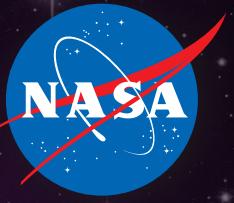
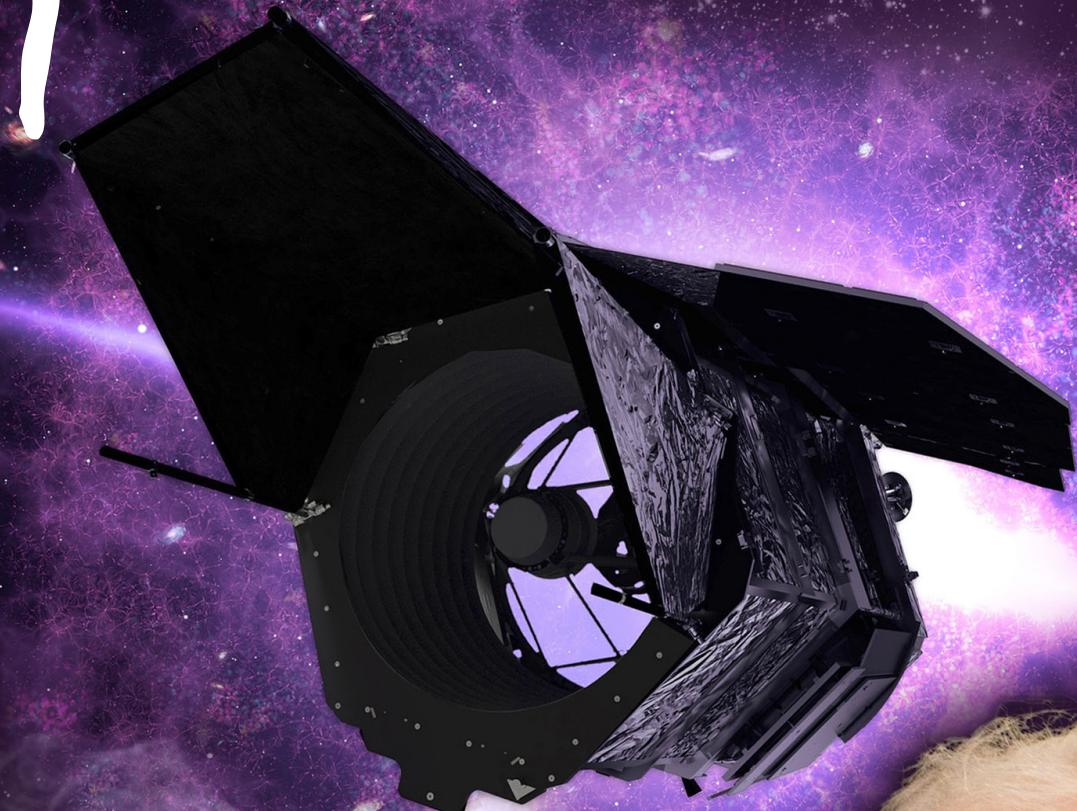


National Aeronautics and Space Administration



Goddard View

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GoddardView

TRENDING

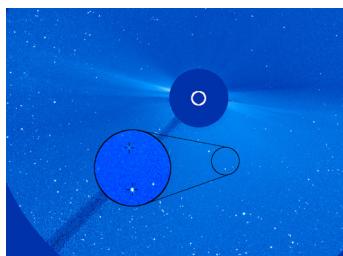


Demo-2 Mission Launches From Kennedy on May 30

For the first time ever, NASA astronauts launched from American soil aboard a commercially built and operated American spacecraft on its way to the International Space Station. The Crew Dragon spacecraft was built by SpaceX.

4,000th Comet Discovered by ESA and NASA Solar Observatory

On June 15, a citizen scientist spotted a never-before-seen comet in data from the Solar and Heliospheric Observatory – the 4,000th comet discovered in the spacecraft's 25-year history.



NASA Astronaut Speaks to Goddard About Workplace Diversity

A physician and former Navy SEAL, NASA astronaut Jonny Kim addressed Goddard employees and spoke about workplace diversity during a virtual presentation in honor of Asian American and Pacific Islander Heritage Month.

Martine Rothblatt Delivers Pride Month Keynote Presentation

The founder of SiriusXM Satellite Radio, Martine Rothblatt emphasized the importance of LGBTQ+ allies and how to become better allies to the trans community during a virtual address to Goddard employees.



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Cover design: NASA/Goddard/Jay O'Leary

GoddardView Info

Goddard View is an official publication of NASA's Goddard Space Flight Center in Greenbelt, Maryland. Goddard View showcases people and achievements in the Goddard community that support the center's mission to explore, discover and understand our dynamic universe. Goddard View is published by the Goddard Office of Communications.

You may submit story ideas to the editor at darrell.d.delarosa@nasa.gov. All contributions are subject to editing and will be published as space allows.

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GODDARD SCIENTIST NAMED FINALIST FOR SAMUEL J. HEYMAN SERVICE TO AMERICA MEDAL

By Rob Gutro

On May 3, the nonprofit, nonpartisan Partnership for Public Service announced 27 Samuel J. Heyman Service to America Medal (Sammies) finalists for 2020 – outstanding federal employees who serve the public good and are addressing many of our country's greatest challenges. One of those is climatologist and author Claire Parkinson of NASA's Goddard Space Flight Center.

Claire was selected for her achievements in conducting breakthrough scientific research documenting how the changing sea ice covers in the Arctic and Antarctic oceans have played a significant role in climate change, as well as for her role as project scientist for the Aqua satellite. Claire is one of six finalists in the Paul A. Volcker Career Achievement category.

This medal recognizes a federal employee for leading significant and sustained accomplishments throughout a federal career of 20 or more years. In this category, she joins Dr. Anthony Fauci, who for decades has served as the government's premier expert on infectious diseases and provided critical health care information to the public and government officials on HIV/AIDS, Ebola, Zika, SARS, MERS, swine flu and most recently COVID-19.

"I am very honored to be considered for a Service to America Medal," Parkinson said. "It has been an incredible privilege to get to work at NASA for the past 41-plus years, and what a bonus to see the NASA Earth science efforts discussed as significant societal contributions along with such efforts as NIH work on infectious diseases and treatments for leukemia and Department of Justice efforts to ensure that minority communities have access to credit. It is great to see the Earth science efforts viewed in this very positive light and to have the Partnership for Public Service so wonderfully keen on highlighting the value that the American public gets out of its federal government civil servant workforce."

Claire has been a climatologist at Goddard since July 1978 and a Goddard senior fellow since 2005. Her research emphasis has been on polar sea ice and its connections to the rest of the climate system and to climate change, with a particular emphasis on satellite remote sensing. This work has involved satellite data set generation and analysis, including the determination of decreases in Arctic sea ice coverage since the 1970s and examination of their regional variabilities and impacts, plus the quantification and analysis of the very different time series of sea ice changes in the Antarctic. Claire has also developed a computer model of sea ice, has done fieldwork in both the Arctic and the Antarctic, and is the lead author of an atlas of Arctic sea ice from satellite data and a co-author of two other sea ice atlases.

The Sammies, known as the "Oscars" of government service, are a highly respected honor with a rigorous selection process. Named for the Partnership for Public Service's late founder – who was inspired by President John F. Kennedy's call to service in 1963 – these awards align with his vision of a dynamic and innovative federal workforce that meets the needs of the American people.

The Partnership for Public Service's mission is to help make government more effective, and the Sammies honorees represent the many exceptional federal workers who are doing just that – breaking down barriers, overcoming huge challenges and getting results. Whether they're defending the homeland, protecting the environment, ensuring public safety, making scientific and medical discoveries, or responding to natural and manmade disasters, these men and women put service before self and make a lasting difference. ■

Above: Claire Parkinson

Photo credit: NASA/Steve Graham

WFIRST RENAMED FOR 'MOTHER OF HUBBLE'

NASA is naming its next-generation space telescope currently under development, the Wide Field Infrared Survey Telescope (WFIRST), in honor of Nancy Grace Roman, NASA's first chief astronomer, who paved the way for space telescopes focused on the broader universe.

The newly named Nancy Grace Roman Space Telescope – or Roman Space Telescope, for short – is set to launch in the mid-2020s. It will investigate long-standing astronomical mysteries, such as the force behind the universe's expansion, and search for distant planets beyond our solar system.

Considered the "mother" of NASA's Hubble Space Telescope, which launched 30 years ago, Roman tirelessly advocated for new tools that would allow scientists to study the broader universe from space. She left behind a tremendous legacy in the scientific community when she died in 2018.

"It is because of Nancy Grace Roman's leadership and vision that NASA became a pioneer in astrophysics and launched Hubble, the world's most powerful and productive space telescope," said NASA Administrator Jim Bridenstine. "I can think of no better name for WFIRST, which will be the successor to NASA's Hubble and Webb Telescopes."

Roman came to NASA in 1959, just six months after the agency had been established. At that time, she served as the chief of astronomy and relativity in the Office of Space Science, managing astronomy-related programs and grants.

"I knew that taking on this responsibility would mean that I could no longer do research, but the challenge of formulating a program from scratch that I believed would influence astronomy for decades to come was too great to resist," she said in a NASA interview.

This was a difficult era for women who wanted to advance in scientific research. While Roman said that men generally treated her equally at NASA, she also revealed in one interview that she had to use the prefix "Dr." with her name because "otherwise, I could not get past the secretaries."

But she persisted in her vision to establish new ways to probe the secrets of the universe. When she arrived at NASA, as-

tronomers could obtain data from balloons, sounding rockets and airplanes, but they could not measure all the wavelengths of light. Earth's atmosphere blocks out much of the radiation that comes from the distant universe. What's more, only a telescope in space has the luxury of perpetual nighttime and doesn't have to shut down during the day. Roman knew that to see the universe through more powerful, unblinking eyes, NASA would have to send telescopes to space.

Through Roman's leadership, NASA launched four Orbiting Astronomical Observatories between 1966 and 1972. While only two of the four were successful, they demonstrated the value of space-based astrophysics and represented the precursors to Hubble. She also championed the International Ultraviolet Explorer, which was built

in the 1970s as a joint project between NASA, ESA (European Space Agency) and the United Kingdom, as well as the Cosmic Background Explorer, which measured the leftover radiation from the big bang and led to two of its leading scientists receiving the 2006 Nobel Prize in Physics.

Above all, Roman is credited with making Hubble a reality. In the mid-1960s, she set up a committee of astronomers and engineers to envision a telescope that could accomplish important

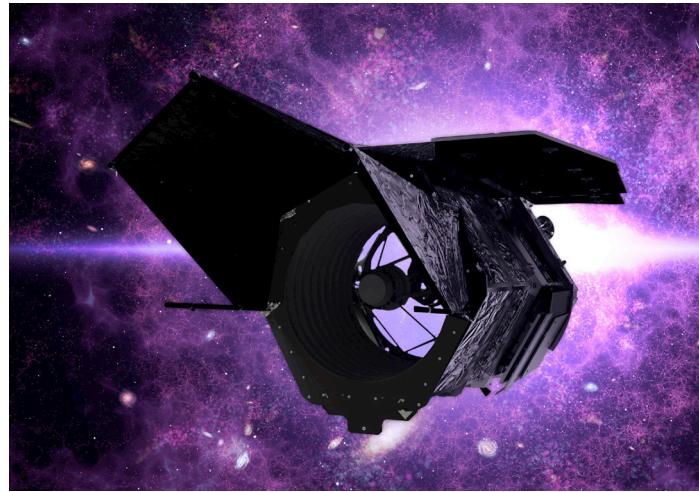
scientific goals. She convinced NASA and Congress that it was a priority to launch the most powerful space telescope the world had ever seen.

Hubble turned out to be the most scientifically revolutionary space telescope of all time. Ed Weiler, Hubble's chief scientist until 1998, called Roman "the mother of the Hubble Space Telescope."

"Nancy Grace Roman was a leader and advocate whose dedication contributed to NASA seriously pursuing the field of astrophysics and taking it to new heights," said Thomas Zurbuchen, NASA's associate administrator for science. "Her name deserves a place in the heavens she studied and opened for so many." ■

Center: Nancy Grace Roman Space Telescope

Image credit: NASA



A LIFETIME OF INNOVATION: JAMES KERLEY DEDICATED HIMSELF TO THE ART OF INVENTION

By Amy Klarup

A profile in honor of National Inventors Month in May

Growing up in Cheverly, Maryland, with a NASA inventor for a father, the five Kerley kids learned to expect the unexpected. A normal activity like fixing a broken car could turn into an engineering experiment when it involved James J. Kerley Jr., an engineer at NASA's Goddard Space Flight Center for nearly 30 years.

His son, Joe Kerley, recalls asking his dad for help with his 1964 Plymouth Barracuda, which was experiencing a strange vibration issue. Jim Kerley specialized in minimizing vibration throughout his career, applying his techniques to both sedans and spacecraft. Always favoring the hands-on approach, Jim was not the kind of person to call a mechanic or wait to see if the problem worsened.

Instead, he brought an oscilloscope home from his Goddard office one day and had Joe drive the car while he sat in the back seat. As he drove, he threw open the car door and held the instrument outside to measure the car's vibration patterns. Though unconventional, his solution worked. After fixing the problem, the car continued on its merry way, vibration free.

"He would always tell us, 'You have to feel it,'" said Bernadette Maertens, Jim's youngest daughter. "With him, it was always hands-on. He knew that was the best way to identify issues and come up with different ideas."

Jim infused innovation into everything he did. It didn't matter if he was building an elaborate set for a theater production or designing a scaffold for a rocket. Problems existed to be solved in creative and unusual ways. His inventiveness resulted in 25 U.S. patents and four Canadian patents to his name, spread out between the early years of running his own business, Kerley Engineering, and the decades that followed at NASA.

"The hallmark of engineering has always been creative, inventive design," Jim wrote in course materials for one of his NASA classes, published the year he passed away at age 73.

He designed different kinds of isolators, built to protect fragile components from vibration damage. The cable isolator was

one of his signature designs that he adapted and updated throughout his career.

Jim joined the Goddard community in the mid-1960s, and his timing couldn't have been better. In 1969, Apollo 11 landed on the Moon, and the space program continued to push exploration boundaries in the decades to follow.

He applied his disciplined work ethic to NASA's biggest engineering problems. His expertise in vibration meshed well with NASA's needs – rocket launches violently shake spacecraft bound for orbit, risking damage to the complicated instruments inside. All NASA instruments and spacecraft undergo rigorous testing before launch, including vibration tests to verify the structure's stability.

In the later years of his life, he taught a NASA course that focused on mastering the process of innovative thinking. He wrote at length about the thinking process, applying his educational theories to inspire better outcomes.

"Modern education does not prepare the students for the real world because it trains the students to be deductive with convergent thinking, but it does not train them to be creative with inductive or innovative thinking," Jim wrote.

Jim's final decade at NASA focused on exploring the full range of applications for his innovations. Starting in 1988, Jim filed seven patent applications, and some of these inventions aimed to assist people with disabilities, including a "Compliant Walker" consisting of a harness and cable system that could provide support to patients during physical therapy.

Jim passed away in 1994. A pamphlet from his NASA memorial service includes the quote "The inventor never quits."

Goddard has celebrated Jim's legacy each year since his passing with the James Kerley Award, given annually to Goddard inventors who demonstrate extraordinary commitment to technology development and commercialization. ■

Center: James Kerley

Photo courtesy: Kerley family

AAS NAMES NASA SCIENTISTS LEGACY FELLOWS

Fourteen scientists affiliated or previously affiliated with NASA's Goddard Space Flight Center have been named fellows of the American Astronomical Society (AAS), the major organization of professional astronomers in North America.

The AAS Fellows program was established in 2019 to honor members for their contributions toward the AAS mission of enhancing and sharing humanity's scientific understanding of the universe.

The AAS board of trustees has designated an initial group of more than 200 legacy fellows. These include past recipients of certain awards from the AAS or its topical divisions, distinguished AAS elected leaders and volunteer committee members, as well as previously unrecognized individuals with long histories of outstanding research, teaching, mentoring and service. The Goddard scientists include:

Spiro Antiochos, Senior Scientist, Space Weather, and Chief Scientist for the Goddard Heliophysics Science Division
He is an internationally recognized authority on space physics and plasma physics.

Edward Cheng, Former Goddard Astrophysicist and Now Senior Partner and Founder of Conceptual Analytics, LLC
He was the Hubble Space Telescope development project scientist, providing scientific and technical leadership for the project.

L. Drake Deming, Planetary Scientist and Infrared Astronomer at the University of Maryland, College Park
He retired from Goddard. His research focuses on characterization of the atmospheres of extrasolar planets using transit and eclipse techniques.

Alice Harding, Astrophysicist in the Goddard Astrophysics Science Division
Her research interests have focused on the theory of high-energy particle acceleration and radiation processes in pulsars, highly magnetized neutron stars (magnetars), gamma-ray bursts and supernova remnants.

Mike Hauser, Emeritus Astronomer
He served as deputy director of the Space Telescope Science Institute in Baltimore from October 1995 to October 2009. He joined NASA in 1974 to start an infrared astrophysics program at Goddard.

Sangeeta Malhotra studies the nature of galaxies and their surroundings, from the most distant galaxies to our own backyard. She is particularly interested in spectral line emission from galaxies, ranging from ultraviolet Lyman alpha line of hy-

drogen to far-infrared ionized carbon line emission. She has led three major Hubble surveys that obtained slitless spectra of some of the most distant galaxies known.

Stephen Maran, Senior Advisor With the American Astronomical Society

He is the author or editor of 12 books and more than 100 popular articles on astronomy and space exploration, and many more scientific publications. He worked at Goddard from 1969 to 2004, most recently as assistant director of space sciences for information and outreach.

Maxim Markevitch's main interest is the clusters of galaxies – in particular, the physics of the intracluster medium, including its thermal component, magnetic fields and cosmic ray population.

John Mather, Senior Astrophysicist in the Observational Cosmology Laboratory Located at Goddard

He is also the senior project scientist for the James Webb Space Telescope. He is a co-recipient of the 2006 Nobel Prize in Physics.

Keith Noll, Goddard Planetary Astronomer, Project Scientist for the Lucy Mission

The Lucy mission is scheduled to launch in 2021 and will be the first mission to explore the Jupiter Trojan asteroids, flying by six Trojans over a nearly 12-year mission.

William (Bill) Pence joined the High Energy Astrophysics Science Archive Research Center (HEASARC) in December 1990. HEASARC is the primary archive for NASA's (and other space agencies') missions studying electromagnetic radiation from extremely energetic cosmic phenomena, ranging from black holes to the big bang.

Tod Strohmayer, Senior Astrophysicist in the X-ray Astrophysics Laboratory at Goddard

His research interests in astrophysics center around the extreme physics and properties of compact stars, with particular emphasis on neutron stars, neutron star binaries and black holes.

Jean Hebb Swank was the project scientist for the Rossi X-ray Timing Explorer (RXTE). Swank was also the principal investigator for the Proportional Counter Array, one of the three science instruments on RXTE.

Kimberly Weaver is an astrophysicist who works in the X-ray Astrophysics Branch, Laboratory for High Energy Astrophysics at Goddard. She is currently the U.S. project scientist for NASA/ESA's XMM-Newton Observatory. ■

NASA NETWORKS EMPOWER COMMERCIAL CREW

By [Danny Baird](#)

On May 30, a SpaceX Crew Dragon spacecraft launched from the historic Launch Complex 39A at NASA's Kennedy Space Center in Florida to the International Space Station as part of SpaceX's second demonstration mission under the Commercial Crew Program – the first mission to launch American astronauts on American rockets from American soil to the station since the Space Shuttle Program. The Crew Dragon ferried NASA astronauts Robert Behnken and Douglas Hurley to join the Expedition 63 crew aboard the space station. NASA's communications networks – overseen by NASA's Space Communications and Navigation (SCaN) program office – supported this Commercial Crew Program milestone, just as they will support all Crew Dragon and Boeing Crew Space Transportation (CST)-100 Starliner missions.

"Our primary focus is robust and reliable communications with the crew," said Neil Mallik, Human Space Flight network director at NASA's Goddard Space Flight Center. "We have been improving the network across the board to provide enhanced communications services for crewed spacecraft to ensure astronauts have continuous contact with the Mission

Control Center at NASA's Johnson Space Center in Houston and the Mission Control Center at SpaceX headquarters in Hawthorne, California. These improvements range from diverse and redundant terrestrial data paths, to enhanced relay satellite pointing capabilities to actively respond to potential abort scenarios."

NASA's Commercial Crew Program works with U.S. aerospace companies developing launch and spacecraft systems capable of carrying crew to the space station. Safe, reliable and cost-effective transportation services to and from the station will expand use of the orbiting laboratory while enabling NASA to focus resources on deep space exploration missions like the Artemis missions to the Moon.

"It's an exciting time to be in human spaceflight," said Mallik. "Our teams are busier now than in the past."

For the Commercial Crew Program, the Space Network, which consists of ground stations and a collection of relay satellites in geosynchronous orbit, provides data and voice communica-

tions to and from the crew and the spacecraft for the entire mission lifecycle – from launch through rendezvous to the space station, from docking through undocking, and from reentry through splashdown or landing. The Human Space Flight Network also collaborates with the U.S. Air Force's Eastern Range and 45th Space Wing to provide independent ground-based orbit determination in the event of off-nominal operation conditions.

When in close proximity to the space station, the Crew Dragon uses a direct, S-band data link for exchanging audio, video and telemetry data through the Common Communications for Visiting Vehicles (C2V2) system. C2V2 was designed to

unify all communications from visiting spacecraft to the U.S. segment of the space station into a single system, streamlining operations.

Once docked, data from the Crew Dragon is routed to the space station's onboard communications system through a hardline umbilical connection.

In addition to communications services, NASA's Search and Rescue office has joined with the Human Space Flight network to provide the Commercial Crew Program with responsive location services through

the international search and rescue network, Cospas-Sarsat. The Crew Dragon is equipped with an emergency beacon that can provide an accurate location anywhere in the world near-instantaneously upon activation. Each crew member is also equipped with a personal locator beacon to be used in the event they need to exit the capsule prior to normal planned recovery operations.

"We've harmoniously incorporated Goddard's Search and Rescue office into our team," said Mallik. "This further enhances the network capabilities and services we offer our commercial partners, improving astronaut safety." ■

Center: Human Space Flight Communications and Tracking Network Mission Manager Rosa Avalos-Warren supports the SpaceX Crew Dragon launch.

Photo credit: NASA/Goddard/Amber Jacobson

DANIEL BATTLE FIGHTS TO CULTIVATE AN INCLUSIVE WORKFORCE

By Elizabeth M. Jarrell

What do you do and what is most interesting about your role here at Goddard? How do you help support Goddard's mission?

My job is to enable the technical workforce by allocating resources so they can do their job. On a daily basis, I assist in managing the finances for the Joint Polar Satellite System (JPSS), which is a weather satellite program based on a NOAA-NASA partnership. I am the resource analyst for the Ozone Mapping and Profiler Suite instrument and also provide programmatic financial analysis for JPSS program management.

I am also a co-chair for the Equal Accessibility Advisory Committee (EAAC). In this role, I help our advisory committee cultivate an inclusive workforce, specifically for Goddard's disabled community.

Why did you become a financial specialist?

I really fell in love with financial management when I was attending Hood College in Frederick, Maryland, for a dual major in business administration and economics. I wasn't passionate about many other academic areas.

However, I loved soccer; I was a National Collegiate Athletic Association (NCAA) soccer athlete. The connection between the two is that I really enjoy strategy, be it strategy in soccer or business. As a government agency, NASA relies on strategy to achieve mission and scientific success.

How did you come to Goddard?

I was a Pathways intern. During my senior year at Hood, I applied to the Pathways Program and was accepted. I began interning at JPSS the last part of my college days and, upon graduating, went to work with JPSS full-time where I remain today. The Pathways Program ensured that I received the proper training and experience to be successful at Goddard.

Why did you decide to be a co-chair for the EAAC?

I have so much fun at work that I want to do whatever I can to make others feel the same way. I feel included and welcome

at Goddard, so I aim to bring that same energy and feeling to the Goddard community. I have a low-eye vision disability. I am interested in how I can help those with disabilities at Goddard. After learning more about the EAAC, I realized this committee would give me that platform. I joined the EAAC in July 2019 and became a co-chair in August 2019. EAAC needed help and I wanted to help them.

What are your goals for the EAAC?

I want to increase our membership and raise more awareness about what we can do for the disabled community. I also want our committee to become more familiar with issues the disabled community faces. Our group is trying to become better advocates by understanding what issues are currently affecting

the community and whom can we work with to address them. We are also interested in planning retreats in which our entire committee can get together for a day to come together and discuss what we want to achieve. We also want to figure out what is and is not working well for our group.

How does the Equal Opportunity Programs Office (EOPO) help the EAAC?

We work hand in hand. Their disability program manager is a part of our committee and a vital part of our team. We coordinate events and address issues together.

Can you please tell us about the EAAC's outreach events?

October is National Disabled Employment Awareness Month. To celebrate, we run events every October with EOPO. Last year, we had tours of Goddard's assistive technology laboratory and brought in a guest speaker who spoke in part about service dog etiquette.

What do you do to relax?

I still really enjoy playing soccer and currently play, when I have time, in the Goddard Soccer League. I'm on the gold team. Go, Gold! ■

Center: Daniel Battle

Photo credit: NASA