



National Aeronautics and  
Space Administration



# William and Mary Science Career Expo – Engineering –

David F. Mitchell  
Director, Flight Projects

October 29, 2020



# NASA Goddard Space Flight Center



**ONE** World-Class Science and Engineering Organization

**SIX** Distinctive Facilities and Installations

**Greenbelt  
Main Campus  
1,270 Acres**

**Wallops Flight  
Facility  
6,188 Acres**

**Goddard Institute  
for Space Studies**

**Independent  
Validation &  
Verification  
Facility**

**White Sands Test  
Facility Ground  
Stations**

**Columbia  
Balloon  
Facility**

**Executing NASA's most  
complex science missions**

Est. 1959



**MARYLAND**

**Launching Payloads for  
NASA & the Nation**

Est. 1945



**VIRGINIA**

**Understanding our  
Planet**

Est. 1961



**NEW YORK**

**Providing Software  
Assurance**

Est. 1993



**WEST VIRGINIA**

**Communicating with  
Assets in Earth's Orbit**

Est. 1963



**NEW MEXICO**

**Directing High Altitude  
Investigations**

Est. 1982

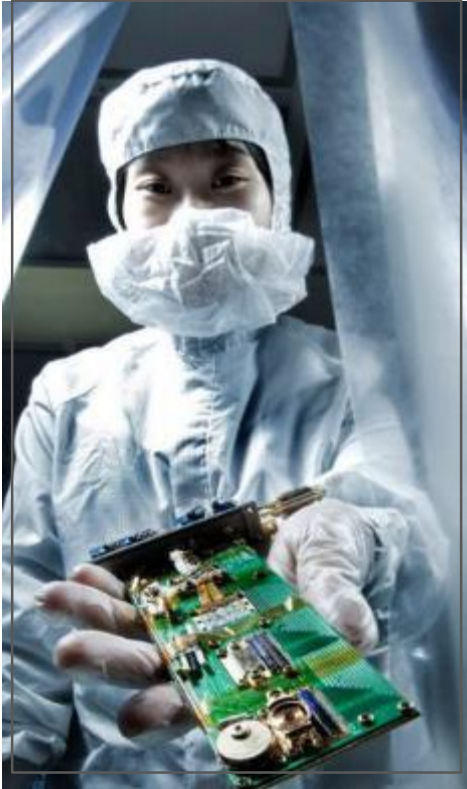


**TEXAS**

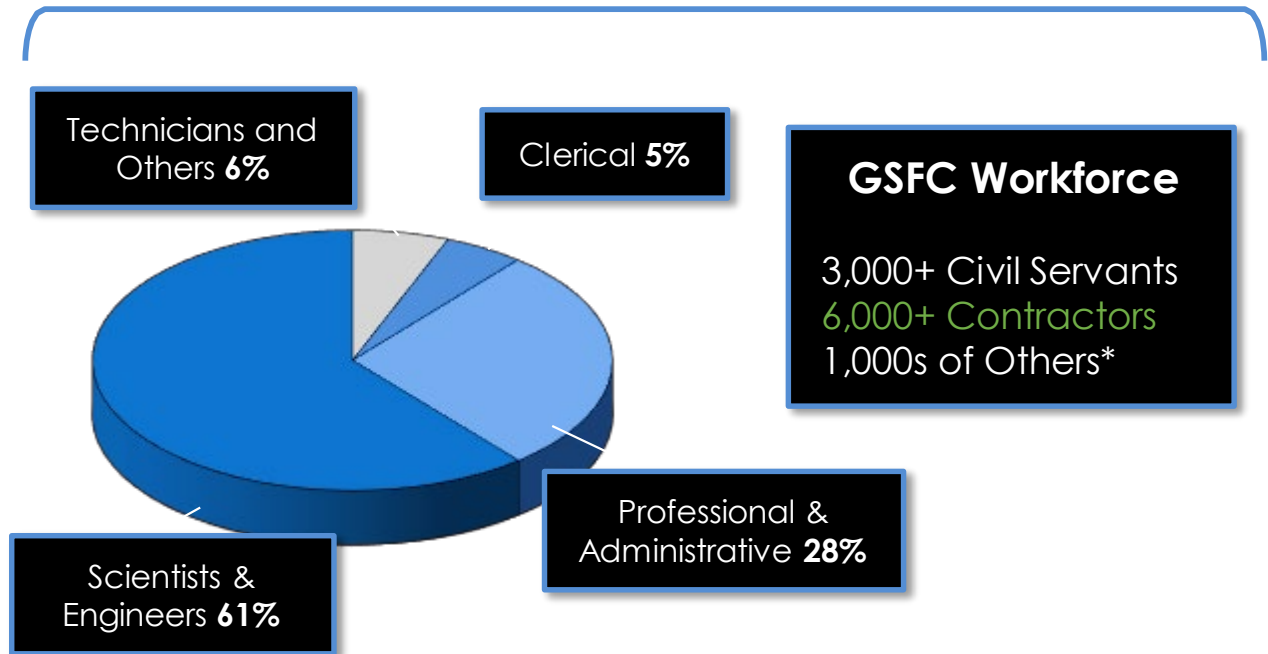




# The Goddard Community



More than 10,000 People



The Nation's largest community of scientists, engineers, and technologists.



# Goddard Space Flight Center



## Employees Receive Worldwide Accolades for Their Work

**Dr. Piers Sellers**  
Most Excellent Order of  
the British Empire  
2011



**Dr. John Mather**  
Nobel Prize in Physics – 2006  
Rumford Prize – 1996  
Franklin Medal – 1999



Dr. Mather is the recipient of more than 30 honors in the physical sciences.

**Dr. Compton Tucker**  
Galathea Medal – Denmark 2004  
Vega Medal – Sweden 2014  
In Physical Geography



The Intergovernmental Panel on Climate Change (IPCC) was awarded the Nobel Peace Prize in 2007 for its work on climate change, together with former US Vice-President Al Gore. Over 50 scientists from the Goddard Space Flight Center contributed to the IPCC Assessments that formed the basis for the award.

**ipcc**  
INTERGOVERNMENTAL PANEL ON  
CLIMATE CHANGE







# NASA – The Best Place to Work in the Federal Government 2019





# What We Strive to Do



## Lead in Science and Technology

Goddard's end-to-end capabilities, world-class scientific expertise, top-tier engineering talent, and facilities enable it to develop & manage NASA's most complex science missions



## Enable Exploration

Goddard's science missions, launch facilities, and space communications/navigation capabilities help us understand the universe and explore deeper within it



## Improve Lives & Protect the Nation

Goddard enables improvements in our understanding and forecasting of extreme weather, the spread of water-borne diseases, crop yields, etc. to inform national security objectives



## Invest in America

Goddard is committed to strengthening the US economy by seeding new technologies, creating business opportunities, and inspiring young innovators and engineers

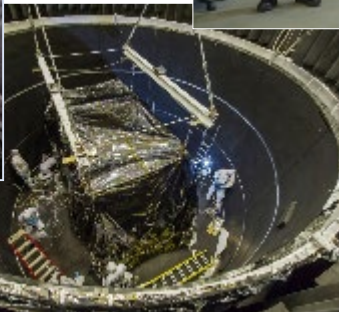
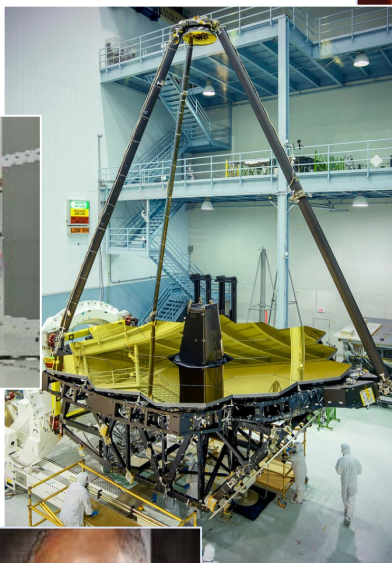




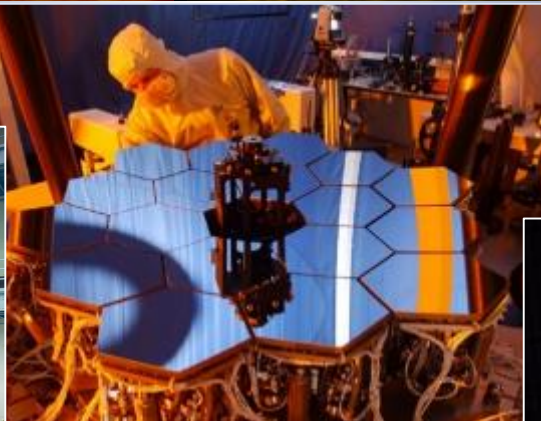
# Our Capabilities



## World Class Facilities



## Engineering and Technology Development



## End-to-End Capabilities from Concept through End of Mission Life



## Exceptional Human Capital



## Expertise in Core Science and Cross-Cutting Disciplines

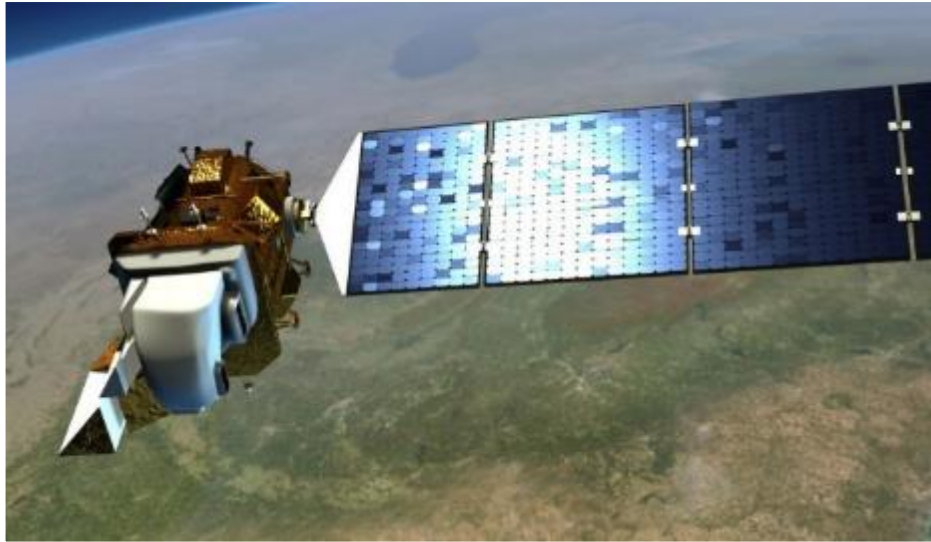


## Diverse Partnerships

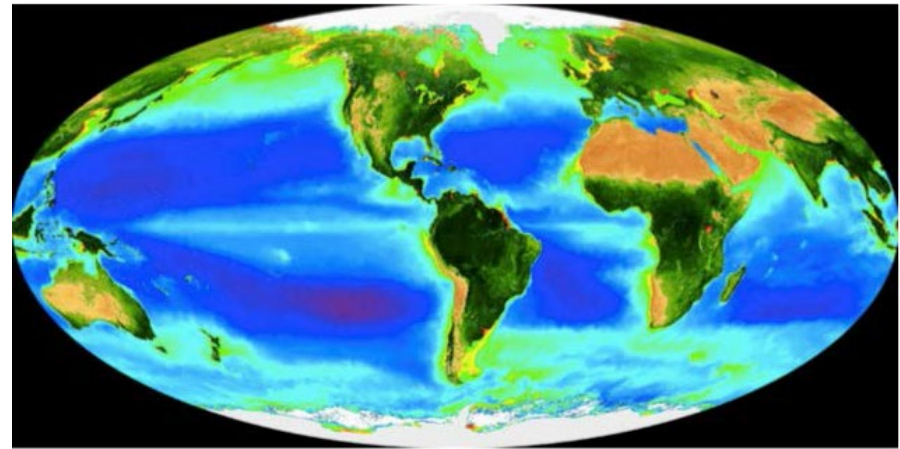




# Earth Science Missions



**Landsat 9** is designed to provide continuity in the multi-decadal land surface observations to study, predict, and understand the consequences of land surface dynamics. This mission is a NASA and USGS partnership.



## Pre-Aerosol, Clouds, and Ocean

**Ecosystem (PACE)** will make global ocean color measurements to provide extended data records on ocean ecology and global biogeochemistry (e.g., carbon cycle) along with polarimetry measurements to provide extended data records on clouds and aerosols.

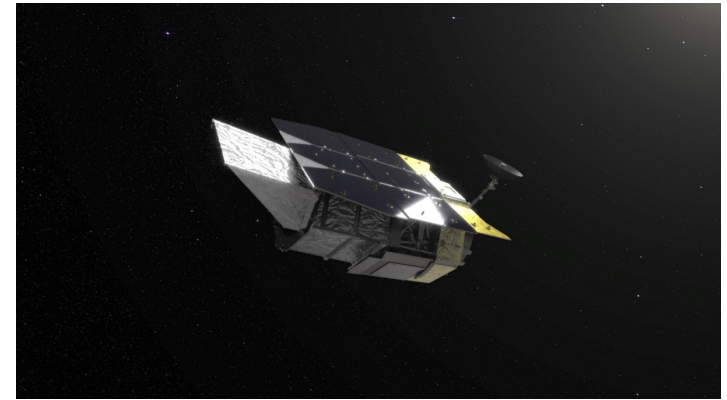




# Astrophysics Missions



**James Webb Space Telescope (JWST)** is a deployable infrared telescope, passively cooled, with 6.5 meter diameter segmented adjustable primary mirror designed to study the origin and evolution of galaxies, stars, and planetary systems.



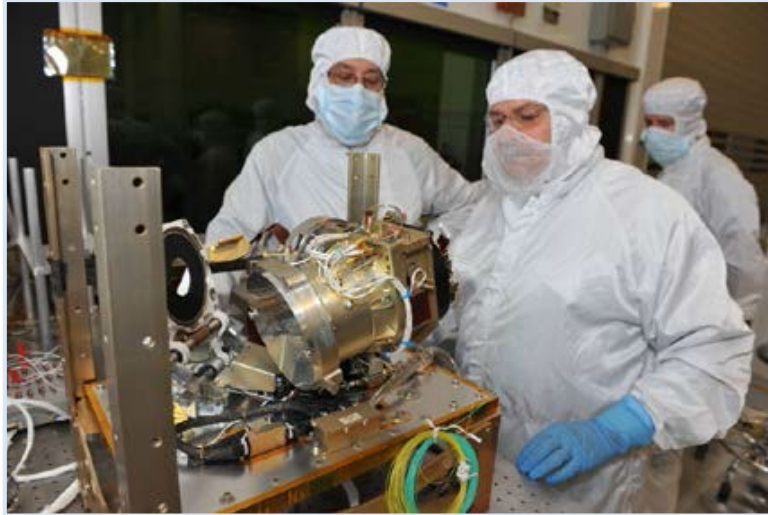
## Nancy Grace Roman Space Telescope

**(Roman)** is a NASA observatory designed to settle essential questions in the areas of dark energy, exoplanets, and infrared astrophysics.



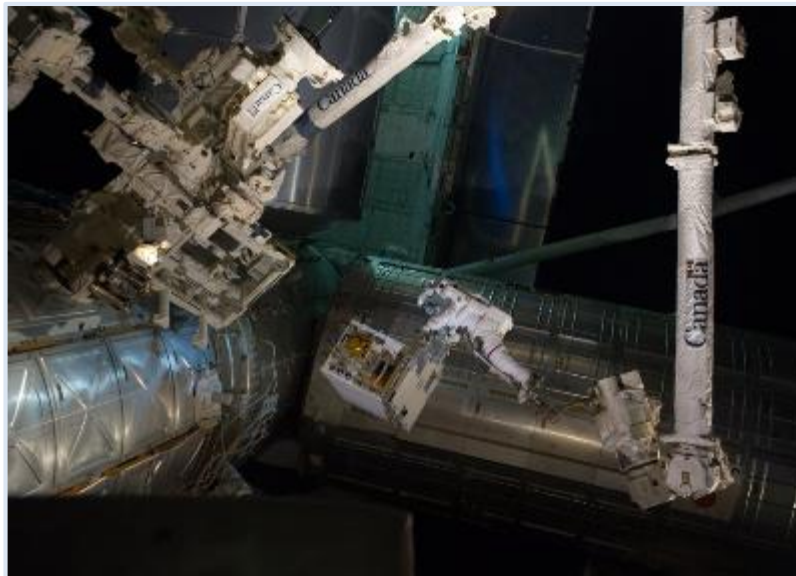


# Space Technology Missions



**Laser Communications Relay Demonstration (LCRD)** will demonstrate advanced bidirectional optical communications between geosynchronous Earth orbit (GEO) and Earth.

**Robotic Refueling Mission (RRM) Phase 3** is a multi-phased International Space Station technology demonstration that is testing tools, technologies and techniques to refuel and repair satellites in orbit - especially satellites not designed to be serviced. Phase 3 demonstrates final tasks required to replenish cryogenics in existing satellites not designed for servicing.



**On-orbit Servicing, Assembly, and Manufacturing 1 (OSAM-1)** will robotically refuel a Government-owned satellite in low Earth orbit (LEO). Shown here with Landsat 7 mock-up.





# Space Communications



**Space Network (SN)** is an operational project that provides near-continuous space-ground communications through the Tracking and Data Relay Satellite (TDRS) system supporting Human Spaceflight, Commercial, NASA, and Other Government Agency platforms with a extremely high level of proficiency. Ground Stations are located at White Sands (Primary), Guam, Blossom Point, and Australia.



**Near Earth Communications Network (NEN)** provides telemetry, commanding, ground-based tracking, data and communications services to a wide range of customers with satellites in low Earth orbit (LEO), geosynchronous orbit (GEO) highly elliptical orbit, Lunar orbit and missions with multiple frequency bands.



The **SN Ground Segment Sustainment (SGSS)** project will implement a modern ground segment that will enable the Space Network to continue to deliver high quality services to the SN community, meet stakeholder requirements, and significantly reduce required operations and maintenance resources.



# Other Capabilities



Sounding Rocket Program



CubeSats and SmallSats



Aircraft



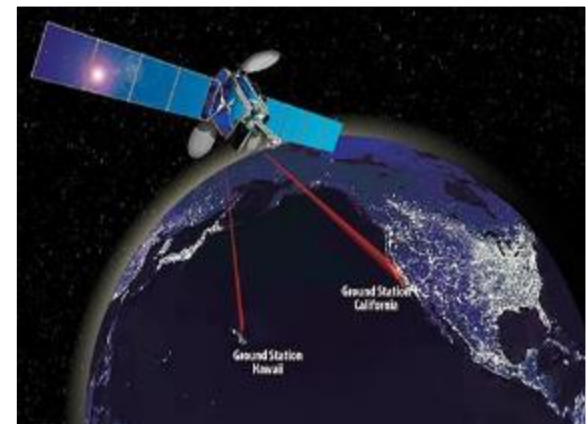
Antares Launch Vehicle



Balloon Program



Space and Near Earth  
Communications Networks



Laser Communications  
Relay Demonstration





# Intern Opportunities



NASA's Goddard Space Flight Center leads the world in scientific discovery and understanding. Goddard is the home of innovative Earth science, astrophysics, heliophysics and planetary science. The center's diverse and talented team is responsible for each breakthrough emerging from Goddard laboratories.

NASA internships, fellowships and scholarships leverage NASA's unique missions and programs to enhance and increase the capability, diversity and size of the nation's future STEM (science, technology, engineering and math) workforce.

We offer hundreds of opportunities each year across campuses located at:

- Greenbelt, Maryland
- Wallops Flight Facility, Wallops Island, Virginia
- Goddard Institute For Space Studies, New York City
- Independent Verification and Validation Facility, Fairmont, West Virginia
- White Sands Complex, Las Cruces, New Mexico

Internships are available at all levels of education from high school to graduate. Internships provide students with the opportunity to participate in either research or other experiential learning, under the guidance of a mentor at a NASA installation.



# Top Five Things to Know About NASA Internships



**INSPIRE - ENGAGE - EDUCATE - EMPLOY**  
The Next Generation of Explorers

## NASA interns contribute to NASA missions!

Interns are integrated in NASA teams and assigned to authentic projects.

## Prior experience is not required!

Although prior experience can be valuable and may be preferred for some projects, it is not a requirement for NASA internships.

## Most interns receive a stipend award!

The stipend award amount is based on student's academic level and the length of the internship.

## NASA intern projects are available in three sessions.

Interns are selected and placed in projects for fall, spring, and summer sessions at any NASA location.

## One application can be viewed agencywide.

Students complete one application, which can be viewed by mentors agencywide.





# Summer 2021 Internships



**INSPIRE-ENGAGE-EDUCATE-EMPLOY**  
The Next Generation of Explorers

<http://intern.nasa.gov>

## **March 8, 2021 – Student application deadline.**

Offers can only be extended to students who have an application in the system by March 8, 2021.

## **April 22, 2021 – Goddard's last day to extend offers.**

Goddard plans to have all offers made by April 22, 2021.

## **June 1, 2021 – Summer 2021 internships begin.**

## **August 6, 2021 – Summer 2021 internships end.**

*As of now, per the Agency, summer internships will be virtual;  
a final decision will be made after a review in February.*



# Internship Eligibility Requirements



INSPIRE - ENGAGE - EDUCATE - EMPLOY  
The Next Generation of Explorers

- U.S. citizen,
- Cumulative 3.0 GPA on a 4.0 scale.
- Full-time student, high school through graduate.
- Undergraduate and graduate students must be enrolled full-time in a degree-granting program at an accredited college or university.
- A minimum of 16 years of age at the time of application - No exceptions.
- Educators are also eligible to apply.





# Tips for Applying for Internships



**INSPIRE - ENGAGE - EDUCATE - EMPLOY**  
**The Next Generation of Explorers**

When submitting your application at [www.intern.nasa.gov](http://www.intern.nasa.gov), please remember you'll need to:

- Upload your school transcript (unofficial is OK).
- Think about who you can ask for letters of recommendations.
  - Professors, supervisors, and other people who know you and your work well.
- List all of your previous job and/or internship experiences.
  - It's OK if you don't have any experience, include contributions you've made to projects and extracurricular activities which have given you opportunities to grow in your major.
  - List roles and accomplishments for jobs, internships, projects.
  - Include awards, memberships.
- Be specific with keywords for your skills.
- Include any previous NASA experience.
- Include why you want an internship with NASA – it's a way to let mentors see your personality!
- Use proper grammar.

Watch the [Your Guide to Apply for a NASA Internship](#) video for more information.

From high school interns to accomplished Nobel Prize winners, each member of the Goddard team plays a vital role in mission success. If you are interested in applying for employment with NASA's Goddard Space Flight Center and need special assistance or an accommodation to apply for a posted position, contact our Human Resources department at 301-286-7918.



# Pathways Opportunities

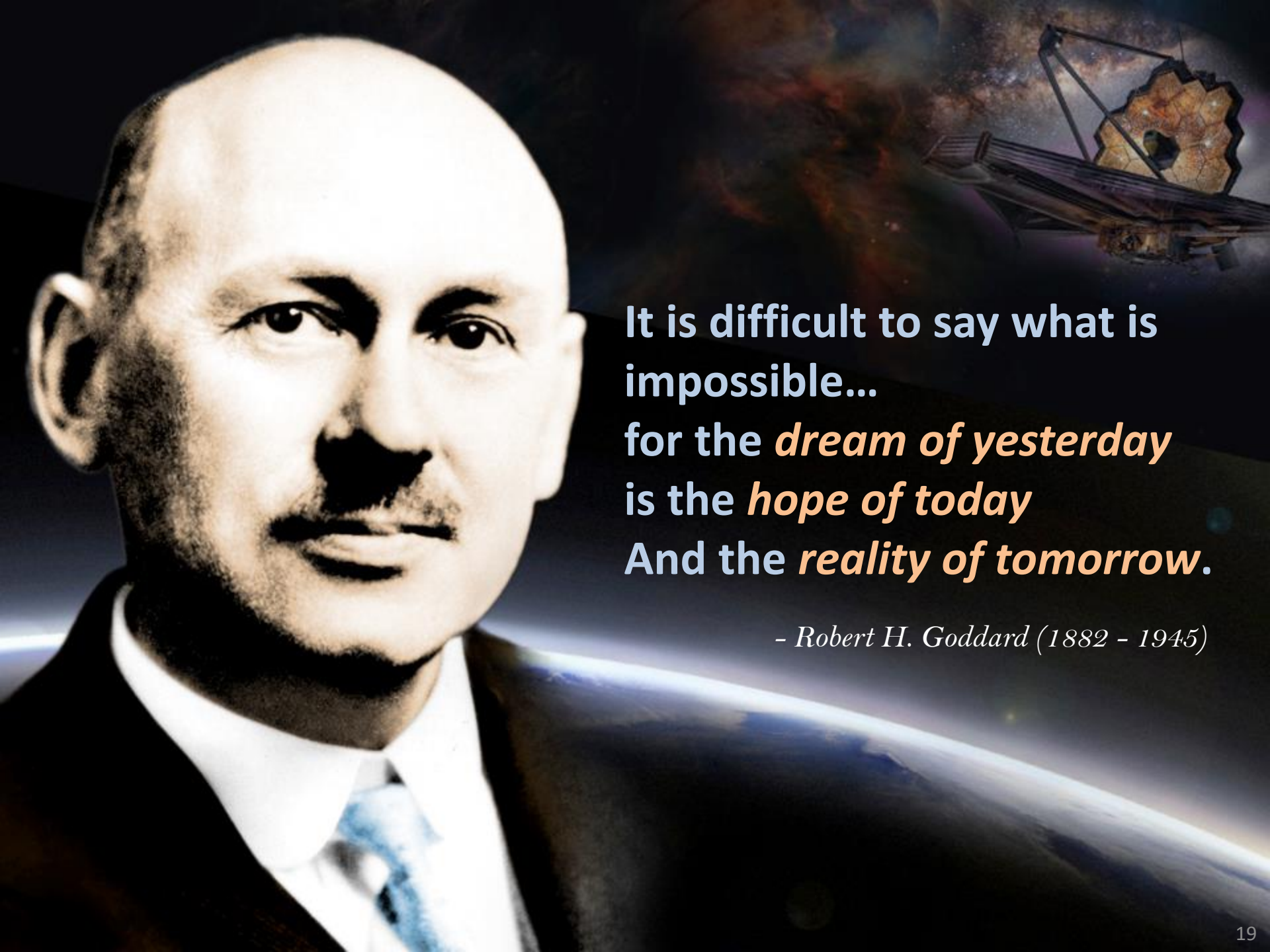


The NASA Pathways Intern Employment Program (IEP) is open to students that are currently enrolled or accepted for enrollment in a qualifying educational program. The Pathways IEP provides opportunities to work and explore careers while still in school. Pathways IEP appointments may be for indefinite periods without not-to-exceed (NTE) dates or appointments with NTE dates of up to one year. If you successfully complete an appointment without an NTE date at NASA, you may be converted to permanent employment or term employment of up to six years.

For more information visit <https://www.nasa.gov/careers/students-and-recent-graduates>.

- To be eligible for NASA's IEP, you must:
  - Be a U.S. citizen.
  - Be at least 16 years of age.
  - Be enrolled or accepted for enrollment on at least a half-time basis.
  - Be pursuing a degree or certificate.
  - Currently have and maintain a 2.9 grade point average.
  - Be able to complete at least 640 hours of work prior to completing your degree/certificate requirements.
  - Meet any other requirements described in the announcement (some IEP positions require you to be pursuing specific majors).
- To find opportunities:
  - Federal agencies must post Intern opportunities on [USAJOBS](https://www.usajobs.gov). You may go directly to [USAJOBS](https://www.usajobs.gov) to begin your search.
  - You may review current NASA IEP vacancies at [Pathways Opportunities](https://www.nasa.gov/careers/students-and-recent-graduates).
  - You may also create an account on [USAJOBS](https://www.usajobs.gov) and sign up to be automatically notified about vacancies meeting your interests.





It is difficult to say what is  
impossible...  
for the *dream of yesterday*  
is the *hope of today*  
And the *reality of tomorrow.*

- Robert H. Goddard (1882 - 1945)