

COSMIC DIMENSIONS



**December
2023
V. 2 Issue 12**

CENTI ASTRO-SPACE ACTIVITIES

Phone: (716) 338 – 7596

Emails: centiastropace@gmail.com

centiastropace@centiastropace.com

Website: www.centiastropace.com

Exploring the mysteries of the cosmos and the latest developments in Astronomy and Space Exploration, providing insights into the universe's wonders and the cutting-edge technology that helps us understand it better.

Welcome to the December edition of COSMIC DIMENSIONS, the newsletter that explores the universe, Space Exploration and takes you on a journey of intrigue and fascination. So, begin to explore and enjoy the ride!

In this issue, we will dive into topics such as:

- **WHAT'S UP IN THE NIGHT SKY FOR DECEMBER**
- **Webb Study Reveals Rocky Planets Can Form in Extreme Environments**
- **NASA's Webb Findings Support Long-Proposed Process of Planet Formation**
- **A Cosmic First: Astronomers Uncover a Planet-Forming Disc in Another Galaxy**
- **Rocket Lab and MIT's Venus Life Finder mission**
- **PURCHASE YOUR ECLIPSE GLASSES**
- **and more**

WHAT'S UP IN THE NIGHT SKY FOR DECEMBER

Presented by

Adventure Science Center Nightwatch - Bill McClain

https://www.youtube.com/watch?v=6YdOvR_HRQQ

Tonight's Sky: December

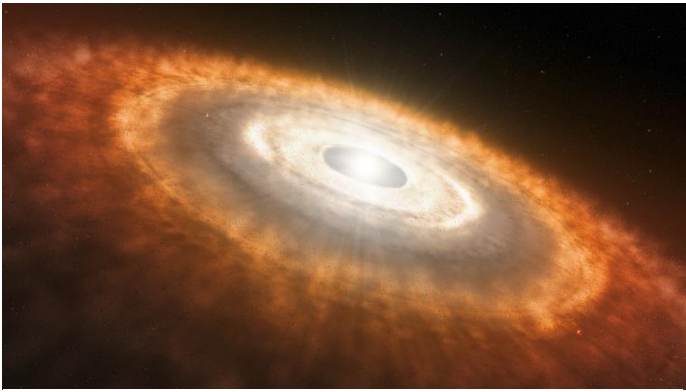
<https://www.youtube.com/watch?v=AsHsXBmTzGU>

Webb Study Reveals Rocky Planets Can Form in Extreme Environments

November 30, 2023

An international team of astronomers has used NASA's James Webb Space Telescope to provide the first observation of water and other molecules in the highly irradiated inner, rocky-planet-forming regions of a disk in one of the most extreme environments in our galaxy. These results suggest that the conditions for terrestrial planet formation can occur in a possible broader range of environments than previously thought.

Image: Protoplanetary Disk (Artist Concept)



This is an artist's impression of a young star surrounded by a protoplanetary disk in which planets are forming. ESO/L. Calçada

These are the first results from the eXtreme Ultraviolet Environments (XUE) James Webb Space Telescope program, which focuses on the characterization of planet-forming disks (vast, spinning clouds of gas, dust, and chunks of rock where planets form and evolve) in

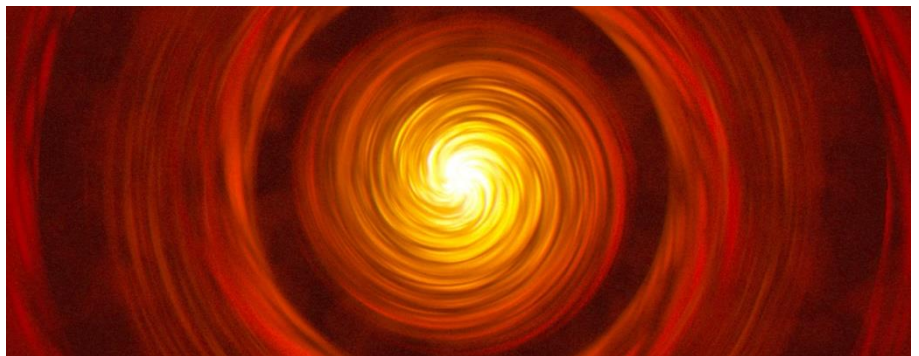
massive star-forming regions. These regions are likely representative of the environment in which most planetary systems formed. Understanding the impact of environment on planet formation is important for scientists to gain insights into the diversity of the different types of exoplanets. To read more on this interesting find click the following link:

<https://www.nasa.gov/missions/webb/webb-study-reveals-rocky-planets-can-form-in-extreme-environments/>

NASA's Webb Findings Support Long-Proposed Process of Planet Formation

November 8, 2023

Scientists using NASA's James Webb Space Telescope just made a breakthrough discovery in revealing how planets are made. By observing water vapor in protoplanetary disks, Webb confirmed a physical process involving the drifting of ice-coated solids from the outer regions of the disk into the rocky-planet zone.

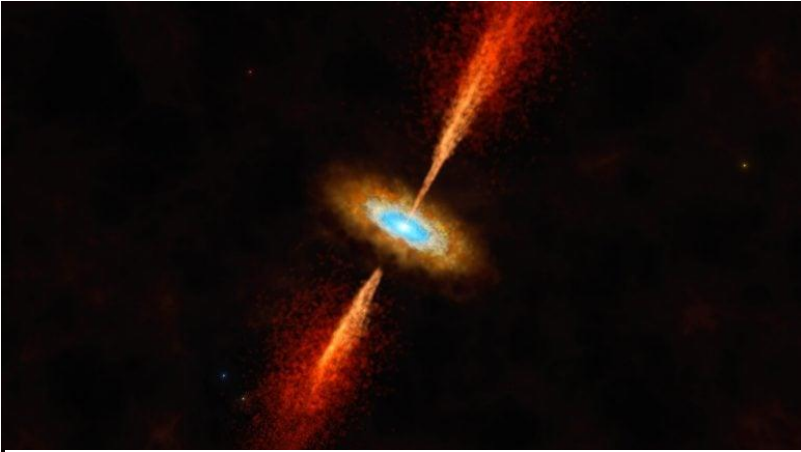


Theories have long proposed that icy pebbles forming in the cold, outer regions of protoplanetary disks — the same area where comets originate in our solar system — should be the fundamental seeds of planet formation. The main requirement of these theories is that pebbles should drift inward toward the star due to friction in the gaseous disk, delivering both solids and water to planets. Click on the link for more information: <https://www.nasa.gov/missions/webb/nasas-webb-findings-support-long-proposed-process-of-planet-formation/>

A Cosmic First: Astronomers Uncover a Planet-Forming Disc in Another Galaxy

November 29, 2023

Using the ALMA telescope, astronomers have detected a disc forming around a young star in the Large Magellanic Cloud, marking the first discovery of its kind outside our galaxy.



This artist's impression shows the HH 1177 system, which is located in the Large Magellanic Cloud, a neighboring galaxy of our own. The young and massive stellar object glowing in the center is collecting matter from a dusty disc while also expelling matter in powerful jets. This is the first time a disc around a young star — the type of disc identical to those forming planets in our own galaxy — has been discovered in another galaxy. Credit: ESO/M. Kornmesser

In a remarkable discovery, astronomers have found a disc around a young star in the Large Magellanic Cloud, a galaxy neighboring ours. It's the first time such a disc, identical to those forming planets in our own Milky Way, has ever been found outside our galaxy. The new observations reveal a massive young star, growing and accreting matter from its surroundings and forming a rotating disc. The detection was made using the Atacama Large Millimeter/submillimeter Array (ALMA) in Chile. The European Southern Observatory (ESO) is a partner.

First Extragalactic Accretion Disc Detected

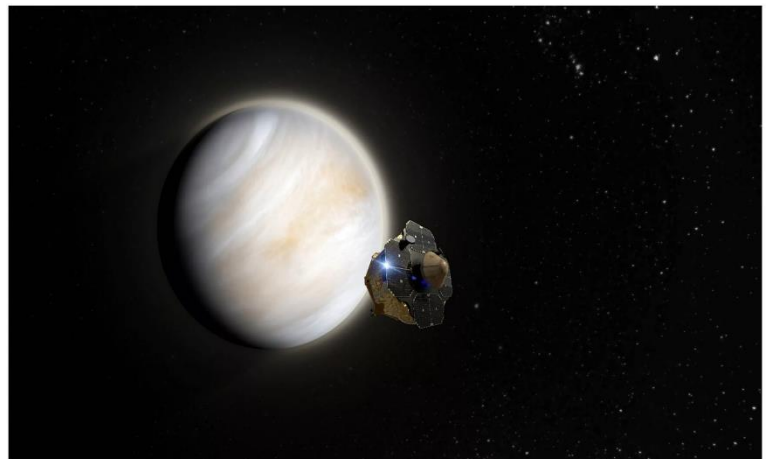
"When I first saw evidence for a rotating structure in the ALMA data, I could not believe that we had detected the first extragalactic accretion disc, it was a special moment," says

Anna McLeod, an associate professor at Durham University in the UK and lead author of the study published today (November 29) in the journal *Nature*. "We know discs are vital to forming stars and planets in our galaxy, and here, for the first time, we're seeing direct evidence for this in another galaxy." To read more click here:

<https://scitechdaily.com/a-cosmic-first-astronomers-uncover-a-planet-forming-disc-in-another-galaxy/>

Rocket Lab and MIT's Venus Life Finder mission

- Launch vehicle company Rocket Lab is partnering with the Massachusetts Institute of Technology (MIT) to send the first private mission to Venus as soon as December 2024.
- The Venus Life Finder mission will drop a small probe into Venus' atmosphere that will scan for organic molecules, which could be a possible sign of life.
- The probe is equipped with a single science instrument that will study a specific region of Venus' atmosphere at a fraction of the cost of larger missions.



To get the full details click here:

<https://www.planetary.org/space-missions/rocket-lab-venus-mission>

PURCHASE YOUR ECLIPSE GLASSES

**Total Solar Eclipse
April 8, 2024**

**Don't forget your
eclipse glasses!!**



Click this link to purchase [solar eclipse glasses](#).

This is an affiliate link. If you click on it and purchase any items, I will receive an affiliate commission at no extra cost to you.

This commission helps support my education programs.

FAMOUS ASTRONOMER

Jill Tarter



Jill Tarter received her Bachelor of Engineering Physics Degree with Distinction from Cornell University and her Master's Degree and a Ph.D. in Astronomy from the University of California, Berkeley. She served as Project Scientist for NASA's SETI program, the High-Resolution Microwave Survey, and has conducted numerous observational programs at radio observatories worldwide. Since the termination of funding for NASA's SETI program in 1993, she has served in a leadership role to secure private funding to continue the exploratory science. Currently, she serves on the management board for the [Allen Telescope Array](#), an innovative array of 350 (when fully realized) 6-m antennas at the Hat Creek Radio Observatory, it will simultaneously survey the radio universe for known and unexpected sources of astrophysical emissions, and speed up the search for radio emissions from other distant technologies by orders of magnitude. To read more about her, her major awards, links, publications and description of her work click this link: <https://www.seti.org/our-scientists/jill-tarter>

Astrobotic's Peregrine Mission 1 is Scheduled to Launch on Dec. 24, 2023

December 2, 2023

Launch of Peregrine Mission 1 is currently targeted for no earlier than December 24, 2023.

Peregrine Mission 1 (TO2-AB), or the Peregrine Lunar Lander, carrying scientific and other payloads to the Moon, is planned to touch down on the lunar surface on Sinus Viscositatis. The scientific objectives of the mission are to study the lunar exosphere, thermal properties and hydrogen abundance of the lunar regolith, magnetic fields, and the radiation environment. It will also test advanced solar arrays. Peregrine Mission 1 was selected through NASA's Commercial Lunar Payload Services (CLPS) initiative, in which NASA contracts with a commercial partner, in this case Astrobotic, that provides the launch and lander. Click here for more information: <https://nssdc.gsfc.nasa.gov/nmc/spacecraft/display.action?id=PEREGRN-1>



Space Pic of the Month

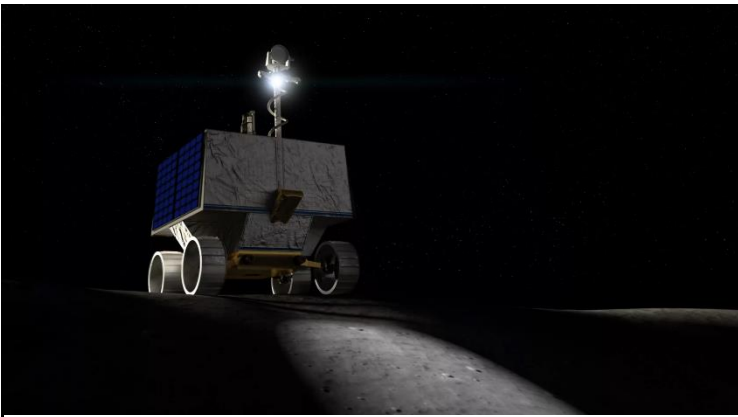


This image shows the “moonrise” of the satellite, now named Selam, as it emerges from behind asteroid Dinkinesh as seen by the Lucy Long-Range Reconnaissance Imager (L’LORRI), one of the most detailed images returned by NASA’s Lucy spacecraft during its flyby of the asteroid binary. This image was taken at 12:55 p.m. EDT (1655 UTC) on November 1, 2023, within a minute of closest approach, from a range of approximately 270 miles (430 km). Credit: NASA/Goddard/SwRI/Johns Hopkins APL/NOAO



A false-color image of the asteroid Dinkinesh and its satellite, Selam, created using data collected by the NASA Lucy spacecraft’s color imager, the Multi-spectral Visible Imaging Camera, MVIC, on the L’Ralph instrument. This MVIC image was obtained about 100 seconds before closest approach on Nov. 1, 2023. The orange, green and violet MVIC filters were mapped to the red, green, and blue channels to create this image. Credit: NASA/Goddard/SwRI

VIPER, NASA’s Moon Resource Mapper



VIPER LUNAR ROVER Artist’s concept of NASA’s Volatiles Investigating Polar Exploration Rover, or VIPER. VIPER is a mobile robot that will roam around the Moon’s south pole looking for water ice. NASA Ames / Daniel Rutter

Highlights

- NASA is launching the Volatiles Investigating Polar Exploration Rover, or VIPER, in 2024 to map water on the Moon’s south pole.
- VIPER’s findings will pave the way for future lunar habitats while also providing insights into the history and origin of water in the solar system.
- VIPER is different from NASA’s traditional planetary missions — the agency is entrusting a commercial spacecraft to land the rover safely on the Moon.

Why is NASA sending VIPER to the Moon?

NASA wants to land humans on the Moon again — this time to stay. The agency’s [Artemis program](#) envisions people sustainably living on the Moon using locally available resources like water. We know from past missions that the lunar poles host at least [600 billion kilograms](#) of water ice, and likely much more. But to be able to use that water, we need to learn about its state and how accessible it is up-close. That’s where [NASA’s first robotic lunar rover](#) comes in. See more, click the link: <https://www.planetary.org/space-missions/viper>

Click the Links Below for More Reading

[The Search for Alien Life](#)

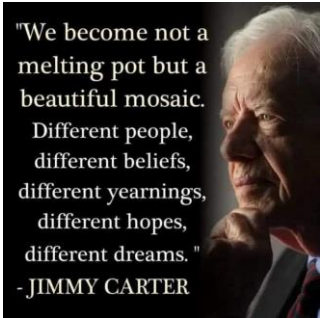
[Black Holes Are Everywhere](#)

[Do Black Holes Have Bottoms?](#)

[What are Wormholes?](#)

INSPIRATIONAL QUOTE

I found this quote on a Facebook post. Our country has always been considered a melting pot. We are not a melting pot, but a mosaic. Diversity and inclusion of different people, cultures, beliefs, etc. This is what makes our country great. We don't need to make our country great again as some individuals claim. It is already great. We just need to improve our attitudes, behavior and become more open minded. Accept and interpret but be open to new and different ideas.



As we close this year and look forward to 2024, I want to wish everyone a healthy and happy holiday season. Thank you for being a subscriber to this newsletter (I can't believe it has been 2 years since it was first published). There will be some changes starting in January 2024. These include:

- **A name change from COSMIC DIMENSIONS TO COSMIC CRUISIN' STARS 'n SPACE**
Why the change:
 - **Cosmic Dimensions when googled shows up related to Astrology.**
 - **Other terms connected to "COSMIC" are in use elsewhere, thus the uniqueness was not there.**
 - **Using CRUISIN' STARS 'n SPACE fits the theme of Astronomy and Space Exploration.**
- **The use of an autoresponder to send the newsletter. I will be using "Mailer Lite". With this you will get at least one email a week with freebies.**
- **Every month there will be a chance to win a free one session course.**
- **Other items are in the works.**

----- CONTACT -----

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: centiastroospace@gmail.com centiastroospace@centiastroospace.com

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



© Centi Astro-Space Activities 2023