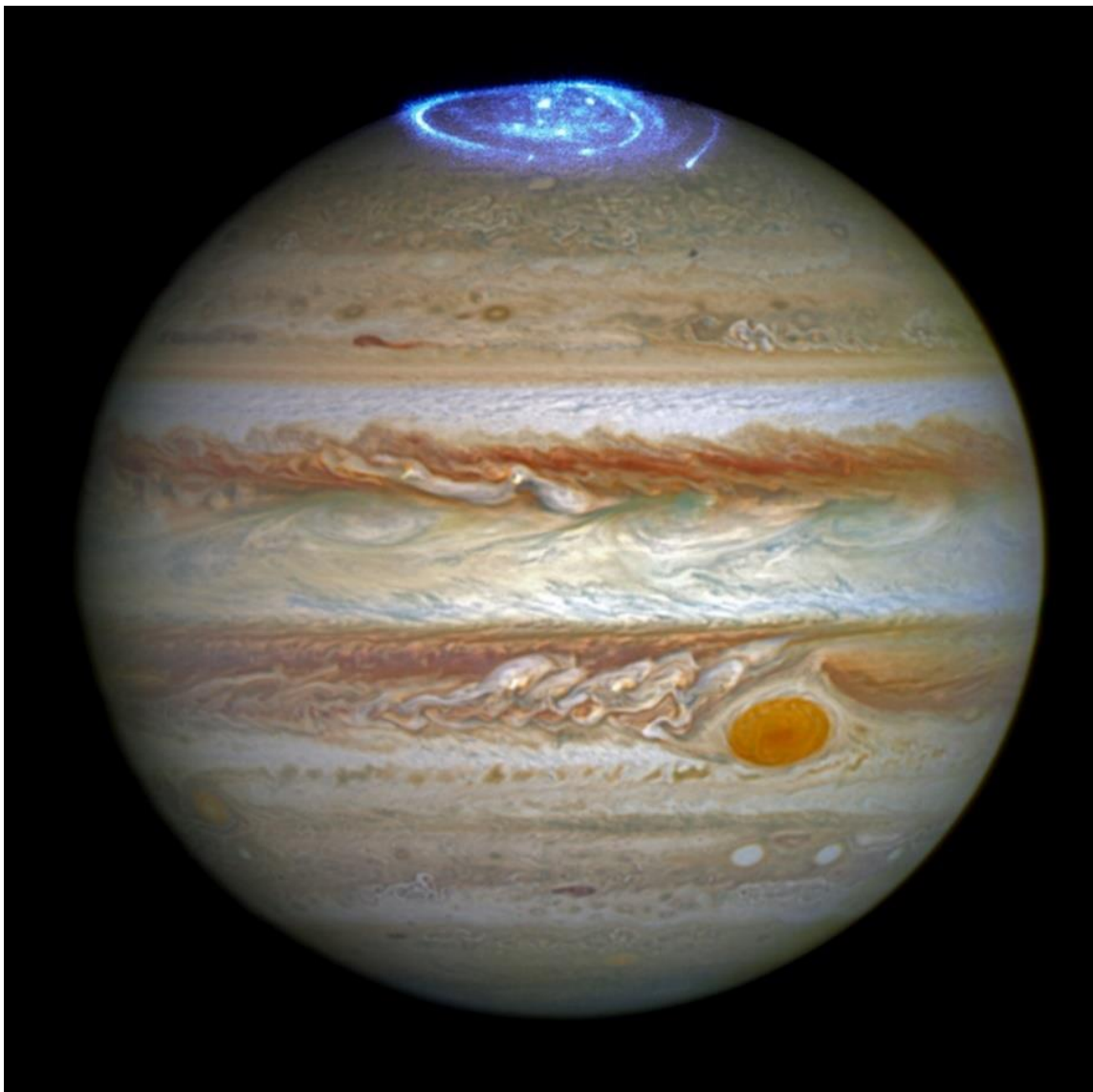
The former spacewalker has devoted much of his life and career to helping get people, especially kids, excited about science, engineering, technology and math (STEM), and letting them know that proficiency in those fields can take them far — perhaps all the way to space. For example, he

currently serves as leader of business development and fundraising at [The National Math and Science Initiative](#) (opens in new tab), a Texas-based nonprofit that strives to improve STEM education for students across the U.S.

Space.com caught up with Harris earlier this month to discuss his astronaut days, NASA's role in helping advance diversity and STEM engagement and how excited he is about the future of spaceflight and exploration. To read more click on the link:

[https://www.space.com/nasa-astronaut-spacewalker-bernard-harris-interview?utm\\_term=D66A7F3E-FC72-4CF0-BBC7-9BBE5286D454&utm\\_campaign=58E4DE65-C57F-4CD3-9A5A-609994E2C5A9&utm](https://www.space.com/nasa-astronaut-spacewalker-bernard-harris-interview?utm_term=D66A7F3E-FC72-4CF0-BBC7-9BBE5286D454&utm_campaign=58E4DE65-C57F-4CD3-9A5A-609994E2C5A9&utm)

## ***SPACE PIC OF THE MONTH***



**Hubble Captures Vivid Auroras in Jupiter's Atmosphere**  
Credits: NASA, ESA, and J. Nichols (University of Leicester)

## ***INTERESTING MOON FACTOIDS***

- **The dark side of the moon is a myth.**

In reality both sides of the Moon see the same amount of sunlight however only one face of the Moon is ever seen from Earth. This is because the Moon rotates around on its own axis in exactly the same time it takes to orbit the Earth, meaning the same side is always facing the Earth. The side facing away from Earth has only been seen by the human eye from spacecraft.

- **The rise and fall of the tides on Earth is caused by the Moon.**

There are two bulges in the Earth due to the gravitational pull that the Moon exerts; one on the side facing the Moon, and the other on the opposite side that faces away from the Moon, The bulges move around the oceans as the Earth rotates, causing high and low tides around the globe.

- **The Moon is drifting away from the Earth.**

The Moon is moving approximately 3.8 cm away from our planet every year. It is estimated that it will continue to do so for around 50 billion years. By the time that happens, the Moon will be taking around 47 days to orbit the Earth instead of the current 27.3 days.

- **A person would weigh much less on the Moon.**

The Moon has much weaker gravity than Earth, due to its smaller mass, so you would weigh about one sixth (16.5%) of your weight on Earth. This is why the lunar astronauts could leap and bound so high in the air.

- **The Moon has only been walked on by 12 people; all American men.**

The first man to set foot on the Moon in 1969 was Neil Armstrong on the Apollo 11 mission, while the last man to walk on the Moon in 1972 was Gene Cernan on the Apollo 17 mission. Since then the Moon has only be visited by unmanned vehicles.

- **The Moon has no atmosphere.**

This means that the surface of the Moon is unprotected from cosmic rays, meteorites and solar winds, and has huge temperature variations. The lack of atmosphere means no sound can be heard on the Moon, and the sky always appears black.

- **The Moon has quakes.**

These are caused by the gravitational pull of the Earth. Lunar astronauts used seismographs on their visits to the Moon and found that small moonquakes occurred several kilometers beneath the surface, causing ruptures and cracks. Scientists think the Moon has a molten core, just like Earth.

- **Mars sized object hit the Earth.**

Evidence suggests that, about 4.5 billion years ago, a Mars-sized object crashed into early Earth. The debris from this impact likely formed the Moon.

- **The Moon's poles.**

The coldest temperatures in the solar system have been recorded at the Moon's poles. Some polar craters, darkened by permanent shadows, harbor hidden water ice.

# WOULD YOU TAKE A TRIP INTO OUTERSPACE?

In the email I sent with the February newsletter the question was, “If you had the opportunity to take a trip into outer space, would you go or would you refuse?”

A response received was, “Our six-year-old would go because it would be amazing but then said she wouldn’t because the tests would be too hard.”

The question this month is as follows. “If you had a chance to go to the Moon with the Artemis mission, would you say yes or no?”

## INTERESTING QUOTES

*“I’m sure the universe is full of intelligent life.  
It’s just been to intelligent to come here.” -- **Arthur C. Clarke***

*“Education is the ability to listen to almost anything without losing your temper or your self-confidence.” – **Robert Frost***

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## CONTACT

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### **CENTI ASTRO-SPACE ACTIVITIES**

Christopher S. Centi, “C the Rocket Man”

91 East Main Street

Brocton, New York 14716

Business Mobile: (716) 338 - 7596

E-mails: [centiastropace@gmail.com](mailto:centiastropace@gmail.com) [centiastropace@centiastropace.com](mailto:centiastropace@centiastropace.com)

Web Site: <https://www.centiastropace.com>

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