

# SPACE CAREER RESOURCE GUIDE

for Educators



## INTRODUCTION

---

Career aspirations start early. Often, what a child aspires to be at a young age, directly influences what they ultimately end up choosing as a career. Children develop their career interests largely through what they are exposed to at school, at home, in the media, or in their surrounding community. Additionally, role models provide an opportunity for children to see themselves in a particular career.

Having a space career is no different. Early exposure and role models are key. But too often, students – and even educators – associate having a space career with being an astronaut or rocket scientist. Did you know having a space career also means being an astrochemist, a food scientist, or a data scientist?

This is why the White House's National Space Council called upon Federal agencies to assemble a collection of resources designed to showcase the multitude of space careers across the Federal government and the wide diversity of professionals in those roles. In this Space Career Resource Guide, you'll find a collection of one-page profiles that showcase a range of space careers beyond being an astronaut or rocket scientist – from aerospace engineers to space weather scientists! Each page provides a snapshot of a space professional's job, career journey, and personal interests. Each can be used to spark interest in space and broaden the concept of a space career. The content is designed to be engaging, inspiring, and best of all, easy to use.

Space professionals from the Department of Defense (DOD), Department of Energy (DOE), Federal Aviation Administration (FAA), National Aeronautics and Space Administration (NASA), National Oceanic and Atmospheric Administration (NOAA), the National Science Foundation (NSF), US Department of Agriculture (USDA), US Geological Survey (USGS) and more are all represented here!

We hope this guide is a helpful resource for you to engage youth in exploring some of the unique career opportunities that space has to offer. Discover, explore, find, and create Your Place in Space!



## JENNIFER ERBE KENNEDY

---

SPARK Academy at Cowart Elementary School

I work with students in pre-kindergarten through third grade. At my school, every student comes to my lab once a week to learn about science, engineering, and robotics. Students do different science investigations and projects based on what they are learning in their classroom.

My third graders spend the entire year in my lab learning what it is like to live and work in space. I train them for a pretend mission to the Moon, where they learn everything there is to know about getting to space, establishing a Moon colony, doing planetary research, and coming back home again. While I may not directly work in a space field or industry, I do get the wonderful privilege of training the next generation of scientists and explorers.

To become a STEM education specialist, first decide what you want to teach. I wanted to teach all kinds of science, so I became an elementary teacher. I got my master's degree in gifted education, which helped me learn how to develop units of study. Some teachers choose to specialize in robotics, engineering, or space science.

I have always loved learning about space. I spent hours and hours with my father, looking at the Moon through our telescope and I dreamed of one day working on the International Space Station. I began college as an aerospace engineering major but discovered that I would rather teach people about space science. In a very cool twist of fate, I got to work at NASA Headquarters in Washington, D.C., for a year when I was selected to be an Albert Einstein Distinguished Educator Fellow. What I didn't understand growing up is that NASA needs all kinds of different workers, from chefs, to artists, and even teachers!



[Click Here Visit Ms. Kennedy's Classroom](#)



## DR. MEGAN BRUCK SYAL

---

Physicist and Planetary Defense Project Lead  
Lawrence Livermore National Laboratory  
Department of Energy

### What does a planetary defender do?

**W**e plan ahead for the next big asteroid or comet impact at Earth. Ideally, we'd like to prevent it from impacting Earth at all, by nudging it out of the way. Our team at Lawrence Livermore specializes in using supercomputers to simulate asteroid response to deflection technologies, such as crashing a spacecraft into the asteroid (kinetic impact deflection) or super-heating and vaporizing its surface with x-rays (nuclear deflection). For short-warning-time scenarios (generally, less than 10 years, though it depends upon the asteroid), a gentle deflection might not be possible (it's not able to move the asteroid out of Earth's path in time), but breaking the asteroid up into many well-dispersed fragments (nuclear disruption) can still be effective. We model the asteroid breakup process, along with the orbital fate of those fragments, to make sure they all miss the Earth. We also model impact consequences for asteroids of various sizes, to help advise the United States and international community on emergency response, in cases where the impact cannot be prevented.



### What kind of impact does your job have?

NASA's DART (Double Asteroid Redirection Test) Mission is having a literal, hypervelocity impact on asteroid Dimorphos in just a few weeks (Sept 26, 2022)! Our team supports DART with multiphysics impact simulations, to help interpret the results from this first-ever asteroid deflection test. While DART is purely a "practice run" (the asteroid poses no threat to Earth), this planetary defense tech demo will shape the U.S.'s understanding and preparedness for future asteroid threats. Our community is now planning for what planetary defense missions should follow DART. As a Department of Energy laboratory, we house special expertise in nuclear explosive physics and function, which is necessary for accurate modeling in scenarios where nuclear deflection or disruption are required to prevent an Earth impact. Table-top exercises and scenario studies for realistic asteroid threats often depend upon this nuclear deflection/disruption expertise.

### What was one of the biggest challenges you've faced and overcame in becoming a physicist?

I was consistently one of the only women in my physics classes in college. While many of the men worked together on problem sets, I felt extra pressure to do the work alone, so that I wasn't viewed as dependent upon anyone else. Over the years, as my confidence grew, I learned that working in teams is much more effective, particularly for applied problems with a high sense of urgency. There's no "extra credit" for doing everything by yourself. Driving to a solution faster, by combining your talents with others, is a smarter approach.

[\*\*Click Here to Watch Dr. Megan Bruck Syal's Video\*\*](#)



## DR. NARCRISHA NORMAN

---

Program Director  
National Science Foundation

### What does a Program Director do?

**A**s a Program Director at NSF, I use my knowledge, expertise, and experience in STEM research and education, program administration, and grant management to support funding opportunities for STEM training, education, and research.

### What was one of the biggest challenges you've faced and overcome?

One of my biggest challenges was getting over the fear of using my voice. I had to overcome my hesitation to bring my lived experiences into discussions and to consciously voice a different perspective or opinion. Fortunately for me, my mentor noticed and encouraged me to speak up, and I continue to do so.



### What kind of impact does your job have?

I help ensure that individuals and communities around the nation have access to, exposure to, and support for training and knowledge related to STEM careers, education, and research.

### What are some of the classes you should take to become a Program Director?

You can never go wrong with taking as many math and science classes as possible, and it's also helpful to participate in team activities, community service, and leadership roles. I earned my doctorate in aerospace engineering, because I love doing experiments. In college, in addition to my Ph.D., I earned minors in both Black American Studies and mathematics.

### How is your job related to space?

I manage proposals and awards related to space education, experiences, and research. Many careers in STEM can lead to space-related jobs. I help fund various STEM fields, like electronic engineering, that translate into space jobs. For example, electronic engineering is a STEM field that can lead to a space career. An electronics engineer has the skill set to design a new component for a spacecraft.

### What were your interests growing up?

Growing up, I was interested in creative writing, exploring, space travel, and experiments, especially those that involved water or air.

[\*\*Click Here to Watch Dr. Narcrisha Norman's Video\*\*](#)



## SEBASTIAN CORBISIERO

Nuclear Engineer and Fission Surface Power project Lead  
Idaho National Laboratory  
Department of Energy

### What does a fission surface power project lead do?

I lead a team across multiple national laboratories and private companies that is developing technologies and designs for a nuclear reactor NASA can launch, land and operate on the surface of the moon. This project is called FSP, or Fission Surface Power. My job involves interacting with experts around the country who specialize in the various technical areas needed to design reactors such as nuclear fuel, instrumentation and control systems, nuclear reactor physics and much more. We work to integrate these areas to support the goal of deploying a reactor that works for a long time and is light enough to be launched on a rocket.

### What kind of impact does your job have?

The ability to provide consistent electrical power is vital for humans on Earth, and especially in space. Anytime something needs to be launched into space, it's important for it to be lightweight. The heavier something is, the harder it is for a rocket to get it into space, so it's important to have a lightweight means of generating electricity for many years. Nuclear power is energy dense and self-contained, meaning you don't need to provide a regular means of fueling it, and it doesn't require sunlight. So that makes nuclear power a great choice for future space missions. A nuclear reactor would give NASA more energy to use for their missions – powering scientific instruments, a habitat for astronauts, and ultimately bring us one step closer to having a permanent human presence somewhere other than Earth.

### What was one of biggest challenges you've faced and overcame in becoming an engineer?

All of us face the choice of "what do we want to be when we grow up," and I had many interests as a kid – sports, music, in addition to math and science. Choosing engineering over everything else was a big challenge. But after careful thought, I realized I had an opportunity to apply myself to goals that would help all of mankind in whatever incremental way I could. The decision to pursue engineering should not be made lightly. It takes commitment and hard work. But it's incredibly rewarding and fulfilling.



[Click Here to Watch Sebastian Corbisiero's Video](#)





## KATEY LENOX

Nuclear Engineer, Space Nuclear Power and Isotope Technologies Division  
Idaho National Laboratory  
Department of Energy

### What does a nuclear engineer do?

Nuclear engineers work on improving nuclear power systems – or designing new ones – so that we can get the most out of this highly efficient, carbon-free energy source. This can include everything from reactor design to fuel development. My day-to-day work involves collaborating with other engineers, scientists and technicians by listening to their ideas, contributing my own ideas, and directing the work of others. Nuclear engineering work usually involves teams of people that work together across businesses and industries.

### How is your job related to space?

As NASA plans future missions to the moon and Mars, nuclear engineers play a role in developing the power sources needed to make those missions successful. An extended stay on the moon for humans requires a reliable power source to supply resources like heat, oxygen and water. Human travel time to Mars needs to be minimized to reduce stress on astronauts and decrease the amount of fuel needed to make the round trip back to Earth. Nuclear engineers are designing the reactors needed for such missions. Nuclear engineers also help design and build the power sources used for deep space exploration such as the Voyager spacecraft and the Perseverance rover on Mars.

### What kind of impact does your job have?

Everything we learn about optimizing nuclear energy systems helps our planet and the people on it. The things we learn when we use nuclear energy in space are directly translated to applications here on Earth. Applications in space demand that we minimize mass and size, and maximize our ability to control systems remotely. All space systems must operate reliably and consistently. The people working with systems in space must learn how to solve any problems and make changes and repairs as needed on a system you can't touch. All this work furthers our understanding of how to use nuclear energy for heat, electricity generation and nonelectric applications such as hydrogen production.

### What was one of the biggest challenges you've faced and overcame in becoming a nuclear engineer?

As a woman in engineering, not just nuclear engineering, I encountered many of what I call "lowered expectations" that I had to actively resist. Even in high school, people assumed I would not take the challenging courses in math or science. I found this still to be true for my daughter who recently graduated with an engineering degree. My advice to any person interested in STEM is to advocate for yourself and seek out the opportunities in math and science that will further your education, and don't settle for less.



[Click Here to Watch Katey Lenox's Video](#)



## JEN LACEY

---

Observing Systems Branch Chief  
USGS EROS Center

### **What is your job and how is it related to space?**

I oversee all of the satellite mission development launch and operations providing the Nation, and the world, with high quality scientific imagery. The images can be used by scientists to study a very broad number of changes to the landscape. Everything from wildfires to deforestation to natural hazards, just to name a few, are utilized worldwide with the Landsat imagery.

### **What were some of the challenges you faced in becoming the EO Branch Chief?**

As a student I knew I loved math. I wasn't familiar with what type of career I could have with a math degree. That all changed with a field trip to the Earth Resources and Observation (EROS) Science Center in Sioux Falls, South Dakota. I saw the wonderful work taking place there and realized that my passion for math could be applied to the various types of work being done there. I have been able to turn that into a very fulfilling career. Probably the proudest moment of my career was the 2013 launch of Landsat 8 (those who saw the September 2021 launch of Landsat 9 know what I mean!). To sit at the controls and watch this rocket takeoff and knowing that you led a team that helped make that mission a success was extremely rewarding.

There's a huge number of engineers and scientists needed in the USGS and elsewhere and I would suggest that even if you're not sure what field you ultimately want to end up in that you just stay focused on an area that you're passionate about and doors will open up for you down the road. Being the mother of teenage daughters, I know how important it is to continue studies in the areas of science, technology, engineering, and math because that way you are prepared to pursue whatever type of career you want in the future.



[Click Here to Watch Jen Lacey's Video](#)

[Click Here to View Jen Lacey's USGS Profile](#)





## MAJOR OLIVER CHANG

---

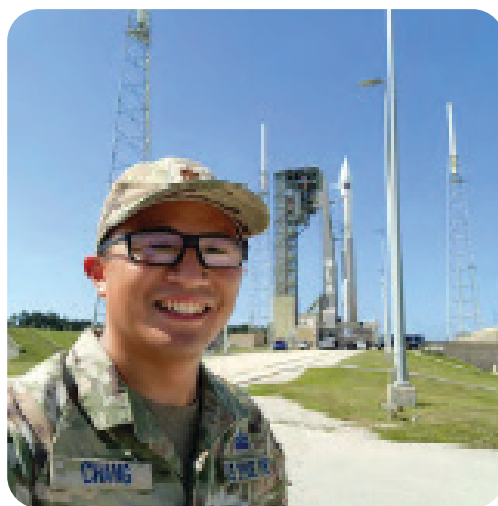
Space Launch  
U.S. Space Force

### What does an operations support flight commander do?

I lead a team of 30 individuals who support a wide array of functions related to space launch. My team handles training and certifying engineers and technicians so that they are ready to watch over rocket assembly. I've also served as a certified responsible engineer and launch commander while I've been at the 5th Space Launch Squadron at Cape Canaveral Space Force Station. I'm a developmental engineer by trade.

### What kind of impact does your job have?

In my last job, I was a responsible engineer and chief of electrical systems for Falcon, so I supervised and signed off on assembly tasks related to the avionics, flight abort, and electrical powering systems for Falcon 9 rockets. I also supervised the countdown to launch for the Falcon 9 rocket to ensure that the Space Force was confident it could put our national security satellites into orbit. Our satellites can cost upwards of \$1 billion and we want to make sure that we are as confident as possible in the rocket, infrastructure, and people involved in a launch.



### What was one of the biggest challenges you've faced and overcome in becoming a developmental engineer?

While our jobs are challenging for many technical reasons, the real challenge in any organization is getting a diverse array of people to work smoothly together and communicate effectively. I've seldom seen a technical anomaly be as hard to handle as helping a disparate group of people cooperate and share information. We have to make sure that everyone is working well together in order to make sure that all systems are go on the day of launch.

### What are some of the classes you should take to become a developmental engineer?

You definitely need to focus on math and science! However, art and creativity aren't polar opposites to STEM. I actually majored in Music Education in addition to Engineering when I was in college. I also loved working with my hands, and classes like shop and robotics allowed us to tinker and create new things.

I think it's crucial to test your mind and learn how to get all aspects of your brain working together. You should always challenge yourself and take courses that you're not immediately comfortable with. You learn the best through failure and you should never be afraid to fail. It's the first step to learning something new!

[Click Here to Watch Major Oliver Chang's Video](#)



## MASTER SERGEANT RODERICK WILLIAMS

Space Systems Operator  
U.S. Space Force

### What does a space systems operator do?

I'm the flight chief for the Operations Flight at the 11th Space Warning Squadron at Buckley Space Force Base near Denver. I manage 57 overhead persistent infrared radar technicians; my team monitors heat signatures all over the globe, from wildfires to intercontinental ballistic missiles to everything in between. My passion is taking care of people, and being able to take care of members who operate our mission every day is what I take pride in life.

### What kind of impact does your job have?

We operate the Space Based Infrared Satellites (SBIRS) in order to monitor and detect anything that launches into space, and then report it. We have global impact, monitoring all kinds of situations across the globe, and providing technical data that helps national leadership make really critical decisions.



### What was one of the biggest challenges you've faced and overcome in becoming a space systems operator?

While our jobs are challenging for many technical reasons, the real challenge in any organization is getting a diverse array of people to work smoothly together and communicate effectively. I've seldom seen a technical anomaly be as hard to handle as helping a disparate group of people cooperate and share information. We have to make sure that everyone is working well together in order to make sure that all systems are go on the day of launch.

### What are some of the classes you should take to become a developmental engineer?

Training was very challenging but achievable. It requires dedication to your craft, discerning the technical data you digest so you can identify any threats.

### What were your interests growing up?

I'm born and raised in Houston, so home for me always gave me inspiration for Space, like NASA and the saying "Houston we have a problem." I am a big sports fan, football, basketball, and most of all space. The interest of space has always been there for me, whether in space exploration and or colonizing the moon in science fiction. I've always thought of the future in space.

### For more information:

<https://www.spoc.spaceforce.mil/About-Us/FactSheets/Display/Article/2334034/space-delta-4>

[\*\*Click Here to Watch MSgt Roderick Williams' Video\*\*](#)



## TECHNICAL SERGEANT MAURICE MOYER

---

Satellite Systems Operator  
National Reconnaissance Office  
U.S. Space Force

### What does a satellite systems operator do?

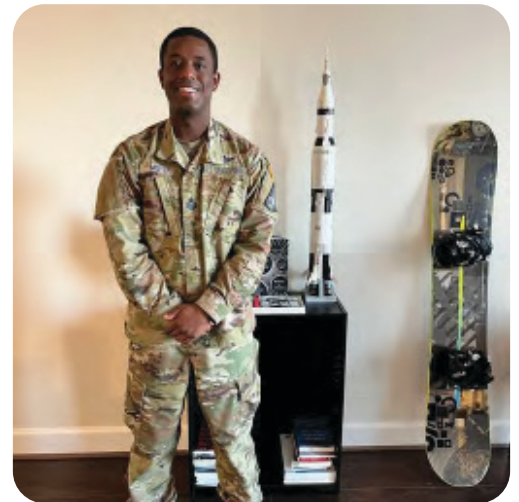
Space Systems Operators in the Space Force detect, identify and maintain orbital parameters on Earth satellite vehicles. Perform launch and on-orbit operations for military satellites. Perform range operations in support of ballistic missile and space launches and ensure operational effectiveness and suitability of space capabilities through operational testing and evaluation.

### How is your job related to space?

My job directly relates to space as I'm part of a team within the Space Force developing and validating Space Domain Awareness tools for our Guardians doing the SDA missions.

### What were your interests growing up?

As a kid, I was interested in space. What sparked my interest in choosing to be a Guardian or Satellite Systems Operator was many things, but I'm a military son as both my parents were Air Force and my Dad retiring at 30 years after launching rockets. Growing up watching those launches and my interest in learning about space was high, I knew anything space was the ultimately what I wanted to do at a young age.



[Click Here to Watch TSgt Maurice Moyer's Video](#)



## DR. OSCAR MARTINEZ

---

Astrochemist  
Air Force Research Laboratory

### What does an astrochemist do?

I worked at the Department of the Air Force Research Lab (AFRL), which supports the Space Force. As an astrochemist, I use a variety of instruments to study reactions of importance to many different space environments. I'm also AFRL's Enterprise Internship Coordinator, so I lead the coordination between our organization's internship portfolio across multiple programs, sites, and technical directorates.

### What kind of impact does your job have?

A thorough understanding of the space environment allows better preparation for what to expect, the design of better missions, improved equipment/materials engineering, and allows us to overcome challenges in space. On the internship side, it's crucial for our interns to have an incredible experience, to provide them the essential career development skills and opportunities that create a foundation for a successful career.



### What were your interests growing up?

I love music. I am mainly a drummer, but I now also dabble with guitars and piano. I grew up speaking Spanish, I'm still learning English, and I served as a Russian linguist for the US Air Force. I've also always loved skill toys – from yoyos to rubik's cubes and beyond.

### What are some of the classes you should take to become an astrochemist?

It's a technical job! I'd recommend:

- **Chemistry** – all classes required for chemistry degree (typically organic, inorganic, physical, biochem, and analytical)
- **Physics** – At least all fundamental physics, calculus based (usually 3 semesters)
- **Math** – At least through calculus, possibly including linear algebra, and differential equations Astronomy/
- **Astrophysics**
- **Programming**

And that's just undergraduate courses. Graduate courses may include astrophysics, physics, and/or chemistry specific coursework. It's a lot of coursework but it's worth it.

[Click Here to Watch Dr. Oscar Martinez's Video](#)



## MAJOR KIM PANAGSAGAN

---

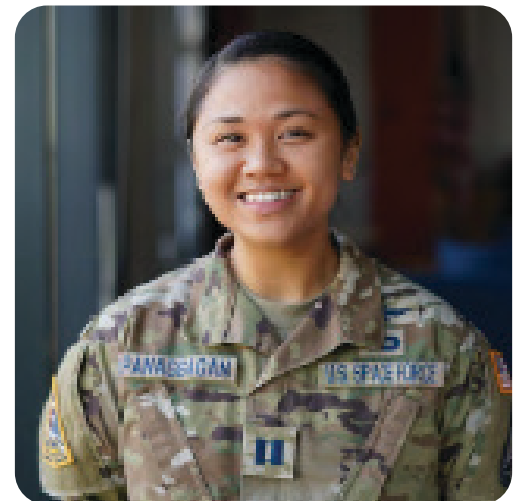
Developmental Engineer  
U.S. Space Force

### What does a developmental engineer do?

As a developmental engineer, I am responsible for acquiring, developing and delivering new technologies to support operations. That could include everything from designing a new payload that will be launched into orbit, to big data analytics supporting software applications. It's a huge scope, but it means there's always something new to learn and I am NEVER bored.

### What kind of impact does your job have?

As the space landscape changes, we constantly need to evolve our tactics, techniques & procedures. Critical to that is making sure USSF and our warfighters have the latest and greatest tools. My job is part of making sure our nation and our warfighters have the latest and greatest tools to defend our way of life and stay ahead of adversarial threat in space.



### What was one of the biggest challenges you've faced and overcame in becoming a developmental engineer?

My transition into my current position as a program manager for a big data analytics system. There were many unknowns and I was still new to the space domain. I felt intimidated when I went into this team. But that was the amazing thing -- I went into a team -- professionals, experts, people who built me up, making sure I have all the right information to make decisions. Throughout my career, I've held a variety of different positions with different scopes that supported different mission areas. What has always consistent is that I'm always joining a team. The Space Force has never let me down in making sure I have amazing support.

### What were your interests growing up?

Breaking things apart and putting them back together. I still love to do that, and now I get to do that as part of my job. My entire job, day to day, is solving tough problems with creative and unique solutions.

[Click Here to Watch Major Kim Panagsagan's Video](#)





## NICKOLAS (NICK) DEMIDOVICH

Program Manager, Payloads and Technologies  
Strategic Management Directorate, Office of Commercial Space Transportation (AST)  
Federal Aviation Administration (FAA)

### What does a Program Manager for Payloads and Technologies at the FAA's Office of Commercial Space Transportation (AST) do?

I manage a portfolio of research and development projects (some with universities) developing safety-enabling technologies and improving safety-related analysis for commercial space transportation.

Commercial space transportation uses privately owned rockets to take people and things to up to an orbit of 200 miles or more above the earth; or flying them in suborbital trajectories to very high altitudes to and returning them safely back to earth. It also involves using privately owned re-entry vehicles to bring things back from orbit (including the International Space Station) and privately owned balloons to take people to float 20 miles above the earth for space tourism and research.



Sometimes my job includes working with universities and small high technology companies to develop challenging experimental payloads and arranging flights for them on commercial suborbital rockets and very high altitude balloons (over 20 miles altitude) to test new technologies out in harsh space environments. I also lead STEM outreach for my organization and work with students in Grades K-12 and universities.

### What kind of impact does your job have?

It is directly related to making commercial travel to and from space much cheaper and more routine while maintaining safety. The STEM portion of my job involves growing the US space workforce of the future. The US is currently the absolute world leader in commercial space transportation, and my co-workers and I in the FAA are doing everything we can to keep it that way ... by getting American kids interested in pursuing STEM careers!

### What were your interests when you were growing up?

Rock and mineral collection, chemistry, building models of airplanes and rockets, science fiction and astronomy. (At age 9 I chose a telescope for a birthday gift instead of a bicycle, as all my friends did.)

### What are some of the classes you should take to have a career in developing space technologies and flying them experimentally?

Math, chemistry, physics, computer science, electronics and metal shop.

[Click Here to Watch Nick Demidovich's Video](#)



## JACOB CANTIN

Aerospace Engineer, SpaceX Starship - Super Heavy Licensing Lead  
Safety Authorization Division, Office of Commercial Space Transportation (AST)  
Federal Aviation Administration (FAA)

### What does an Aerospace Engineer do?

I work as an Aerospace Engineer in the Safety Authorization Division of the Office Commercial Space Transportation (AST). I fulfill two roles: license evaluator and project manager. As a project manager, I delegate tasking to a team of engineers, develop and maintain evaluation timelines, and serve as the main point of contact for the space company. As a license evaluator, I evaluate application submissions from applicants to ensure compliance with Federal regulations. This content can span various subjects including toxic material, software development, lightning strikes to rockets, GPS tracking, aircraft traffic, and many others. All these aspects are needed for a safe rocket launch. It allows me to work in fast-paced and dynamic environment.



### How is your job related to space?

Much like driving a car in the United States, if you want to fly or reenter a spacecraft from or into the United States or do so as an American company, you need a license to do it. I consider AST to be the space DMV. Companies will come to us with plans of how they will operate spacecraft and we evaluate that material to determine if those operations would be safe to the public and US Government property. If it is, then they get a license.

### What kind of impact does your job have?

On a daily basis, I interact with the United States' most high tech companies and provide feedback that they may use to ensure a safer operation for the public.

Also, I have the opportunity to draft regulations, making sure they promote equity in addition to safety in a very exciting industry. The US is the global leader in the commercial space industry and so we are also the leader in writing space law. Still, AST is a relatively new office so I have the opportunity to influence the operations of our office, and thereby the industry, in a big way.

### What were your interests when you were growing up?

I enjoyed soccer, video games, watersports, and reading.

### What are some of the classes you should take to become an Aerospace Engineer?

I recommend a mix of classes. **Technical:** Orbital Mechanics, Math, Physics, Chemistry, Rocket Design, Technical Writing. **Business:** Project Management, Contract Acquisition. **Policy:** US Government, Legal Methods, Constitutional Law

[Click Here to Watch Jacob Cantin's Video](#)



## ANSEL COLLINS

---

Aerospace Engineer, Enterprise Branch – Manager  
Office of Commercial Space Transportation (AST)  
Federal Aviation Administration (FAA)

### **What does an Aerospace Engineer at the FAA's Office of Commercial Space Transportation (AST) do?**

An aerospace engineer utilizes the principles of math and the physical sciences to design vehicles that operate in the air and in space. In my role, I lead a team of engineers that ensure vehicles that travel to space are designed and operated safely.

### **What was one of the biggest challenges you've faced and overcame in becoming an Aerospace Engineer?**

The biggest challenge I faced in becoming an aerospace engineer was my own self-doubt about whether or not I was good enough to do this job and whether or not I fit in as an engineer. I did not know many engineers growing up and did not understand the industry. Aerospace engineering always seemed as though it was something that other people did and not a field that was open to me. Once I realized that I was as good enough, and that there was a place for me to use my talents in my own unique way, the job became easy.

### **What kind of impact does your job have?**

My job has a major impact because I help other engineers create innovative ways of launching people and satellites into space safely. Our office makes sure that the industry functions in a manner that facilitates more space exploration and operation.

### **What are some of the classes you should take to become an Aerospace Engineer?**

To become an aerospace engineer it is important to take classes in math and the physical sciences like chemistry and physics. Most people do not realize it, but it is also very important to be a good writer. The best engineers are able to communicate what they do to others and being a good writer really helps.



[\*\*Click Here to Watch Ansel Collins' Video\*\*](#)



## RACHITA PURI

---

Aerospace Engineer, Enterprise Branch – SpaceX Dragon Licensing Lead  
Office of Commercial Space Transportation (AST)  
Federal Aviation Administration (FAA)

### What does an Aerospace Engineer at the FAA's Office of Commercial Space Transportation (AST) do?

**A**s an Aerospace Engineer at the FAA AST, I get to work with rockets and all things space! Specifically, I lead the comprehensive safety evaluation process to authorize U.S. commercial space operations, with a focus on human spaceflight missions. This includes licensing launches and reentries for companies like SpaceX and Blue Origin. In my role, I also collaborate with other government entities like NASA, U.S. Coast Guard, and international agencies to enable safe and sustainable integration of commercial space operations into the current global framework.

### What kind of impact does your job have?

At AST, I have a very unique window which offers me a view into the entire space industry. I get to work with not just one project or company, but with a whole range of them. Through this wider lens, I can see both the exciting things in work and also where the challenges are. By developing solutions to address these big challenges, my role at AST allows me to make a broader and more meaningful impact on the future of space. In 2022, we are seeing complex space operations advancing more rapidly than ever. To support and enable this advancement in a way that is safe and sustainable, I am upholding AST's mission to encourage, promote, and facilitate the space industry through my work every day.

### What were your interests when you were growing up?

Ever since I can remember, I've had the unwavering dream of becoming an astronaut. I have always been enthralled by exploring the endless possibilities and mysteries that space has to offer. There is so much that is still uncharted, and while the unknown can be scary, it is also what makes space so exciting! Growing up, I loved learning about aerospace and astronomy, and the recent images from James Webb telescope continue to inspire me. Space is vast, beautiful, bright, bold, vibrant, and full of adventure; most importantly, space is what YOU want it to be!



[Click Here to Watch Rachita Puri's Video](#)





## JODI POWELL WILLIAMS, PH.D.

---

National Program Leader  
Food Science and Food Safety  
National Institute of Food and Agriculture

I'm not an astronaut or a rocket scientist, but I have a space job. I am a food scientist. Food scientists determine the nutritional value of food, create new food products, and research processing technologies to increase the safety and quality of foods.

As a national program leader in food science and food safety, I set strategic research and education program goals used to create and fund food science, food safety, and nutrition research, education and Extension projects across the country.

As a kid, I was interested in chemistry and biology, and I wanted to be a researcher. What sparked my interest in food science was that I could combine my love for biology and chemistry and apply it to one of my favorite things: food. I learned about food science while working during summers at USDA as a USDA 1890 National Scholar. As a graduate student at Virginia Tech, I signed up for a sensory study linked to researching healthy cooking strategies that could simulate a fast-food chicken nugget. I was hooked, eating all the chicken nuggets I could handle. I couldn't think of a better career. If you like math, biology and chemistry and have an interest in food, then a food science career could be a job for you!



### **What does a food scientist do?**

Food scientists use chemical, biological, and physical sciences to understand the characteristics of food.

### **How is your job a space job?**

Food scientists develop safe, shelf-stable, highly nutritious, sustainable, flavorful and diverse foods that provide nutrition and authentic taste for diverse astronauts. These foods will be functional in gravity-free environments and enjoyable to eat with minimal waste.

### **What kind of impact does your job have?**

My job ensures that all Americans, including astronauts, have access to safe, high quality and nutritious food.

### **What were your interests when you were growing up?**

Growing up, my interests included soccer, science, and being outside with friends and family.

### **What are some of the classes you should take to become a food scientist?**

Advanced or Honors Chemistry, Biology, Physics, Calculus and Microbiology.

[\*\*Click Here to Watch Jodi Powell Williams' Video\*\*](#)





## YAGUANG (SUNNY) LUO

---

Research Food Technologist  
US Department of Agriculture  
Agricultural Research Service

I'm not an astronaut or a rocket scientist, but I have a space job! I am a food scientist, that means I study the science of foods. I uncover the mysteries behind the smell, taste, and texture of food products. I develop new technologies to process, and preserve foods, and make foods safe, nutritious, and palatable for people to eat, both on Earth and in space.

My favorite part of the job is working with NASA scientists to explore new ways to grow nutritious microgreen vegetables in space. As NASA prepares to travel to Mars and beyond, astronauts will need to feed themselves for years on end, meaning they will need to cultivate foods such as fresh vegetables in space. This is very challenging, as space does not have the favorable growth conditions we have on earth. For example, lack of gravity in space could cause plant seeds to fly all over the cabin, and water flow in the wrong directions. Our job is to find smart ways to solve these problems.



What am I working on right now? Currently, I'm developing a novel hydrogel that could hold seeds in place and also support microgreen growth without needing frequent watering. Simplifying the task of growing vegetables could allow astronauts more time and energy to explore the universe. We are also experimenting with different colored growth lights to make microgreens more nutritious.

As a child, my favorite subjects in school were math, chemistry, and biology. I dreamed of becoming a mathematician or a medical doctor. What really sparked my interest in food science were the opportunities for creativity and helping the world fight hunger. Plus, this is really a fun job as it allows you to play with foods all day long and your mom would not scold you! So, if you like chemistry, biology, and engineering, and enjoy solving problems, then food science could be a job for you!

One of my greatest challenges was coming to America on my own to get my PhD degree while also raising a young daughter.

Our work has a tremendous impact on America and the world. We make foods taste better, last longer, and safer and more nutritious for people to eat. We also help feed astronauts with safe and nutritious foods!

If you are interested in becoming a food scientist, enroll in the following classes: chemistry, biochemistry, biology, microbiology, engineering, food science, and related courses.

[Click Here to Watch Sunny Luo's Video](#)



## JOE MUNYANEZA

---

National Program Leader for Specialty Crops  
US Department of Agriculture  
Agricultural Research Service

**Student:** Dr. Munyaneza, I am a student from Maryland. I am working on a project about space job and found your work fascinating. Can you tell me more about yourself and how your job is a space job?

**JM:** Absolutely! My name is Dr. Joe Munyaneza and I work at USDA, Agricultural Research Service. I'm not an astronaut or a rocket scientist, but I have a space job! I serve as National Program Leader for specialty crops. I lead scientists conducting research on smart ways to produce specialty crops, including nutritious fruits and vegetables. This also involves producing good and right food for people who are in space. Indeed, as the world enters a new era of space exploration, production of fresh and nutritious foods in space, especially fruits and vegetables, is essential for long duration human space missions, such as those to the Moon and Mars. However, this is very challenging because environment conditions on earth are very different from those in space. This requires significant research and advancements in farming and food productions systems that are suited to extremely challenging space environments. So, my favorite part of the job is leading USDA researchers who are working with NASA scientists to develop controlled environment agriculture model cropping systems for spaceflights that maximize efficiency in crop growth, yield, and nutrition.



**Student:** Can you share with me what you are currently working on?

**JM:** Sure! The scientists I lead are working on developing vegetable and fruit production systems under protected or controlled environment conditions, including in greenhouses and indoor farms. One of the advantages is that this leads to year-round production of locally grown, high-quality fruits and vegetables, with enhanced nutritional properties. As opposed to open fields, the plants are grown indoors, under artificial lights and hydroponics, instead of using soil. These cropping systems can then be adapted to space since environment conditions can be manipulated as desired. Here are a couple of photos showing how these scientists are growing vegetables stacked on the top of each other in recycled shipping container pods. These pods are equipped with artificial LED lights, hydroponics system, and software programs that control the growth conditions inside. Results of these research experiments will easily be applied to agriculture in space.

**Student:** What were your interests when you were growing up?

**JM:** Well as a kid, I grew up on a small farm in Africa and my dream was to become an agronomist. My goal was to help increase food security and make sure there is good and nutritious food for everyone in the world, particularly in Africa. Luckily, I was very strong in biological and plant sciences, which made it easier for me to later specialize in agriculture!

[\*\*Click Here to Watch Joe Munyaneza's Video\*\*](#)



## KEVIN FRYAR

---

Chief of Staff  
National Oceanic and Atmospheric Administration

### What does the Chief of Staff do?

**M**y role is to lead the Program's office staff, track and close out staff actions, and facilitate communication between the projects and the program office. So, who are the projects? The Projects have distinct roles in satellite system development, product generation, and distribution. The Program provides oversight, guidance and direction to the Projects.

### How is your job a space job?

I have the opportunity to oversee user engagement and prioritize needs and instrument selection for development, meaning I help pick what goes into space. That's important because the Program has to decide what resources should be placed against those prioritized needs.



### What kind of impact does your job have?

Geostationary weather satellite data is critical in the forecasts we use every day. Weather impacts all of us and the watches, warnings, and advisories are developed with that same satellite data. We actually use satellite data every day when we check the weather on our TVs and phones. Over 90% of the data that goes into our weather models is from satellites. Before satellites, most weather observations were captured by weather balloons, which required a lot of manpower; someone needed to fill each balloon with helium and release it. Hours often passed between measurements. Satellites helped fill in those time gaps.

### What was one of the biggest challenges you've faced and overcame in becoming a Chief of Staff?

Language. During my career, I've had to learn six distinct languages associated with my job, my colleagues, and my career field. In the military, each service speaks its own language. Within the federal government, you will find that each agency can have its own language as well. Coming from the National Weather Service I had to digest a whole new set of acronyms and phraseology. And I'm still learning.

### What were your interests when you were growing up?

I was into sports, comic books, science, and reading. I'm still a big history and sci-fi fan.

### What are some of the classes you should take to become a Satellite Program Chief of Staff?

My position is more a result of various work experiences and course knowledge. What I've found that still applies from school are things like understanding chemical and physical relationships between materials. In my role, understanding the atmosphere and what observable elements impact our daily lives is key. Those observations inform scientists and leaders that make life-changing decisions. Whether it is issuing a hurricane warning or an environmental policy.

[Click Here to Watch Kevin Fryar's Video](#)



# ALESSANDRA PACINI

Space Weather Scientist  
National Oceanic and Atmospheric Administration

## What does a space weather scientist do?

**W**e study the physical processes that happen at the Sun and at the interplanetary medium focusing on investigating their effects on Earth's space environment, called Geospace.

## How is your job a space job?

The data I use in my work come from NOAA's satellites that observe the Sun, Space Weather, and the Earth from their orbits. I work specifically with the magnetometers instruments onboard NOAA's space missions, measuring the magnetic fields in the interplanetary medium and around the Earth.

## What kind of impact does your job have?

Both data products and scientific results from our work are important to support NOAA's mission of monitoring and forecasting space weather events, helping the US to become a "Space Weather-Ready Nation:" a nation prepared for potential impacts of Space Weather events on our power grids, satellites operations (crucial for our society's communication and navigation) and astronauts' safety.

## What was one of the biggest challenges you've faced and overcame in becoming a Space Weather Scientist?

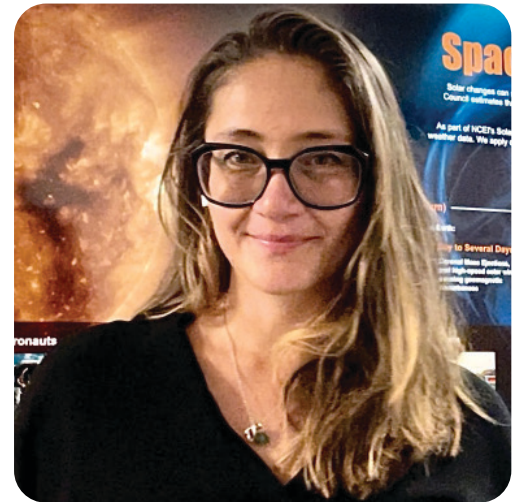
As a Latina woman and 1st generation-scientist, one of the biggest challenges I've faced in my career was the lack of representation. During my whole academic journey, from college until the end of my second Ph.D. thesis, I was part of a minority group of women in my classes and laboratories. It is now my responsibility to keep removing the obstacles that are still in the way of the next generation, making the Space Science field more inclusive and diverse.

## What were your interests when you were growing up?

Growing up, I liked to seek answers to my questions on my parent's bookshelves and think of new questions while listening to Brazilian music. I loved to go to Blockbuster with my sister and our friend to rent movies for the weekend. I feel lucky and privileged to say that I grew up surrounded by science and art.

## What are some of the classes you should take to become a Space Weather Scientist?

My path to becoming a Space Weather scientist started with a Physics undergraduate degree, so anyone pursuing this path would benefit from advanced math and science classes. If you, like me, are not a native English speaker, I strongly recommend you attend an English class as soon as possible. Another important step to becoming a Space Weather scientist is learning how to code. The amount of satellite data we analyze nowadays is so big that we can't do it without the help of a computer.



[\*\*Click Here to Watch Alessandra Pacini's Video\*\*](#)





## VALERIE MIKLES

---

Physical Scientist, Senior Systems Engineer  
National Oceanic and Atmospheric Administration

### What does a Physical Scientist do?

I work on weather satellites at the system level, which means I help make sure all the pieces come together so that what we launch meets the needs of the weather community.

### How is your job a space job?

My job in particular is with satellites in Low Earth Orbit. Being in space gives us a much better view of the Earth and helps us recognize global weather patterns.

### What kind of impact does your job have?

Weather impacts us every day. The wrong environmental forecasts can have major repercussions on travel, agriculture, manufacturing, and more. The right forecasts can save lives.



### What was one of the biggest challenges you've faced and overcome in becoming a Physical Scientist?

There were two big steps for me. The first was realizing that I could be a career scientist. I grew up thinking science was just something people did in their garages in their spare time. When I was a junior in high school, my physics teacher recommended me for a summer science program, and the whole trajectory of my future changed. I dove into physics, got a Ph.D. in astronomy, and that's when I hit the second obstacle—leaving academia.

### What were your interests when you were growing up?

Growing up, I wanted to be a dancer and a novelist. I'm grateful that art is still a part of my life, and it helps me feel balanced after a day of hard science. My motto in life is "I can be everything I want, just not all at the same time." Growing up, I wanted to be a dancer and a novelist. I'm grateful that art is still a part of my life, and it helps me feel balanced after a day of hard science. My motto in life is "I can be everything I want, just not all at the same time."

### What are some of the classes you should take to become a Physical Scientist?

I didn't take the direct path to reach this job, and there are plenty of science or engineering degrees that can get you here. Physics and math have given me a solid foundation. Some kind of scripting or programming language is essential for the modern scientist/engineer. In college, I decided to never take a class I wasn't interested in. Don't go for the easy A, when you can go for the interesting A.

[\*\*Click Here to Watch Valerie Mikles' Video\*\*](#)





## ALEXIS WOLFE

---

Chief of Staff  
National Oceanic and Atmospheric Administration

### What does a Chief of Staff do?

A normal day for me includes managing several teams dedicated to normal office functions, leading initiatives focused on expanding the awareness of the value of our office to the NESDIS and NOAA mission, and having one-on-one conversations with employees to help them address challenges and celebrate successes.

### How is your job a space job?

My role enables me to help leadership make and implement recommendations to advance the strategic focus of STAR. I am highly involved in both evaluating how STAR is aligned to the NESDIS/NOAA mission and how our activities and accomplishments are communicated to the general public. Basically, I get to talk about how our products and services impact the lives of people every day!

### What kind of impact does your job have?

While launching satellites into space and being able to use the data they collect to help forecast extreme events and save lives is critical to the NOAA mission, the people that enable those essential functions are our agency's greatest asset. My primary goal as Chief of Staff is ensuring STAR staff are happy, healthy, and have access to all the tools, connections, and resources to be able to make innovative products and services from the space-based observations NOAA satellites take in order to meet our goals.



### What was one of the biggest challenges you've faced and overcome in becoming a Chief of Staff?

Speaking in group settings used to be something I avoided at all costs. I've definitely had to face this challenge head-on as a Chief of Staff of a 500+ person office, and have found that recognizing that no one is judging me when I stumble over a word or two and that you always have the ability to stop and start over when you make a mistake or speak too quickly has dramatically boosted my confidence in talking to large groups!

### What were your interests when you were growing up?

I was obsessed with tornadoes as a little girl and dreamed of being a storm-chaser. When I was a teenager I constantly checked out NASA astronaut manuals from the local library.

### What are some of the classes you should take to become a Chief of Staff?

I recommend taking classes focused on how science is communicated and used to make policy and management decisions. Public administration and social science classes are also key!

[Click Here to Watch Alexis Wolfe's Video](#)



## MYRANDA SHIRK

---

Data Scientist  
National Oceanic and Atmospheric Administration

### What does a Data Scientist do?

A data scientist writes programs to handle data. At NOAA NCEI, I assist the Archive (where NOAA data is preserved) in organizing that data so scientists can easily find and use the data. Sometimes, I use programming to automate processes for managing data as well.

### How is your job a space job?

At NCEI, we always say that our data spans from the bottom of the ocean to the surface of the sun—which means I get to process all of that data! This includes data from satellites collecting information from space.

### What kind of impact does your job have?

My job preserves scientific data for future generations. Tracking certain effects on the Earth—such as climate change—requires decades of data. By preserving today's data, I give future scientists the tools to tackle big problems.

### What were your interests when you were growing up?

When I was growing up, I loved learning. I was very interested in science and math, but I actually wanted to be a writer! In high school, I realized I could combine my love of being creative with my love of science. Now, writing code allows me to create stories about the Earth and space using actual data, while also helping advance science and benefit society.

### What are some of the classes you should take to become a Data Scientist?

Data science applies math and programming to solve problems in any other field. Find a subject you love, and then take computer science classes to learn how to apply data science to your field. Some schools have even started to offer data science courses, which would also be helpful.



[Click Here to Watch Myranda Shirk's Video](#)



# PAIGE LAVIN

Oceanographer  
National Oceanic and Atmospheric Administration

## What does an oceanographer do?

In my job as an oceanographer, I work to better understand the ocean's role in climate change. Most of my research involves combining data from satellites, research cruises, and autonomous robotic drifters known as Argo floats to study the physics of the ocean. As a member of the NASA/NOAA Jason/Sentinel-6 Ocean Surface Topography Science Team, I work with data from our satellites that measure the height of the sea surface (i.e., the "sea level").

## How is your job a space job?

I use satellite data to tease out how the ocean is responding to climate change. It might seem like it would be harder to study the ocean from space than just going out in a boat and taking measurements, but observing the ocean from space allows us to do a lot of research that would be much more expensive and difficult to do from ships.



## What kind of impact does your job have?

Monitoring the ocean from space is one way that NOAA provides services to the public on a daily basis. NOAA's National Weather Service relies on these satellite measurements to generate daily weather and sea state forecasts. In our lab, we are working with hurricane forecasters to improve their forecasts of hurricane intensity by including information from our new ocean heat content maps.

## What was one of the biggest challenges you've faced and overcame in becoming an oceanographer?

Since college, I've had to manage several chronic health issues which have often forced me to modify my working environment and schedule. Luckily, since most of the data I use are from satellites or robotic sensors others deploy in the ocean, I can still be an oceanographer without having to go into the field constantly.

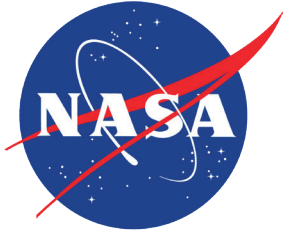
## What were your interests when you were growing up?

Growing up in Northern California, I dragged my parents to the beach every chance I could get. Initially, I was fascinated by the critters in the tide pools and spent much of my free time reading books all about these fascinating creatures. Over time I became more interested in the ocean as a whole and understanding simple questions like "Why is the Pacific cold by Northern California but warm by Hawaii?". This drew me towards studying the physics of the ocean in grad school and ultimately to my current position at NOAA.

## What are some of the classes you should take to become an oceanographer?

Specialized classes in earth science and oceanography are particularly helpful for becoming an oceanographer. However, it is important to also have a solid background in physics, math, and computer science to be able to properly analyze the data we get from satellites and be able to use it to better understand the climate system. Additionally, it is essential to not skimp on humanities courses, especially ones focused on communication and writing, so that you can properly communicate your science to the public!

[\*\*Click Here to Watch Paige Lavin's Video\*\*](#)



## MATT KAMLET

---

Communications Deputy  
Quesst Mission  
NASA Armstrong Flight Research Center

**M**y name is Matt Kamlet and my job as a communicator is to provide a voice for NASA to communicate with the public, but also, it's a two-way street, I provide a voice for the public to communicate with NASA. In a given week, I might be working on social media posts. I might also be working press conferences and delivering on-camera news about what NASA is doing and the status of our mission.

The first "A" in NASA stands for aeronautics and NASA will be flying the X-59 research aircraft over communities beginning in 2024. The public will be providing feedback to NASA based on their perception of the X-59 when it flies over their communities and the quieter sounds that it makes during supersonic flights. To see this X-plane, an experimental aircraft, coming together, it's striking knowing that you're looking at something that can change the future of flight for all of us, forever.

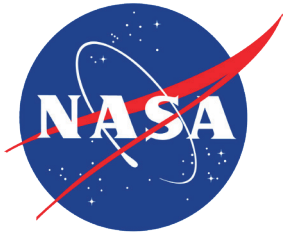
I was a sports broadcaster at my junior college. From there, I went to doing play-by-play announcing for the Long Beach State Dirt Bags baseball team. At CBS, I covered the Dodgers, the Lakers, and the L.A. Kings, and got to learn from some of the giants in the industry, people like Vin Scully.

Growing up in California, I've grown to love the outdoors, the beach, and the ranches. That's what helps provide my balance with work.



[Click Here to Watch Matt Kamlet's Video](#)





## **DR. LOLA E. FATOYINBO AGUEH**

---

Research Physical Scientist  
Biospheric Sciences Lab  
NASA Goddard Spaceflight Center

**I**'m a NASA scientist and I use satellite data and satellite imagery to monitor forests. A lot of the work we do is observing our planet using satellite data and looking into the past and trying to predict the future.

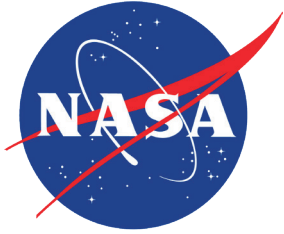
One impact of the work, for example, is if you live in a coastal area, how has that changed over time and how might it change in the future. We care about the change because this is where we live and we want to make sure our planet is able to sustain us for many, many generations.

I love traveling and love going to new places. I do a lot of work in mangroves, which is a really difficult place to work – lots of mud, you have to climb over trees, there might be crocodiles or scary animals. I like going into the field but it can sometimes be a little bit intimidating.

There is combination of excitement and discovery and a feeling of purpose in my work. I feel like I'm helping make our planet a better place.



**[Click Here to Watch Dr. Lola E. Fatoyinbo Agueh's Video](#)**



## KELLY E. FAST, Ph.D.

---

Program Scientist  
Planetary Science Division  
NASA Headquarters

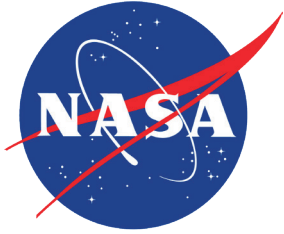
**M**y name is Kelly Fast and my job is to find asteroids before they find Earth as a “planetary defender” and manager of the Near-Earth Object Observations Program in the Planetary Defense Coordination Office.

The DART mission, or Double Asteroid Redirection Test, is the mission where a spacecraft will go and “smack” an asteroid to test capabilities in changing the period of the orbit by a tiny amount. That is all that is needed in the event an asteroid is discovered well ahead of time before it might impact Earth.

I loved astronomy and Star Trek growing up, so I became a research astronomer. I never would have known that somehow my career would come full circle to be part of something that affects people’s everyday lives. I love science parodies and serve as a church instrumentalist and vocalist. I am a ham radio operator under Amateur Extra license callsign N3XUJ and serve as a Volunteer Examiner and occasional Net Control Station in my local radio club.



[Click Here to Watch Kelly E. Fast's Video](#)



## KEL ELKINS

---

Science Data Visualization Programmer  
NASA Goddard Spaceflight Center

I'm a data visualization programmer and develop data-driven visualizations of satellites that study the Earth. I enable scientists to better understand their satellite data and share their information with others.

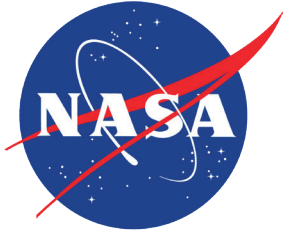
It's important because it allows scientists, for example, to see inside storms, see the structure of storms, and how the precipitation moves within inside a storm. This information gives scientists a better idea of how storms evolve and more importantly, helps with storm prediction.

The challenge is finding the balance between art and engineering. Visualizations are based on very complex concepts and it is challenging to find a way to present it that's interesting and easy to understand, and that people enjoy looking at.

One piece of advice I'd give is to just pursue what you're interested in doing. Things may not make sense while you're doing them but if it's something you're interested in, you're going to be really good at it. And chances are, later on in your career, you'll find something that will really connect the dots and makes sense. Don't feel like you have to go down one path. Go down the path you're interested in and make sure you enjoy what you do.



[Click Here to Watch Kel Elkins' Video](#)



## DR. DALIA KIRSCHBAUM

---

Global Precipitation Measurement (GPM) Applications Scientist  
NASA Goddard Spaceflight Center

I'm a researcher in the hydrology lab and my focus is landslide modeling. I'm also the GPM Applications Scientist, meaning that I help to communicate the science and the data that we get from the GPM mission to the public and end users.

I grew up in Minnesota, we have flooding, we have drought. There are no landslides, except in the northern areas of Minnesota, very small ones at that. Looking at earthquakes or hurricanes was such a crazy phenomenon, and I loved the idea that nature was just so powerful, and that we could actually use data from above the Earth to figure out what's happening on the surface and in the atmosphere.

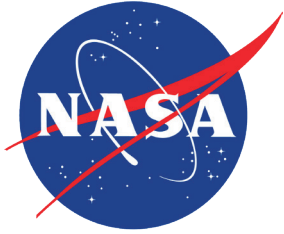
I was always very interested in math, and so all through school I kind of thought that I was going to be either a math major or do something with math. And then during my freshman year of college, I took a very interesting class on different environmental issues, and I found that I was really fascinated with natural disasters, but what I realized is that you can actually apply math and you can apply science to real-world topics. And you can use the information that you get or the results from your models to really help people and try to mitigate against these hazards.

I think the most important thing is to continue learning and to continue pushing what you think is interesting and to find a way to get yourself there.



[\*\*Click Here to Watch Dr. Dalia Kirschbaum's Video\*\*](#)





## ANNIE MEIER

---

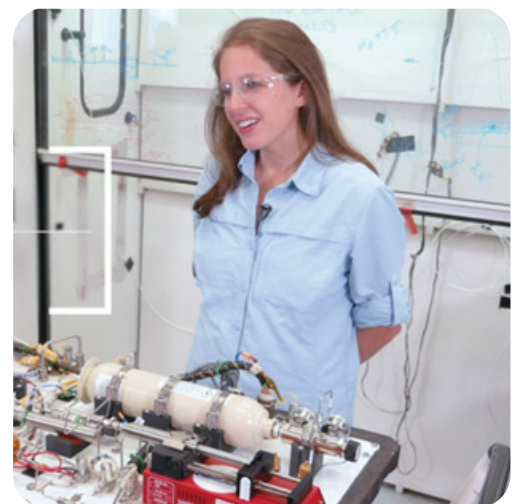
Chemical Engineer  
NASA Kennedy Space Center

I'm Annie Meier and I'm turning trash into usable resources.

On a one-year mission, a crew of four would produce around 2,500 kilograms of trash. So we're taking that trash, and converting it into gases that we can use for either venting off a spacecraft or using it for fuels.

No one likes to sit in a room surrounded by their trash, and neither do astronauts. And so the things we're studying for converting trash into gases has to be safe for the crew, and therefore safe for use on the planet.

My grandfather was a sanitation worker in the Bronx. Growing up, I was very aware of trash all around us. I was always curious how can we reduce our waste or convert it. I really try to take it home with me and do composting and try to live as zero-waste as I can. If I can do this, you can do it too.



[\*\*Click Here to Watch Annie Meier's Video\*\*](#)