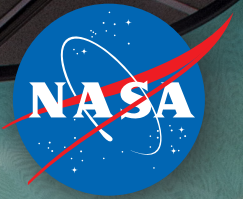


National Aeronautics and Space Administration



Goddardview

Volume 13 Issue 5
June/July 2017



Supercomputers on the case

With billions of observations of the atmosphere each week, the Goddard Space Flight Center's Supercomputing Center is the largest in the world. Computer programs use this data to analyze the atmosphere and the globe and tell us the story of our planet.



Water

The shared resource that sustains life

Water is key to life on Earth, and flows naturally between the oceans, atmosphere and land. We can study the water cycle of our planet and learn about the future of our planet.

Scientists observe the atmosphere, where water can be seen and measured in a variety of ways. They use a variety of instruments to study water in the air, on the ground, and in the oceans.

How does water connect us to the past and future?

Water on Earth is recycled by constantly moving between the oceans, atmosphere and land. This cycle is the basis for many of our most important scientific discoveries.

Where in the world is fresh water?

Around the world, there are many different types of water. Some is fresh, some is salt water, and some is frozen.

Scientists study the water cycle to learn about the future of our planet. They use a variety of instruments to study water in the air, on the ground, and in the oceans.

How does water connect us to the past and future?

Water on Earth is recycled by constantly moving between the oceans, atmosphere and land. This cycle is the basis for many of our most important scientific discoveries.

Water exists in all three phases on Earth

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How does water connect us to the past and future?

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Precipitation over the globe

Precipitation is the process by which water falls from the sky. It can be in the form of rain, snow, or sleet.

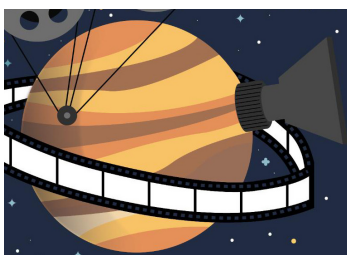
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GoddardView

TRENDING



Goddard Film Fest Highlights Center's Work Over the Past Year

Using the power of video and animations, the eighth annual Goddard Film Festival gave life to some of the center's accomplishments in astrophysics, Earth science, heliophysics and planetary science over the past year.

Employee Engagement Tours

As part of the center's summer employee engagement activities, organized by the Goddard Office of Communications, personnel across all divisions participated in tours that provided insight into the operations of several Goddard facilities.



Former NASA Astronaut Visits Goddard

Former NASA astronaut Leland Melvin, who served as a mission specialist aboard STS-122 and STS-129, spoke to employees about his spaceflight adventures and new book "Chasing Space: An Astronaut's Story."



GEWA Block Party Provides Summer Respite

The second annual GEWA Block Party featured games, live music, arts and crafts, vendors, and food trucks, giving employees a temporary break from daily routines prior to the Fourth of July holiday.



GoddardView

Trending – 2

Welcome to Your Neighborhood: Earth – 3

Goddard Hosts Eighth Annual Science

Jamboree – 4

NASA's Search and Rescue Mission

Manager a Finalist for Government

'Oscars' – 5

Intern Engagement Activities Spark

Innovation and Collaboration – 6

Goddard Dedicates Hyperwall to Late

Climate Scientist, Astronaut – 7

Webb Telescope, ICESat-2 and Others

Spotlighted at AwesomeCon – 8

Solar Eclipse Knocks Goddard Into the

Park – 10

Ten Things We Love About Goddard – 12

On the cover: Guests gather around the "Neighborhood Earth" exhibit during its official unveiling at the Goddard Visitor Center on June 29.

Photo credit: NASA/Goddard/Bill Hrybyk

NP-2017-7-040-GSFC

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.

CONTENTS



By [Jordan Rice](#)

Dust from the Sahara travels thousands of miles across the globe to end up at NASA's Goddard Space Flight Center. At the new Earth science exhibit that recently opened at the Goddard Visitor Center, you can find out how.

The new permanent exhibit "Neighborhood Earth" opened on June 29 and brings together multiple aspects of Earth science research into one unified story. It represents the extraordinary efforts of Goddard's Earth scientists and showcases how NASA provides insight into Earth's systems.

"NASA sees connections better than anyone," GLOBE Observer coordinator Holli Kohl said. "The vantage point of space helps NASA recognize how air, water and life interact in often surprising ways that impact you every day."

The exhibit consists of four main areas.

"Exploration Station," a large touch-screen television, displays the best of Goddard's animations, ranging from loss of the polar ice caps to droughts across the United States.

The central displays demonstrate how NASA's collection of Earth-observing satellites can see using active remote sensing and show how different wavelengths of light can provide new details about Earth through passive remote sensing.

"We have worked to vividly explain how NASA, using remote sensing science, contributes to understanding our home planet – the only one that we know of that supports life – for the benefit of all of the inhabitants of Earth," said Dorothy Zukor, associate director of Goddard's Earth Sciences Division.

A circular band around the exhibit displays the three main

systems of Earth – water, life and air – and how they all work interdependently in Earth's life cycle. This includes discussing the importance of phytoplankton in the food chain, showing how dust and aerosols travel on the wind for thousands of miles, and exploring the availability of freshwater.

The interactive "Interconnected Earth" touch screen presents what NASA has learned about Earth's three systems and the connections between them.

"It's just incredibly fun to do and actually be able to manipulate the visualizations in ways you normally don't get to," Goddard Visitor Center Program Manager Kristin Metropoulos said. "Really seeing how the systems overlap and how they connect and being able to see two layered on top of each other, well I don't know if I have seen that anywhere else."

The visualizations in "Interconnected Earth" came from a multitude of Earth-observing satellites and computer models that NASA scientists created. In particular, the Global Precipitation Measurement satellite network incorporates "precipitation data from a number of satellites to give us a picture of global precipitation every 30 minutes," Earth science video producer Matt Radcliff said. "This is a pretty cool thing that Goddard scientists developed."

"We want the audience to walk away with one idea," Kohl said of the exhibit. "Earth is my neighborhood, and something that happens elsewhere on the globe makes a difference in my life." ■

Above: One of several panels featured in the new "Neighborhood Earth" exhibit at the Goddard Visitor Center.

Photo credit: NASA/Goddard/Rebecca Roth



GODDARD HOSTS EIGHTH ANNUAL SCIENCE JAMBOREE

By [Kelsey Wright](#)

NASA's Goddard Space Flight Center is home to what can seem like an overwhelming array of research projects. To share the impressive breadth of the center's work with employees and interns, the Goddard Office of Communications and the Goddard Sciences and Exploration Directorate produced the eighth annual Science Jamboree on July 12.

The Building 28 atrium was filled with tables covered in displays and demonstrations of astrophysics, Earth science, heliophysics and planetary science.

Scientists also presented on the hyperwall, a massive 20-by-6-foot wall made up of 15 high-definition screens. The hyperwall hosted presentations about the Aug. 21 solar eclipse, gravitational waves, exoplanets and the Cassini spacecraft reaching Saturn.

There were several facility tours of the Goddard TV Studio, NASA Center for Climate Simulation and the Scientific Visualization Studio (SVS). The SVS works closely with scientists to create visualizations, animations and images as a way to promote a greater understanding of Earth and space science research activities at NASA. Many works were exhibited during the jamboree through lenticular prints, posters and stickers.

Many were eager to share their studies. "You can explain exoplanets and how we discover them to anyone, so the Science Jamboree for us is a great opportunity to communicate what we do at NASA along the line of discovering and characterizing exoplanets, not only to interns here

but to people who work in other parts of the center," said Padi Boyd, chief of the Stellar Exoplanet and Astrophysics Laboratory and director of the Guest Investigator Program for the Transiting Exoplanet Survey Satellite mission.

Around the jamboree, there were 3-D printers, pieces of sounding rockets, ice cores, CubeSats, X-ray mirrors and LEGO models, accompanied by many research posters.

"I was really amazed by all the projects and gadgets that were up for display. Every person contributed to NASA's mission in their own unique way," said Selim Boukabara, a high school intern with the Coatings and Contamination Branch at Goddard.

Fellow high school intern Tobias Eegholm enjoyed the event as well. "The Science Jamboree was an amazing event to meet people, have fun and learn! It was great to see all of NASA Goddard gather together to share how its research and projects benefit the public," he said.

Elisa Quintana, the Wide Field Infrared Survey Telescope deputy project scientist for communications, pointed out the inspirational value of the Science Jamboree. "It's a great way to really discover all of Goddard's potential and what you can do in the future yourself," she said. ■

Above: A young attendee experiments with virtual reality goggles at one of the many exhibits presented during the Goddard Science Jamboree on July 12.

Photo credit: NASA/Goddard/Lacey Young

NASA'S SEARCH AND RESCUE MISSION MANAGER A FINALIST FOR GOVERNMENT 'OSCARS'

By [Ashley Hume](#)

Lisa Mazzuca, NASA's Search and Rescue (SAR) mission manager, has been selected as a finalist for a Samuel J. Heyman Service to America Medal, colloquially referred to as the Oscars of government service.

A committee of government officials, educators and industry leaders recognized Mazzuca for the new Promising Innovations medal based on her life-saving work developing and advancing search-and-rescue systems. These systems help to locate people in distress around the world and show first responders where to rescue them.

"Lisa Mazzuca has been a critical force in improving the search and rescue capability that protects every citizen in our country," said Bob Menrad, chief of the Goddard Exploration and Space Communications Projects Division. "Her passion shows not only at work but also in her personal life where she serves as an auxiliary police officer within her local community. I've had the privilege of being a supervisor within the federal workforce for several years, and can share without reservation that Lisa is one of the most dedicated and accomplished civil servants I've come across in the government."

Although Mazzuca's work spans numerous areas, her nomination is primarily based on her contributions to SAR's multinational efforts and her exemplary leadership in developing and testing next-generation emergency locator beacons. These beacons are critical to boosting SAR's capability to locate those in need of search and rescue as a result of aviation, marine and land-based accidents and mishaps.

In recent years, high-profile airline crashes have dominated news cycles. In 2014, the same year as the disappearance of Malaysian Airlines MH-370, Mazzuca launched a two-year investigation to determine how to improve emergency locator transmitters (ELTs) on aircraft.

"We at NASA recognized that someone had to immediately advance SAR's capabilities, and NASA is uniquely qualified to not only assess performance of these life-saving devices, but also apply cutting-edge technology to create a better beacon," Mazzuca said. "So we ended up crashing three planes to better understand beacon functionality during actual distress conditions."

Mazzuca organized and led a team that performed controlled crash tests of real airplanes at NASA's Langley Research Center in Hampton, Virginia, in 2015, allowing the testing of ELTs in various configurations. Together with an in-depth investigation into historic ELT failures using National Transportation and Safety Board data, this led the team to make recommendations for regulatory changes to the Federal Aviation Administration that will improve beacon reliability and system performance. The objective? To ensure that ELTs provide more accurate locations indicating where the plane crashed so that pilots, passengers and crew would be located quickly.

Among the team's recommendations was to replace current transmitter technology in ELTs with second-generation beacons. These beacons have already shown an improvement in pinpointing a location from about 2 kilometers to 100 meters in testing. This new beacon, coupled with the brand new international SAR space segment, will also provide locations to rescuers nearly instantaneously anywhere on Earth, which is a huge improvement from the nearly 40-year-old system being replaced.

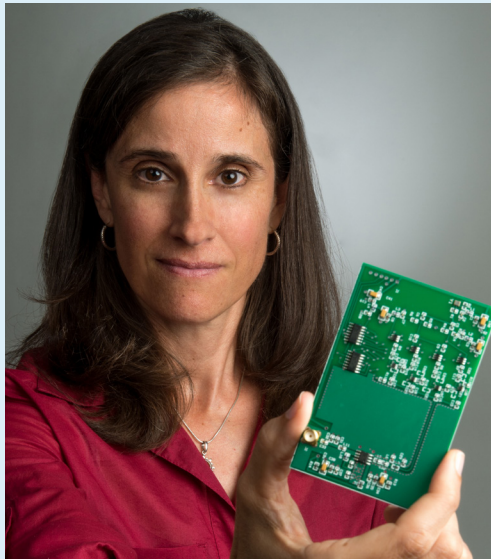
Besides their potential use in airplane crashes, second-generation beacons can be used by amateur hikers, outdoorsmen, boaters and more. Like first-generation beacons, they will soon be available at virtually all outdoors stores at affordable prices. The beacons will also be outfitted

on Orion astronaut spacesuits to ensure mission control is able keep track of each individual when the capsule splashes down on its return to Earth.

In addition to designing innovative solutions at NASA, Mazzuca protects citizens through her role as an auxiliary police flight officer and hoist operator on helicopters in Baltimore, and she serves as a first mate within their marine police unit. She is SAR-certified and is a long-time advocate for boating and flight safety. ■

Center: Lisa Mazzuca holds a prototype of a second-generation beacon, which could revolutionize emergency beacon performance around the world.

Photo credit: NASA/Goddard/Bill Hrybyk



INTERN ENGAGEMENT ACTIVITIES

SPARK INNOVATION AND COLLABORATION

By Kathryn DuFresne

Concluding the end of their first week at NASA's Goddard Space Flight Center, 35 interns across directorates joined up in the Goddard Information and Collaboration Center for an intern bootcamp focused on accustoming interns to the rigors of NASA work through collaboration and innovation.

After informational sessions on 3-D printing, innovations and how to develop a project plan, interns gathered in several groups to develop theoretical projects that would accomplish at least one of three tasks: increase International Space Station efficiency, improve station work resources or take the next steps in innovative research.

Intern groups manipulated whiteboard spaces to sketch out ideas, and scoured the Center for the Advancement of Science in Space website and NASA ISS websites to brainstorm their innovations. Many huddled behind laptops and smartphones to discuss ideas and develop project plans.

Presentations were conducted at the end of the three-hour work session, elaborating on what products the interns designed and how they would build upon pre-existing ISS projects and technologies.

"We're working on a second version of the actual garden they have right now – up in the station," said Anthony Davina Alvarez, a flight directorates business management intern from Puerto Rico. "We're trying to make an advanced version that gets closer to agriculture because, right now, it's more enclosed and it's kind of limited. We want it to be closer to something that could be used on Mars, maybe."

With eventual interplanetary travel in mind, station innovations created by the students were focused on Mars and beyond, and the tools needed to get there.

"We're basically bringing the Internet with us," said Aaron Houin, a telecommunication network and technology intern, of his group's innovation. "It came out of the idea of a Mars

mission. From Mars, we would have no way to communicate information. From Earth, if we have a problem, we Google it and it's up in half a second."

Houin's group member, Matthew Lyn, further explained the necessity of having faster access to databases.

"At Mars' farthest point, it would take 40 minutes. Irreversible brain damage occurs at eight minutes. You could die five times by the time your Google search finally reaches Earth," said Lyn, an explorations and space communications projects intern.



Other projects imagined by the interns included ideas for satellites designed to collect space debris and an education outreach program focused on bringing virtual reality to students.

"We're going to be using 360 cameras aboard the ISS so that people can put on their headsets and see inside," said Sarah Marcum, an intern with Hubble Space Telescope operations. "We have a traveling Hubble exhibit, so we could do a traveling astronaut experience that could go to different museums with

VR technology to immerse visitors. We would be increasing outreach by basically adding another program."

Interns walked away from the full day of activities and presentations with new ideas and new colleagues, creating an important first-week experience.

"It's always valuable meeting new people, especially really smart, interesting people and getting their take on things," said Benjamin Forster, a mission software and ground systems assurance intern. ■

Center: Summer interns participate in a collaboration and innovation bootcamp in the Goddard Information and Collaboration Center.

Photo credit: NASA/Goddard/Lacey Young



GODDARD DEDICATES HYPERWALL TO LATE CLIMATE SCIENTIST, ASTRONAUT

By [Kathryn DuFresne](#) and [Jordan Rice](#)

On July 17, the NASA Center for Climate Simulation's Data Visualization Theater, more commonly known as the hyperwall, was dedicated to Piers Sellers, a climate scientist and astronaut who passed away in December 2016.

The hyperwall at NASA's Goddard Space Flight Center is home to stunning visualizations, some of which show the fleet of Earth-observing satellites that take measurements of ocean currents and global precipitation. Sellers often used the room as a backdrop to presentations and discussions on Earth science.

"Piers had a way with words," Goddard Center Director Chris Scolese said. "He had a way to explain things that were not only understandable, but fun and hopeful. He left that message with every person who walked into this room and heard what he had to say, from 10-year-old children all the way up to the largest skeptic."

Sellers' work at Goddard spanned 34 years, during which time he pioneered the field of utilizing satellite data to produce computer models of Earth's ecosystem and how it interacted with the atmosphere. He joined the NASA astronaut corps in 1996 and participated in three space shuttle missions, completed six spacewalks and helped build the International Space Station.

"He loved the science; he loved the people of Goddard," Director of Sciences and Exploration Colleen Hartman said. "He was committed to saving our Earth and very hopeful he believed that technology was going to make that happen and that people were going to understand it. It's everyone here who will be able to explain that to the rest of the world in Piers' absence to make sure we protect the Earth."

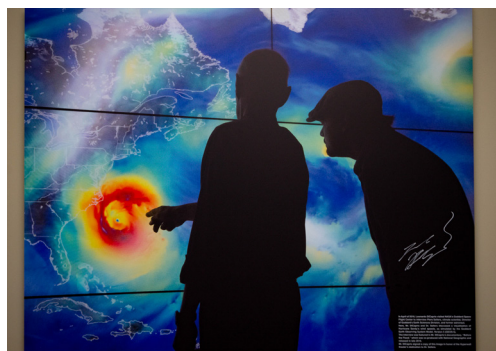
Sellers' accomplishments led to a multitude of awards, including the NASA Exceptional Scientific Achievement Award in 1994, appointment as Officer of the British Empire for services to science in 2011, the William Nordberg Memorial Award from Goddard in 2016 and the NASA Distinguished Service Medal in June 2016 – the highest honor the agency can bestow.

The dedication is a culmination of Sellers' enthusiasm for NASA's role in understanding the planet we all call home.

"We have to keep in mind his optimism and passion as we move forward, and we'll never forget him," Scolese said. ■

Above: Center Director Chris Scolese gives opening remarks during the dedication of the NASA Center for Climate Simulation's Data Visualization Theater to Piers Sellers. Photo credit: NASA/Goddard/Tabatha Luskey

Below: A portrait of Piers Sellers discussing a hurricane visualization with actor Leonardo DiCaprio on the hyperwall in April 2016. Sellers was interviewed for DiCaprio's National Geographic documentary "Before the Flood." Photo credit: NASA/Goddard/Tabatha Luskey





By [Rob Gutro](#)

It was awesome. NASA had a large presence at the pop culture convention called AwesomeCon – which drew an estimated 60,000 attendees – in Washington, D.C., from June 16 to 18. NASA Headquarters had a booth on the convention floor, and some of the topics covered in panel presentations included NASA’s James Webb Space Telescope and the ICESat-2 mission.

Six members of the Webb outreach team, as well as scientists and engineers who work with lasers at NASA’s Goddard Space Flight Center, participated in a panel. There were several other panels and talks from NASA, including a talk from Nobel Prize winner John Mather who spoke about the science of the Webb telescope.

AwesomeCon is a convention that brings together science, technology and pop culture elements such as movies, television, comics, superheroes and science fiction.

Webb Telescope Outreach Team Panel

The Webb telescope outreach team presented to a full room of science and science fiction fans. The team discussed how they convey the complex technology and science of Webb through photographs and captions, video productions, social media outlets, releases and feature stories, television and radio interview requests, and public events. Though those who visually document Webb do so to support the engineering aspect of the project, they have also been able to capture the beauty of the technology in a way that captivates and inspires the public.

Webb is a telescope with a towering mirror 6.5 meters in

diameter, coated in gold which optimizes the telescope for reflecting infrared light.

Panelists included Video Producer Mike McClare, Webb Communications Manager Laura Betz, Webb Social Media Manager and Webmaster Maggie Masetti, Education and Outreach Specialist Christine Nolan Essig, Photographer Chris Gunn, and Webb Science Writer Rob Gutro.

McClare showed several videos that he and his team conceived and produced. Betz, who manages all of the outreach for the Webb telescope for NASA, explained how she arranges interviews between the media and scientists.

Masetti explained how she conveys the complexities of the Webb telescope over various platforms like Facebook, Twitter, Tumblr and more. She also highlighted a Webb telescope art exhibit at the Goddard Visitor Center.

Nolan Essig highlighted her work with many groups, bringing the science and technology of Webb to the public for inspiration. She also starred in a McClare-produced video about Webb during Super Bowl LI last February.

Gunn showed several of his amazing photographs and talked about how he goes into clean room environments to take close-up photos of Webb.

Gutro, clad in a Superman shirt to relate to the crowd, explained how he strives to come up with clever headlines to get people’s attention.

The Webb outreach team collectively talked about how



SPOTLIGHTED AT AWESOMECON

they do their jobs to bring the excitement of science and technology to the public, and what the Webb telescope is going to see: exoplanets, galaxies forming, atmospheres of planets in other solar systems and so much more.

Immediately afterward, Mather gave a presentation – entitled “How Did We Get Here, How Far Can We Go? Observing the Universe with the James Webb Space Telescope” – about the science of the Webb telescope to a filled room.

The telescope will launch in late 2018 on an Ariane 5 rocket from French Guiana. It will study every phase in the history of our universe, ranging from the first luminous glows after the big bang, to the formation of solar systems capable of supporting life on planets like Earth, to the evolution of our own solar system.

The ‘Space Lasers’ Panel

While some AwesomeCon attendees might be more familiar with lasers in the form of science fiction phasers, panelists from Goddard talked about some of the ways lasers are used in science.

Optical Systems Engineer Luis Ramos-Izquierdo showed examples of the different types of laser instruments developed at Goddard, including the Global Ecosystem Dynamics Investigation, or GEDI. He also explained how the ATLAS instrument on the upcoming ICESat-2 mission will operate. Cryospheric Scientist Brooke Medley explained why the lasers on ICESat-2, which will measure polar ice sheets and sea ice after its launch in 2018, are so impor-

tant: to gain a clearer view of what happens to all that ice as seas warm.

After giving the crowd a quick primer in geodesy, scientist Evan Hoffman discussed how Goddard does laser ranging from the ground to satellites. Planetary Scientist Erwan Mazarico illustrated how the Lunar Orbiter Laser Altimeter, or LOLA, had taken more than 7 billion measurements to create detailed maps of the moon’s surface, including areas in shadows. Jennifer Sagar, a lead systems engineer and program manager, showed how another lunar spacecraft – the Lunar Atmosphere and Dust Environment Explorer, or LADEE – used lasers to communicate with ground stations, bringing broadband to the moon.

How AwesomeCon Started

Ben Penrod and Steve Anderson from Third Eye Comics in Annapolis, Maryland, created the Annapolis Comic-Con, soon followed by the Southern Maryland Comic-Con, both still thriving local shows that cater to comic book lovers like themselves. Penrod started full-time planning for AwesomeCon in 2012, and the first one launched in April 2013. It was an immediate success, and it quickly grew into one of the largest fan conventions on the East Coast. ■

Above (left): The James Webb Space Telescope outreach team engages attendees in a panel discussion about the telescope. Photo courtesy: NASA/Goddard/Rob Gutro

Above (right): Rob Gutro poses in a Superman shirt during an AwesomeCon panel. Photo courtesy: NASA/Goddard/Rob Gutro



SOLAR ECLIPSE KNOCKS GODDARD

By [Elizabeth M. Jarrell](#)

As deputy project scientist for NASA's Lunar Reconnaissance Orbiter, Noah Petro spends a lot of time thinking about a particular, off-white sphere that soars through the sky. Most of the time that orb is the moon, but this summer it's an entirely different ballgame – several of them, in fact.

NASA scientist and lunar heavy hitter Petro loves the moon. He also loves baseball. Through his efforts, NASA will step up to bat with the Salem-Keizer Volcanoes at "EclipseFest: Total Eclipse of the Park!" in Oregon, as well as at two other minor league stadiums, to experience baseball's first-ever eclipse delay.

Take me out to the eclipse game!

On Aug. 21, 2017, the moon will be caught in a rundown between Earth and the sun. This cosmic triple play among sun, Earth and moon will produce the first American coast-to-coast solar eclipse since 1918.

The darkest part of the moon's shadow, the umbra, will pass across the entire continental United States in a 70-mile-wide corridor running from Oregon to South Carolina – the path of totality. Although a total solar eclipse will only be visible within this strip, everyone in the continental United States can be a fan on the 21st, as even those outside the path of totality will see a partial eclipse.

Petro saw an opportunity to take science out to the ballgame. "The path of totality misses all Major League Baseball stadiums; however, it does pass over six Minor League Baseball stadiums, four of which will be playing

games that day," he said. "Out of left field, I cold-emailed each of the teams to let them know about the eclipse and asked if they wanted NASA participation. I am now thrilled to be involved with eclipse planning with three of these teams."

NASA will participate in eclipse events associated with Minor League Baseball games in the Salem-Keizer area of Oregon (where Petro will be on Aug. 21); Idaho Falls, Idaho; and Charleston, South Carolina.

"We will attempt a transcontinental doubleheader with the Charleston RiverDogs," Petro said. "The game in Oregon will end about the time the game in South Carolina starts, so we are hoping to connect the events. The eclipse will occur, locally, during the Oregon game and before the South Carolina game."

"Hey, Mr. Moon! Batter up!"

The Salem-Keizer Volcanoes in northwestern Oregon stepped up to the plate and responded to Petro. Right off the bat, they were planning a four-day "EclipseFest: Total Eclipse of the Park," the brainchild of Volcanoes' owners Jerry and Lisa Walker. Jerry's brother Jim, a retired physics professor, had given the team a "heads up" on the path of the eclipse passing directly over the Volcanoes' stadium.

The team designed a special souvenir EclipseFest baseball and eclipse-themed uniforms. The team is providing solar-viewing glasses for fans in attendance.



"This is very unique," Walker said. "We're providing not just a chance to experience the eclipse, but also to experience the first eclipse delay in baseball history."

The Volcanoes game, which will have its radio feed broadcast online (and a portion streamed as part of NASA's eclipse coverage), will start at 9:35 a.m. local time. The game will stop after the first inning of the game for the eclipse, which will pass overhead at about 10:17 a.m. The delay will last about 30 minutes to give everyone time to get ready for totality, the moments of darkest shadow lasting about two minutes.

On occasion, rain, fog or even bees have delayed a professional ballgame. But, according to Petro, this is the first time one will be delayed by an eclipse. The closest similar event was in February 1980, when a cricket match in India was postponed a day to avoid playing during a partial eclipse.

"I have always loved baseball," said Petro. "For me, the eclipse is the perfect intersection of my passions, my family, baseball and the moon. I'm over the moon and back about this event."

Petro, accompanied by his wife and two young children, and a team of NASA scientists and outreach specialists will speak about the science behind the eclipse and how to safely view it. NASA will also have a booth at EclipseFest with educational materials about NASA's moon-circling Lunar Reconnaissance Orbiter mission and the moon's literally central role in the eclipse.

LRO, launched in June 2009, is a mission whose seven different instruments are mapping the surface of the moon and its surrounding environment. LRO has produced the highest quality, global topographic map of any planetary body, i.e., the moon. LRO continues to hit home runs, producing a large volume of data. LRO will also be an eclipse spectator by attempting to view, from space, the moon's shadow on Earth's surface (a feat LRO achieved before in 2012).

Play ball!

"This is an eclipse that people all across America will see," Petro said. "The tie-in to American's favorite pastime couldn't make for a more unique and fun environment to view the eclipse. What I'm most interested in seeing is the players standing on the field, surrounded by a ballpark of 5,000 fans, including my family, looking up at the eclipsed sun. To quote Yogi Berra, 'You can observe a lot by just watching.'"

No doubt, Petro is going to have a ball during this grand-slam event. And it will be a whole new ballgame for NASA, too. ■

Above (left and right): Noah Petro, deputy project scientist for the Lunar Reconnaissance Orbiter, gets ready for the eclipse and Salem-Keizer Volcanoes baseball game, both taking place on Aug. 21.

Photo credits: NASA/Goddard/Bill Hrybyk

TEN THINGS WE LOVE ABOUT GODDARD

By [Lacey Young](#)

NASA has been named the “Best Place to Work” among large agencies in the federal government for the fifth year in a row, and the agency’s Goddard Space Flight Center ranked No. 1 within NASA. Here are some of the things that make Goddard such a wonderful place to work. ■

Bike Share Program

A fleet of 36 yellow bikes (with baskets!) are distributed around campus to make travel between buildings more convenient and less dependent on cars.



50+ Clubs

A club for almost every hobby or interest, from stamps and Hispanic heritage to sailing and yoga (right).



Child Development Center

A dynamic learning environment with 12 learning centers in each classroom allows young children to learn through discovery.



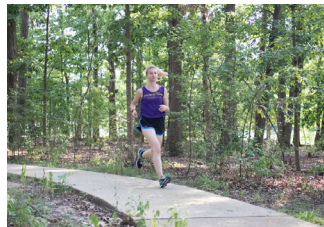
Gift Shops

Not one, but two! The first is public and located by the visitor center, while the second store is located in Building 1.



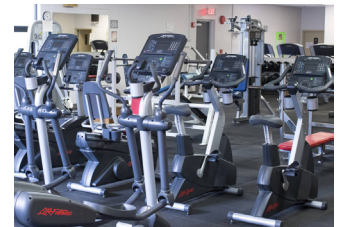
Walking and Running Trails

Trails for days! Goddard has miles of paved and unpaved trails over hill and dale (all across our gorgeous campus).



Fitness Center

The indoor fitness center offers a variety of equipment, an exercise room for stretching and classes, as well as shower and locker room facilities.



Music and Drama Club

Focused on employees and contractors, their immediate families and a few community members, MAD puts on five productions during its season.



Green Spaces

From barbecue and picnic areas to playgrounds and ponds, Goddard’s 1,270-acre campus has more than you can ask for.



Visitor Center

Interested in what we do here at Goddard? Explore the Goddard Visitor Center and discover a variety of interactive exhibits.



Wildlife

Is this Yellowstone or a NASA center? If it lives in Maryland, we’ve probably seen it. From deer and geese to dragonflies, hawks and more!

