National Aeronautics and Space Administration

GoddardView

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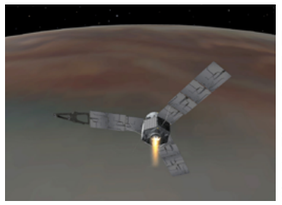
GoddardView

TRENDING



Juno Reaches Jupiter on Independence Day
Five years after its launch, the Juno spacecraft entered Jupiter's orbit on July 4. The mission will remain in orbit for 20 months, shedding light on the origins and evolution of the gas giant and solar system.

Hubble Surpasses One Million Twitter Followers
Since setting off into space in 1990, the Hubble Space Telescope has made more than a million observations of the universe. The iconic observatory now has more than a million Twitter followers as well.

Goddard Hosts Star Trek-themed NASA Social
Coinciding with the release of the latest Star Trek movie, Goddard hosted some of the center's social media followers for a tour that focused partly on the influence of the series. Guests also attended a Star Trek concert in Virginia.

Film Fest Brings Goddard's Work to the Big Screen
The Goddard Film Festival showcased the best of the center's present and future missions on July 19. Produced by the Goddard Multimedia Studios, this year's edition featured 17 videos across all science areas.

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On the cover: Artist rendering of the Juno spacecraft entering Jupiter's orbit.

Image credit: NASA

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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'S EMPLOYEE ENGAGEMENT ACTIVITIES BEAT THE HEAT

By Patricia Flores

The Goddard Office of Communications hosted its biennial employee engagement activities on July 26 and 27. They included a picnic on the Goddard Mall, sci-fi costume contest, scavenger hunt, Science Jamboree, film festival and tours of facilities all across center.

Braving temperatures hovering around 100 degrees Fahrenheit, employees across the career spectrum attended, from summer interns to Center Director Chris Scolese, who gave the opening remarks at the picnic. Leslee Scott, the public engagement and outreach specialist responsible for the coordination of most of the activities, said around 300 employees attended the picnic and an estimated 400 participated in facility tours.

The July 26 picnic offered a variety of outdoor activities for employees to enjoy. They could play Frisbee or cornhole, or grab a lunch from various food trucks. One food truck in particular, Capital Chicken & Waffles, was a hit. Its line was more than an hour long.

Beyond the food, the picnic allowed for interaction and dialogue among Goddard employees all over center. Summer interns had a meet-and-greet table with their counterparts at NASA Headquarters in Washington, and picnic spots were set up all across the mall for people to mingle.

The facility tours allowed employees to visit places at Goddard they may not regularly see. Those who registered could take a peek inside Building 28's Conceptual Imaging Laboratory, which is responsible for the animations posted to many of Goddard's social media streams, or tour the Hubble Space Telescope control room in Building 3.

"I really enjoyed the satellite servicing tour because I was able to see what other projects are going on around Goddard," said Alexis Basantis, intern with the Goddard Mechanical Systems Analysis and Simulation Branch. "This made me feel more engaged with the center and with fellow employees."

One of the objectives of the employee engagement activities is "to create a space for knowledge sharing and to provide forums in which we can connect with colleagues to learn more about their work," Scott said. Facility tours allowed for this space.

Aside from learning more about missions and projects from all directorates, the GEWA Clubs and Advisory Committees Showcase gave employees the chance to learn more about what their co-workers do outside of work.

Goddard radio astronomer Jim Thieman attended the showcase on behalf of the Cuong Nhu Karate Club, one of the 12 clubs and committees that participated. "The event allowed us to reach a large crowd, and it was very fun meeting many enthusiastic groups," he said.

Another highlight of the activities was the Goddard Scavenger Hunt. Nine teams participated, trekking far and wide all across center. Basantis said her team had a great time figuring out the clues, and it was a treat to be able to bond with her teammates.

Organizing the two full days of activities was no small feat. For Scott and the Goddard Office of Communications, the weeks of hard work were worth it. "Seeing everything go smoothly and the happy faces of people at the events was my favorite part," she said. ■

Above: Employees line up at food trucks during a picnic on the Goddard Mall, one of several employee engagement activities held on July 26 and 27.

Photo credit: NASA/Goddard/Bill Hrybyk

FROM SCIENCE FAIRS TO SPACE EXPLORATION: GODDARD EXPERIENCE CHARTS PATH FOR AEROSPACE CAREERS

By Darrell Dela Rosa

Working at NASA or in the aerospace industry means being on the front lines of exploring the unknown frontiers of the universe. The opportunity to reach new heights, however, often begins back down on Earth, in classrooms and school gymnasiums where would-be space explorers make their first forays into the cosmos with home-made gadgets presented in front of display boards.

Recognizing the potential coming out of these science fairs, judges from the National Capital Section of the American Institute of Aeronautics and Astronautics – which serves the society's interests in Washington, D.C., as well as parts of Maryland and Virginia – attended several regional high school fairs in March to review hundreds of projects and identify the top aerospace-related entries. With project topics ranging from aircraft maneuvering and the flight duration of rockets to 3-D printing on Mars and the effects of microgravity on plant growth, the fairs showcased possible answers to what may someday become the industry's most pressing questions.

"There is an incredible amount of raw intellectual talent in our schools," said Thomas Noyes, science fair judge and AIAA section volunteer. "That talent must be nurtured and encouraged."

And NASA's Goddard Space Flight Center knows just that. In collaboration with AIAA, Goddard hosted 13 standout performers at the center and NASA's Wallops Flight Facility for several days of tours, discussions and firsthand looks into the inner workings of the agency. Held from July 19 to 21, the so-called Goddard Experience was designed to augment the students' interest in science, technology, engineering and mathematics – or STEM – and highlight the benefits of working in aerospace.

"Goddard's collaboration with AIAA on this VIP student experience creates career context among things for these students," said Denise Davis, STEM Engagement lead in the Goddard Office of Education.

Participant Derek Mamrol, whose project on aircraft wing surface modifications took third place at a fair in Loudoun County, Virginia, was not previously aware of the breadth of NASA's work. Now, he sees even greater possibilities.

"The week's activities were an exploration of the many projects and positions within NASA that I didn't know about before the program, exposing me to new possible career paths as I seek to enter the aerospace industry," he said.

In addition to visiting some of the center's trademark facilities – such as the Robotic Operations Center, Flight Dynamics Facility and James Webb Space Telescope observation deck – Mamrol and the others had the opportunity to interact with Center Director Chris Scolese and Danielle Wood, special assistant to NASA Deputy Administrator Dava Newman. The component at Wallops included tours of its fabrication and testing facilities and an aircraft viewing. On the final day, students attended a presentation given by John Mather, Nobel physics laureate and Webb senior project scientist.

"The Goddard Experience was so well organized, and I could tell the students got a lot out of the event," said Kathryn Jenkins, one of the National Capital Section's STEM educators of the year and a chaperone for the students. "The experience of seeing up close and personal how NASA applies the principles of STEM demonstrates the importance of how math and science are applicable in the real world."

The three-day event culminated in a gathering at the Barney and Bea Recreation Center in which the students discussed and demonstrated their original projects in front of Scolese and other Goddard personnel, family members, and guests. An awards picnic honored the students and their work, possibly setting them on a clearer path to future careers at NASA or in aerospace.

"These students represent an elite pool of area STEM talent," added Davis. "Connecting them with Goddard is a way for AIAA and Goddard to nurture the next generation STEM workforce as well as to attract students to the Goddard pipeline for other learning experiences." ■

** With contributions from Michele McMurrer, administrator for the National Capital Section of the American Institute of Aeronautics and Astronautics.*

Center: Center Director Chris Scolese (left) looks on as a student in the Goddard Experience discusses his science fair project.

Photo credit: NASA/Goddard/Debora McCallum

Christine A. Catrib

Code 803, Flight Systems Safety Aerospace Engineer

Why Goddard?: As a child, my dream was to become an astronaut and work for NASA.

Hobbies/interests: weightlifting, swing dancing

Joshua Yacobucci

Code 548, Flight Structures Aerospace Technologist

Why Goddard?: A family-friendly work environment, as well as challenging projects.

Hobbies/interests: family, outdoors, beach, baseball games

Michael Machado

Code 584, Earth Science Mission Operations Director

Why Goddard?: Science fiction sparked my interest in space. NASA bridges the gap between fiction and reality.

Hobbies/interests: tennis, soccer, travel, science fiction

Rebecca Levy

Code 474, Resource Analyst

Why Goddard?: A new professional opportunity that will propel my career to new frontiers.

Hobbies/interests: hiking, camping, outdoors, skiing, travel

Brooks Flaherty

Code 569, Electrical Engineer

Why Goddard?: With a passion for engineering and cutting-edge technology, you cannot beat the exciting opportunities.

Hobbies/interests: guitar, carpentry, fishing, boating, water sports

Travis D. Wohlrab

Code 740, IT Specialist

Why Goddard?: It has always been a dream to work for NASA in some capacity.

Hobbies/interests: astronomy, soccer, golf, photography

Christian Amey

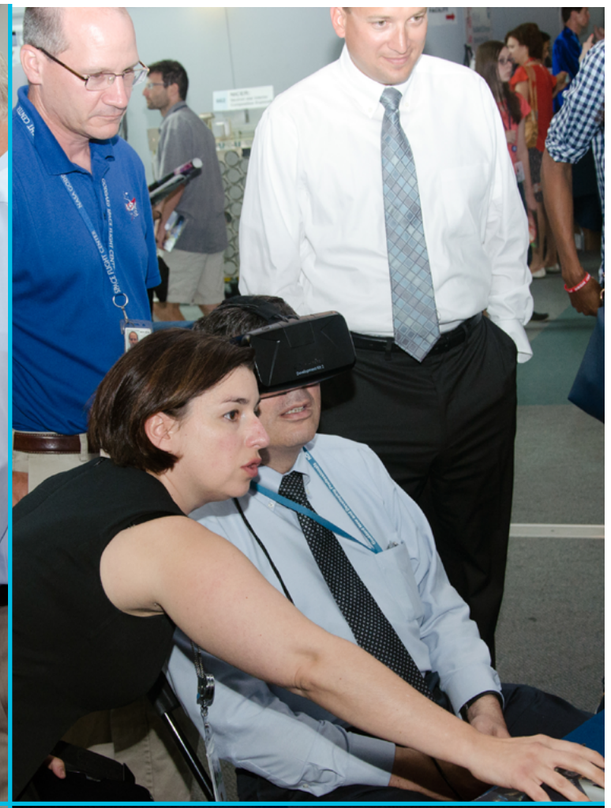
Code 569, Electronics Engineer

Why Goddard?: Who doesn't want to work for NASA?

Hobbies/interests: board games, model rocketry, hiking, biking, camping

EMPLOYEE SPOTLIGHT

Goddard is pleased to welcome these new employees to the NASA community.



GODDARD HOSTS ANNUAL SCIENCE JAMBOREE

By Kelly Ramos

NASA's Goddard Space Flight Center hosted its seventh annual Science Jamboree on July 27 in Building 28. The event was open to Goddard employees, families and friends. Attendees had the opportunity to take various facility tours, and multiple tables were set up along the walls. Scientists and engineers showed and explained their work to anyone and everyone who came.

More than 70 tables represented every science lab as well as select missions and projects. The Goddard Information and Collaboration Center, several engineering divisions, and many GEWA clubs and advisory committees were also present at the jamboree. There were a series of talks on the hyperwall as well as tours of the Goddard TV studio, Flight Dynamics Facility and weather-modeling supercomputer.

Outreach lead for the ICESat-2 mission, Valerie Casasanto organized its booth with a team answering questions about the mission and showing a hands-on demonstration of sea ice change in the Arctic.

"I had a good experience," Casasanto said. "The turnout was excellent, and our team got lots of questions. The jamboree is a wonderful event and provides a festive atmosphere to learn about Goddard's science endeavors."

Many of Goddard's approximately 400 summer interns experienced the fun at the Science Jamboree.

"I walked around and checked out the various tables," said Jason Cornelius, optics design intern and graduate student at Delaware State University in Dover. "My favorite table was about space weather because I'm a math guy, and there were a lot of simulations. I also liked the presentation on taking old data from the 1970s and digitizing them. It was pretty impressive how everyone there was super excited to talk about their work and ready to answer any questions."

"It was cool to get to see all of the science that NASA does," added Emily Lunde, intern in the Goddard Optics Branch and recent graduate from the University of Minnesota in Minneapolis. "I liked the posters they had and the different telescopes they're working on, like the James Webb Space Telescope; it was really cool because we got to talk to Dr. John Mather. It's a really amazing event that they do. I'm glad they do the Science Jamboree while the summer interns are here, because it gives us an idea of what NASA is working on or planning."

Colleen Hartman, director of sciences and exploration, said that the jamboree is one of her favorite days of the year. "I come to work and get to applaud all of the work done by the incredible minds that I get to work with each and every day," she said. "The Science Jamboree provides an informal exchange in a fun and relaxed environment where people get to hear what the scientists are working on and see how exciting it is to work here."

Piers Sellers, deputy director of sciences and exploration, said this was the best Science Jamboree yet. "It's really inspiring to see so much being done at Goddard and so many happy people," he said. ■

Center: Colleen Hartman (left) and Piers Sellers, director and deputy director of sciences and exploration, respectively, deliver opening remarks during the seventh annual Science Jamboree on July 27. Photo credit: NASA/Goddard/Jay Friedlander

Opposite: Anna Voelker from the Goddard-based Community Coordinated Modeling Center discusses space weather with attendees (top left). Center Director Chris Scolese uses a virtual reality headset to view 3-D climate simulations created by the NASA Center for Climate Simulation (top right). Alfiya Akhmed from the Goddard Cryogenics and Fluids Branch makes ice cream as part of a cryogenics demonstration (bottom left). Astrophysicist Tod Strohmayer talks about the Neutron star Interior Composition Explorer mission and dense matter in the universe during a hyperwall presentation (bottom right). Photo credits: NASA/Goddard/Jay Friedlander, Bill Hrybyk and Julia Parsons

NASA'S VIKING DATA LIVES ON, 40 YEARS LATER

By Sarah Schlieder

Forty years ago on July 20, NASA's Viking mission made history when it became the first mission to successfully land a fully operational spacecraft – Viking 1 – on Mars. The mission, which later included Viking 2, gave us our first real look at the Martian surface, as well as the fundamental science that has enabled continued missions to the Red Planet, laying the foundation for NASA's Journey to Mars.

The mission objectives were carefully laid out: obtain high-resolution images of the Martian surface, characterize the composition of the surface and the planet's atmosphere, and search for life.

After years of imaging, measuring and experimenting, the Viking spacecraft ended communication with the team on Earth, leaving behind a multitude of data that scientists would study for the next several years.

As engineers and scientists planned for later missions to Mars, the rolls of microfilm containing the Viking data were stored away for safekeeping and potential future use. It would be another 20 years before someone looked at some of these data again.

NASA's Deep Archives

The NASA Space Science Data Coordinated Archive at NASA's Goddard Space Flight Center houses much of the agency's planetary and lunar spacecraft data stored on microfilm and computer tapes, including the Viking data. David Williams, planetary curation scientist for the archive, digitizes all of the data so that they can easily be accessed from the web.

In the early 2000s, Williams received a call from Joseph Miller, professor of pharmacology at the American University of the Caribbean School of Medicine in St. Maarten, who requested data from the Viking biology experiments. But all that was left of the data was stored on microfilm.

"I remember getting to hold the microfilm in my hand for the first time and thinking, 'We did this incredible experiment and this is it; this is all that's left,'" Williams said. "If something were to happen to it, we would lose it forever. I couldn't just give someone the microfilm to borrow because that's all there was."

The archive team then decided to tear open the boxes of microfilm and begin digitizing the data.

Lasting Knowledge

Miller wanted to analyze the data from Viking's biology experiments to see if the Viking science team had missed something in the original analysis. He concluded that one of the Viking biology experiments did, indeed, offer proof that life may exist on Mars.

In such an experiment, known as Labeled Release, the Viking landers scooped up soil samples and applied a nutrient cocktail. If microbes were present in the soil, they would likely metabolize the nutrient and release carbon dioxide or methane. The experiment did indicate metabolism, but the other two Viking experiments did not find any organic molecules in the soil.

"The data were very controversial," Williams said. "But, in a way, they helped push for continued Mars missions and landers. The very next missions were planned around what we found with Viking, and then the next group of missions built upon those. But even our most current Mars missions still refer back to Viking."

One such mission is Curiosity, which landed on Mars on Aug. 6, 2012. Equipped with an instrument suite known as Sample Analysis at Mars (SAM), the Curiosity rover is capable of searching for organic compounds on the Martian surface. SAM is able to detect a lower concentration of a wider variety of organic molecules than any other instrument sent to Mars, including those on Viking.

"We built SAM based on a lot of experience and heritage from Viking," said Danny Glavin, associate director for strategic science in the Goddard Solar System Exploration Division and former planetary protection lead for SAM. "Viking data are still being utilized 40 years later. I know the same will be true for SAM. The point is for the community to have access to this data so that scientists 50 years from now can go back and look at them." ■

Center: A microfilm reader and stacks of microfilm rolls containing data from the Viking mission.

Photo credit: NASA/Goddard/David Williams

LIVING OFF THE LAND IN A CHANGING ARCTIC CLIMATE

By Kate Ramsayer

Scrambling up the bank of the Tanana River south of Fairbanks, Alaska, Theresa Hollingsworth was looking for examples of how the forest recovers after a wildfire. She found an unexpected sweet surprise.

"Blueberries!" she yelled from the banks. Gathering handfuls, she instantly planned to return later in the week.

It's a way of life for many Alaskans, according to Hollingsworth, a research ecologist with the U.S. Forest Service's Pacific Northwest Laboratory. People have favorite — often secret — berry spots they go back to year after year. They also hunt and fish, stocking freezers with moose, salmon and other game.

Many of the rural villages in this giant state aren't connected by roads. "The road network for a lot of these rural communities is on the rivers, or trail networks through the woods," said Todd Brinkman, assistant professor of biology at the University of Alaska Fairbanks.

But many residents are reporting that the changing environment is creating obstacles for reaching these resources. So Brinkman and Hollingsworth are working on a research project with the NASA-funded Arctic Boreal Vulnerability Experiment, or ABoVE, to investigate how access to game, berries and neighboring villages is changing in a warming climate.

In March, Brinkman gave camera-equipped GPS units to subsistence hunters in eight or so villages across Alaska. Over the next year, residents will document anything that blocks or hinders travel, whether it's an early thaw of river ice, a wildfire, a trail sunk by thawing permafrost or something the researchers haven't thought of yet.

"We're letting the subsistence users really drive the research," Hollingsworth said.

In one area, for example, women were wary of collecting blueberries in their traditional spot, since a wildfire had torn through and left dead trees in danger of toppling over. Wildfires can also change the types of plants that grow back, which in turn could impact the wildlife as well as the people living nearby.

Rural residents have also noted changes to rivers, according to Brinkman. People boat along rivers in summer and use them as a snowmachine trail in winter, but the in-between periods when ice is breaking up or forming make travel difficult. If a warming climate means early ice breakup, it's significant to those who depend on that river.

The character of some rivers is also changing. Residents are noting that the permafrost in the banks is thawing, leading to erosion. More erosion means wider – and shallower – rivers.

"Where the permafrost is exposed, it's challenging navigating on a lot of these river systems," Brinkman said.

After a year's worth of these disturbances are recorded, Hollingsworth and others will examine the sites. They'll analyze remote sensing images, including those from Landsat satellites, for before-and-after comparisons. They'll visit the sites, inventory the ground cover and trees, and take soil samples and other measurements to get a sense of what is happening with the ecosystem. The researchers can also use remote sensing images to relate changes to access in one place to changes that could be happening in similar ecosystems.

And they'll talk with the residents about how these changes are impacting their everyday lives. "We'll start to understand the types of disturbances we should dig into," said Brinkman. ■

Above: Ecologist Theresa Hollingsworth examines moss and lichens in a boreal forest as she researches how life in the Arctic is changing amid a warming climate.

Photo credit: NASA/Goddard/Kate Ramsayer

BEYOND THE DESK: GODDARD COMES OUT FOR EMPLOYEE ENGAGEMENT ACTIVITIES

Photo credits: NASA/Goddard/Bill Hrybyk, Tabatha Luskey and Julia Parsons

ROSMARIE DE WIT: WORLD CUP LACROSSE PLAYER RESEARCHING EARTH'S ATMOSPHERE

By Sophia D. Ryan

What do you do and what is most interesting about your role here at Goddard?

I study Earth's atmospheric waves, winds and tides using observations from various radars that can track meteors. These radars monitor meteor trails that create very small waves and force circulation in the atmosphere about 60 miles above Earth's surface. I am most interested in studying wave circulation in this region of the atmosphere. My job is to observe waves and interpret how they drive the circulation.

What is a typical day on the job like for you?

I mainly work in my office on data analysis. I download data from my meteor radars, and I make sure that the quality is good. Luckily, having conversations with people is part of it. Goddard is a good place to do this type of research. For example, if there is something funny in the data, I can always go to someone and ask what they think, since there are so many experts in a wide variety of fields.

Why did you choose to go to school in the Netherlands? Which other countries have you studied in?

I grew up in the Netherlands. I could have chosen to study abroad, but I was happy to receive my bachelor's degree in physics and astronomy at Utrecht University in the Netherlands. For my master's, I decided to stay at the same university because the institute had a mixture of atmospheric physics and ocean sciences. After I was awarded my master's, I chose to leave the Netherlands and continue my work at Norwegian University of Science and Technology, where I received my doctorate in 2015.

How did you become interested in atmospheric physics?

When I was in high school, I was really interested in astrophysics. I studied physics and astronomy while I was an undergraduate student. I was introduced to atmospheric physics when I had the chance to choose my own classes. There weren't any astrophysics courses available, but atmospheric physics was an option. I chose to take atmospheric physics classes, and I found them so interesting.

What were some of the similarities and differences between studying in Norway and the Netherlands?

The Netherlands is extremely flat and has a high population density, whereas Norway has big lakes and mountains. The people are also very outdoorsy. For instance, they will go cross-country skiing in the winter and then go hiking in the summer. I really enjoyed the connection that Norwegian students have with nature because they love to go outside and explore.

Is there something surprising about you that people generally do not know?

While I did an exchange program in 2008 studying for a semester in Denmark, I decided to join the women's lacrosse team with barely any experience and knowledge of the sport. One day, I got a call asking me to play in the World Cup Women's Lacrosse Tournament in Prague as a defender on Denmark's team. It was a great opportunity, and I had so much fun!

If time travel were possible, where would you go?

I think it would be fun to be sitting in front of the television in July 1969, watching the news about Neil Armstrong being the first man to walk on the moon. I have always thought about what it must have been like and the possibilities that were running through people's minds at that time. It was such an historic moment to be a part of.

What is one thing you would tell somebody just starting his or her career at Goddard?

I think Goddard is truly a unique place because there are so many people with different interests and backgrounds. It's important to make connections and talk to others. Also, don't be afraid to ask questions. Take advantage of this opportunity, and enjoy your experience here at Goddard! ■

Center: Rosmarie de Wit (top row, second from right) with the Norwegian University of Science and Technology women's lacrosse team at the Norwegian Championships in 2013.

Photo courtesy: Mona Løvrød Granheim