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CENTI ASTRO-SPACE ACTIVITIES

Welcome to the ninth issue of Cosmic Dimensions. I hope what I am bringing to you with these newsletters is something you have an interest in and helps you understand and appreciate space science. In the coming months I will be making some changes. I'm hoping to make some changes in the format, but this will come in time. I will also be looking for contributors who will add their perspectives. I know I have some Amateur Astronomers out there and if you would like to contribute, please contact me. Other changes are on the drawing board, so to speak. Below you will find what's included this month. Enjoy!

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WHAT'S UP IN THE NIGHT SKY FOR SEPTEMBER

The Night Sky

<https://www.youtube.com/watch?v=AonoQySwmc8>

ARTEMIS I: ABOUT THE MISSION

All eyes will be on the historic Launch Complex 39B when the Orion spacecraft and the Space Launch System (SLS) rocket lift off for the first time from NASA's modernized Kennedy Space Center in Florida. Artemis I will be the first in a series of increasingly complex missions to build a long-term human presence at the Moon for decades to come. The primary goals for Artemis I are to demonstrate Orion's systems in a spaceflight environment and ensure a safe re-entry, descent, splashdown, and recovery prior to the first flight with crew on Artemis II.

- Launch date: No earlier than Sept. 2, 2022 (Originally scheduled for August 29th, but was scrubbed)
- Mission duration: 42 days, 3 hours, 20 minutes
- Total distance traveled: 1.3 million miles
- Re-entry speed: 24,500 mph (Mach 32)
- Splashdown: TBD

Source and More Info

<https://www.nasa.gov/specials/artemis-i/#six>

FAMOUS AFRICAN AMERICAN MATHEMATICIAN / SCIENTIST

Katherine Johnson (1918-2020)

Katherine Johnson, a prominent mathematician, is one of the first Black women to work as a NASA scientist. Johnson's love for math and numbers started at a young age; by the age of 10 she was already **enrolled in high school**.

After graduating with high honors from West Virginia State College in 1937, Johnson began teaching. But in 1939, when West Virginia schools integrated, Johnson and two men were invited to join a graduate program and **became the first Black students** at West Virginia University.



Image Credit: NASA Langley Research Center

Although Johnson left the university to start a family with her then-husband, James Goble, she began working for the **National Advisory Committee for Aeronautics** in 1953, an organization that would later become NASA. She worked as a computer – long before the Microsoft or Apple machines came around – in the West Area Computing unit. The 2016 film **Hidden Figures** shares a glimpse of her life (portrayed by Taraji P. Henson) and career, alongside colleagues Dorothy Vaughn (Octavia Spencer) and Mary Jackson (Janelle Monáe).

During the Space Race, Johnson was brought on to NASA's **Space Task Group**. There she became the first woman to co-author a paper on engineering and the first woman to sit in on mission debriefings. She helped calculate the path for both **Freedom 7**, the first U.S. human spaceflight, and **Friendship 7**, allowing Alan B. Shepard Jr. and John Glenn to safely visit space. She worked on other missions, too, including Apollo 11 and Apollo 13.

Johnson retired from NASA in 1986. In 2015, President Obama awarded her the Presidential Medal of Freedom. NASA also named a computational research facility, a satellite and a spacecraft that supplied the International Space Station in Johnson's honor. She died in 2020 at the age of 101, still an inspiration to many in the STEM field.

The following NASA link: <https://www.nasa.gov/content/katherine-johnson-biography> will give more detailed information about Katherine Johnson. I feel she is an inspiration for young people no matter what their background is. This is what diversity and equity in the STEM / STEAM field is all about.

Source: Discover Magazine Online, February 8, 2022

DIVERSITY, EQUITY and INCLUSION

This is the title of a presentation I am currently working on and hope to deliver at various functions. I am really concerned with all the problems we are facing in our country where people who are not perfectly white are being targeted. The inflictions of pain and the shootings shouldn't be happening in a country where we were supposed to be a melting pot of different cultures and nationalities. A country with freedoms that many other countries don't have. It's the diversity of people who have contributed to make this country strong and what it is. Discrimination should not be a part of our lives, but it is, and it continues. I am concerned how this influences young people today. I recently taught an online class with a diverse population of AMERICAN students. I stressed American students, who come from different cultures and nationalities, but they were born here. At the end of my classes I always stress that they all have the potential to succeed in life no matter whether they are female, male, non-white or white. After one of my classes a young female student told me she didn't feel she had an equal chance to succeed as a female. And I asked why she felt this way and her answer was that her mother told her this was the case in life. That struck a chord with me, and I realized as far as we have advanced in things, we still have a long way to go to change negative attitudes and behaviors. It is my hope that my little contribution to this topic will help to change the mentality and help to strengthen the bonds between people of our country and elsewhere.

SPACE PIC OF THE MONTH



(Image credit: NASA)

Thursday, August 25, 2022: The jets in this image are piloted by several NASA astronauts who executed this spectacular formation flight to salute NASA's upcoming moon mission Artemis 1.

SPACE SPINOFFS

Space exploration and the ISS has provided many benefits that people aren't aware of, but here are some things worth noting.

Improving indoor air quality



Solutions for growing crops in space now translates to solutions for mold prevention in wine cellars, homes and medical facilities, as well as other industries around the world. NASA is [studying crop growth aboard the space station](#) to develop the capability for astronauts to grow their own food as part of the agency's journey to Mars. Scientists working on this investigation noticed that a buildup of a naturally-occurring plant hormone called ethylene was destroying plants within the confined plant growth chambers. Researchers developed and successfully tested an ethylene removal system in space, called Advanced Astroculture (ADVASC). It helped to keep the plants alive by removing viruses, bacteria and mold from the plant growth chamber. Scientists adapted the ADVASC system for use in air purification. Now this technology is used to prolong the shelf-life of fruits and vegetables in the grocery store, and winemakers are using it in their storage cellars.

Supporting water purification efforts worldwide



Whether in the confines of the International Space Station or a tiny hut village in sub-Saharan Africa, drinkable water is vital for human survival. Unfortunately, many people around the world lack access to clean water.

Using **technology developed for the space station**, at-risk areas can gain access to advanced water filtration and purification systems, making a life-saving difference in these communities. Joint collaborations between aid organizations and NASA technology show just how effectively space research can adapt to contribute answers to global problems. The commercialization of this station-related technology has provided aid and disaster relief for communities worldwide. The Water Security Corporation, in collaboration with other organizations, **has deployed systems using NASA water-processing technology** around the world.

ASTROSPACE JOKE of the MONTH

If an athlete gets athlete's foot, what do astronauts get?

missiletoe

SPACE QUOTE of the MONTH

"A blade of grass is a commonplace on Earth; it would be a miracle on Mars. Our descendants on Mars will know the value of a patch of green. And if a blade of grass is priceless, what is the value of a human being?"

-- **Carl Sagan, Pale Blue Dot: A Vision of the Human Future in Space**

INSPIRATIONAL QUOTE of the MONTH

"Don't be pushed around by the fears in your mind. Be led by the dreams in your heart." -- **Roy T. Bennett, The Light in the Heart**

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