



**October 2021**

Dear Friends,

Many of you likely watched the highly anticipated and successful launch of NASA's Lucy Mission. This mission now begins a 12-year journey to eight different asteroids and carries on it the Lucy Thermal Emission Spectrometer (L'TES) led by our own Professor [Phil Christensen](#). I want to congratulate Professor Christensen and the entire L'TES team as we look forward to some incredible discoveries ahead and all that we will learn from visiting Jupiter's Trojan asteroids.

Meanwhile back on Earth, please join me in extending a very warm welcome to Associate Research Professor [Sean Bryan](#). Professor Bryan's work involves building high-performance systems for mapping the universe. He comes to us from the School of Electrical, Computer and Energy Engineering at ASU.

On the events side, we hope you will celebrate Sun Devil Pride at ASU's [Homecoming and Block Party](#), in-person and outside, this weekend. Be sure to stop by our school's booth at the block party to talk with students and scientists and learn about our latest research.

Our [Earth Space Exploration Day](#) will be virtual this year and our keynote speaker is research scientist [Rolf Jansen](#) who will be providing updates on the James Webb Space Telescope. This free event includes science-related activities for students, families, educators, and anyone interested in Earth and space.

And be sure to join us every other Wednesday for our [Virtual Night Sky](#) series with the Marston Exploration Theater presenters.

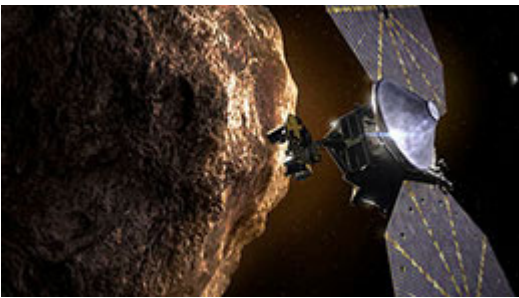
I hope you enjoy this newsletter featuring the latest school news, announcements and features. For more information on our research, events, students, faculty, and alumni, we have included links to social media at the end of this newsletter. Please follow us, share and retweet.

Be well and keep safe,



Meenakshi (Mini) Wadhwa

## In the News



**NASA Lucy mission carries ASU instrument, namesake—and the hopes of thousands of STEM students**

The NASA Lucy mission to the Trojan asteroids launched on Oct. 16 from Cape Canaveral, Florida. The spacecraft is named in honor of the human ancestor fossil “Lucy” discovered by Donald Johanson, founding director of ASU’s Institute of Human Origins. Onboard the spacecraft is the ASU-led instrument L’TES, which was designed, built and tested by SESE Professor Philip Christensen and his team. And watching this

launch were thousands of students who have attended the ASU-led Lucy mission “L’SPACE” Academy. [Read more](#)

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## NASA's Perseverance sheds more light on Jezero Crater's watery past



A new paper published in the journal *Science* by the NASA's Perseverance Mars rover science team details how the hydrological cycle of the now-dry lake at Jezero Crater is more complicated and intriguing than originally thought. The findings are based on detailed imaging the rover provided of some prominent escarpments in the delta that formed from sediment accumulating at the confluence of an ancient river that stretched about 120 miles, feeding a lake that was 21 miles wide. [Read more](#)

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## The 'FORCE' is with ASU, thanks to a \$13.7M NSF grant

The National Science Foundation has announced the award of \$13.7 million

to ASU to build a one-of-a-kind high-pressure research facility, the FORCE (Facility for Open Research in a Compressed Environment). FORCE will promote discovery of new materials and the solution of fundamental problems in Earth and planetary science, materials science, chemistry, physics, energy conversion and other fields. [Read more](#)

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## Rare micrometeorite may have originated from a Ceres-like asteroid

Research led by Maitrayee Bose on a rare micrometeorite found the isotopic



composition to be enriched in heavy carbon 13. These enrichments are characteristic of meteorites that have been affected by interaction with water, and occurred on the asteroid parent body approximately 4.5 billion years ago, soon after they were formed. This may help scientists understand the conditions on asteroids during the age of planet formation. [Read more](#)

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## How cartography helped the Grand Canyon become grand

Published in 1882 “Tertiary History of the Grand Cañon District with Atlas”

was the first monograph produced by the U.S. Geological Survey. 140 years later, an interdisciplinary ASU team is sharing this historic atlas of the Grand Canyon with the public. The project will include a digital atlas counterpart to the rare physical atlas, an interactive online multimedia exhibit that curates the atlas with maps, images and video, a complementary physical exhibit, and a symposium event offering insightful presentations on the various historical-geographical and socio-cultural dimensions of the atlas. [Read more](#)

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## How low did it go? Study seeks to settle debate about oxygen in Earth's early atmosphere

A team of scientists, led by former ASU

doctoral student Aleisha Johnson, has been working to unravel the mystery of how the stage was set for the Great Oxidation Event, about 2.4 billion years ago. Using computer modeling, Johnson and her team determined how much



oxygen might have been present at Earth's surface before the Great Oxidation Event — and the implications for life on early Earth. [Read more](#)

## Announcements



### President's Professor elected as an AGU fellow

Ariel Anbar has been elected as an American Geophysical Union fellow, joining 59 other individuals in the

2021 class. The AGU selected Anbar for this honor in recognition of his outstanding achievements and contributions in pushing forward the frontiers of science. [Read more](#) and [watch this video](#) to learn about Professor Anbar's research into the evolution of the Earth as a habitable world.

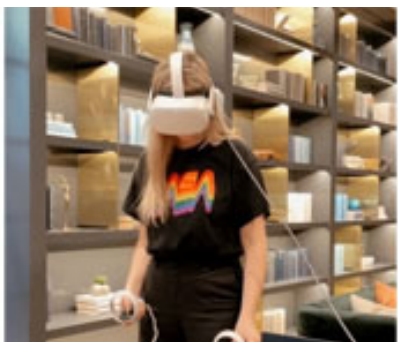
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### Celebrating ASU history; Carleton Moore, meteorites and a Moon rock



It was 60 years ago, in 1961, and the space race was on. ASU's opportunity to become part of the nation's space program began when it purchased the largest personal meteorite collection at the time from Harvey Nininger. The collection was housed and studied at ASU's newly formed Center for Meteorite Studies. To direct the center, ASU courted a recent PhD graduate from the California Institute of Technology, Carleton Moore. [Read more](#)

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## Summer internship with NASA JPL was more than virtual for ASU graduate student

Lauren Gold, graduate student in ASU's School of Arts, Media, and

Engineering, spent her summer doing an internship at JPL that involved designing and implementing various virtual reality app concepts that would enable full immersion into a virtual Mars environment. One of the goals of her internship was to create tools and interactions for the scientists and engineers working on the Mars Sample Return program. She is also currently working with the Mars 2020 Mastcam-Z team to use images from this camera system to develop Mars data visualization products. [Read more](#)

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## ASU Regents Professor receives prestigious award for excellence in aerosol research, technology



ASU Regents Professor Peter Buseck is the 2021 recipient of the David Sinclair Award from the American Association for Aerosol Research (AAAR), the leading international scientific research organization for the study of aerosols, with emphasis on atmospheric chemistry. This significant honor recognizes Buseck for his sustained excellence as an active, established scientist who has made a lasting impact in aerosol research and technology throughout his career. [Read more](#)

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## 20th Anniversary of NASA's Mars Odyssey orbiter and ASU-led THEMIS

20 years ago on October 24, NASA's Mars Odyssey spacecraft arrived in Mars orbit. On board the spacecraft, is the Thermal Emission Imaging System (THEMIS), a camera with the main tasks of mapping rock mineralogies and

detecting heat, which yields information on the physical and thermal properties of the martian surface. With ASU planetary scientist and Regents Professor Phil Christensen as the THEMIS Instrument PI, NASA's Mars Odyssey is still orbiting Mars, while THEMIS captures and returns images daily to staff scientists. [View images of the day](#)

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## Capstone class successfully launches WWASP payload

The submillimeter-Wave WATER SPectrometer (WWASP), built by SESE students Jessica Berkheimer, Ruben Ortiz, Kelsey Klinger, Ewan Pringle and Steve Sherman in collaboration with engineers and scientists from JPL as part of the 2020-2021 SESE capstone class, recently launched on the NASA HASP stratospheric balloon. WWASP is measuring the transparency of the Earth's atmosphere at stratospheric balloon altitudes, which may determine if the atmosphere is transparent enough to allow future stratospheric balloon missions to make astronomical observations of water, rather than having to go all the way to space. [Watch the launch](#) and see the [view from the basket](#).

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## Lab of the month

The [Metals, Environmental and Terrestrial Analytical Laboratory \(METAL\)](#) is a dual-location analytical facility with the instruments and resources to support research across



many fields, including anthropology, chemistry, biology, forensics, geology, environmental studies, and ecology. The laboratories accommodate sample processing and analyses from industry, academia, and government researchers. [Tour inside the lab](#) and discover the equipment and instrumentation used to support scientific advances for students and researchers across disciplines at ASU as well as external users.

## Events

[Homecoming and Block Party October 30](#) Visit our School of Earth and Space Exploration tent on the Tempe Campus located on Cady Mall at the Homecoming Block Party from 9 a.m. till noon. Stop by to enjoy activities and meet some of our students and faculty. If you are an alum, let us know and we

have a special gift for you!

**Virtual Night Sky** Join the ASU Marston Exploration Theater presenters on **Wednesday, November 3 and 17 at 7 p.m.** for a live planetarium presentation. Learn about the planets and stars visible in the night sky from your own backyard and the latest events in space exploration! Register in advance for these free Zoom webinars **November 3** and **November 17**.

**Earth and Space Exploration Day** **November 13, 10 a.m-1 p.m.** This free virtual event includes science-related activities for students, families, educators, and anyone interested in Earth and space.

**Giving Tuesday** is **November 30** a global day of giving! Your generosity allows us to support research discoveries, student success and make a difference for the School of Earth and Space Exploration community. Together we can make a difference.

## Alumni Announcements

### Alumni: Keep it current!

**Homecoming and Block Party October 30** Alumni, be sure to visit our School of Earth and Space Exploration tent on the Tempe Campus located on Cady Mall at the Homecoming Block Party from 9 a.m. till noon. While there, please sign up for our mailing lists to stay up to date on the latest school events, research, student projects, and opportunities.

**ASU** School of Earth and  
Space Exploration  
Arizona State University



**#1 in the U.S. for innovation**  
ASU ahead of MIT and Stanford  
U.S. News & World Report, 5 years, 2010 - 2011

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