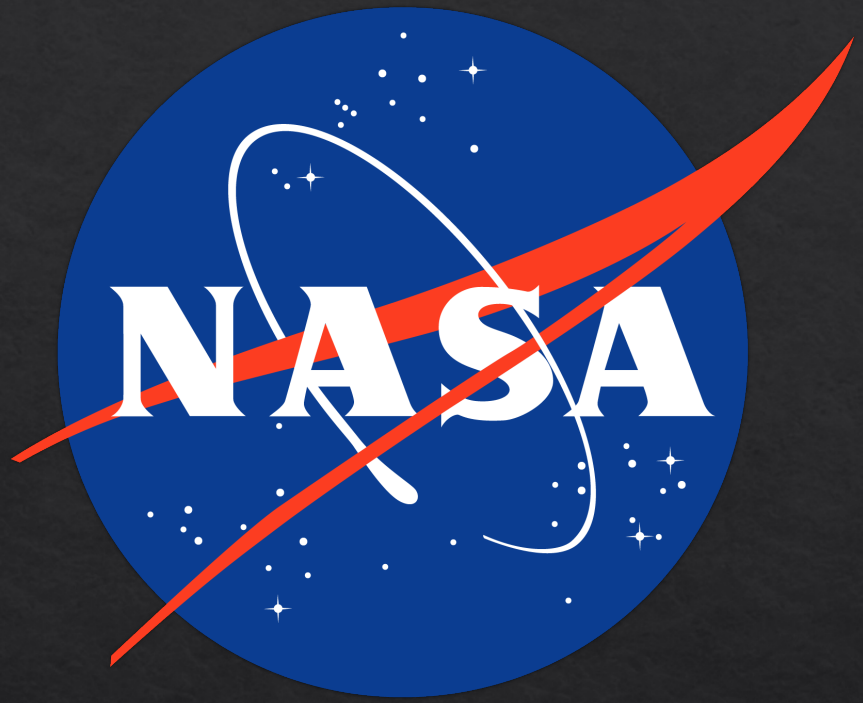


CCRI Educator Ambassadors 2021-22
Community STEM Engagement Series

Elana Resnick

Introduction

School Years
2013-2016: Glen Rock High School
Glen Rock, NJ

2016-2020: Saddle Brook High School
Saddle Brook, NJ

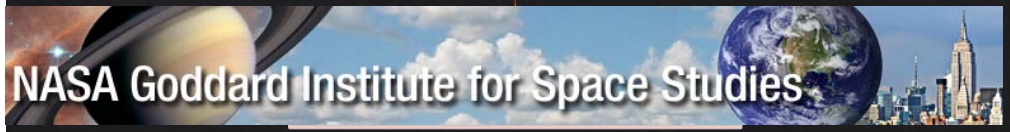
2020-2022: Gilman School

August 2022: Starting work @ GSFC's Heliophysics Division

Summer 2016

Summer 2017

Fall 2017



Community Coordinated Modeling Center

CCMC

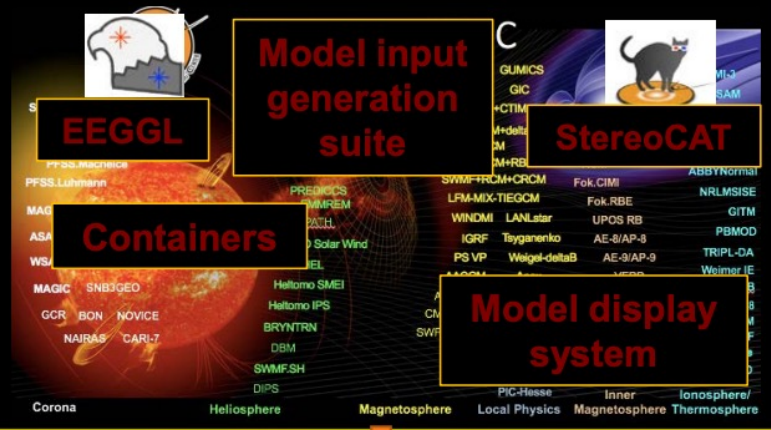
- Mission: To enable, support, and perform research for next generation space science and operational space weather models through an interagency partnership.
- Goal: Develop and execute next generation research models in support of the advancement of space sciences and deployment of new operational space weather capabilities.

Comprehensive Collection Of Space Weather Models

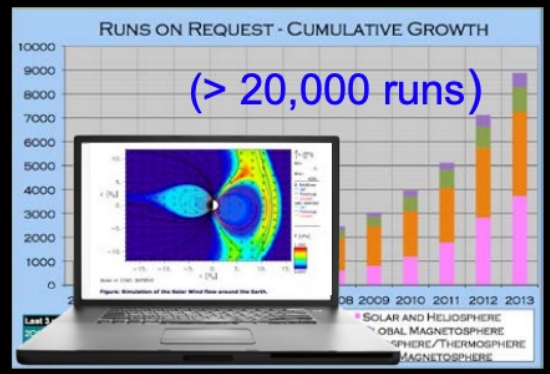
Corona **Heliosphere** **Magnetosphere** Inner Magnetosphere **Ionosphere/Thermosphere**

CCMC Functions

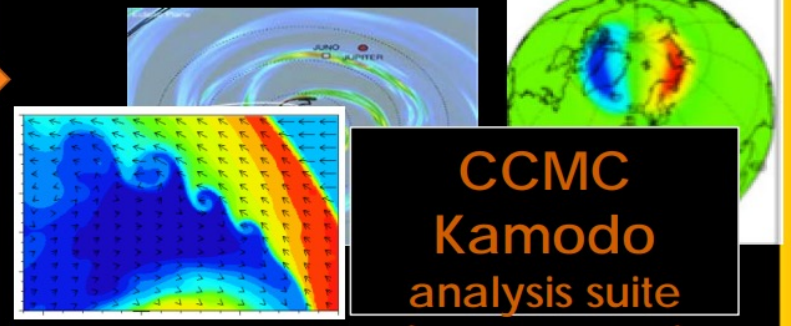
Models



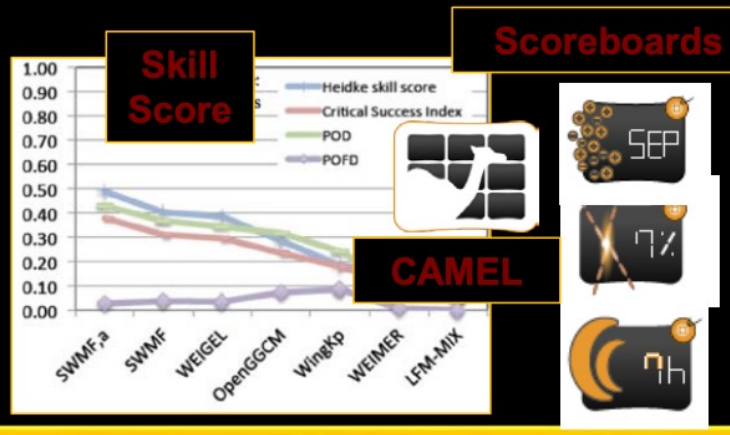
Simulation services



Visualization, dissemination



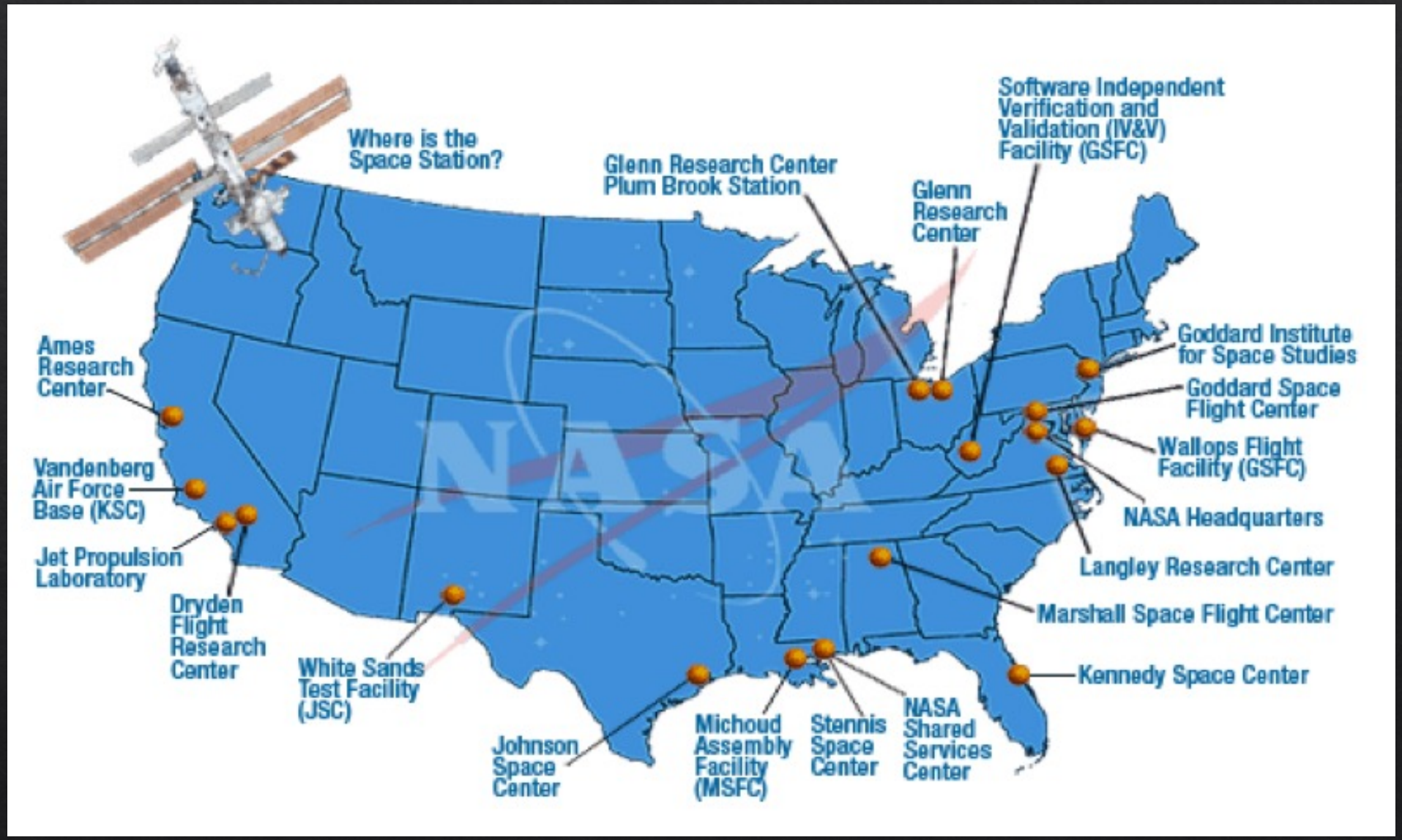
Evaluations, R2O



NASA missions & community Support

Information architecture: perpetual archive

NASA Centers

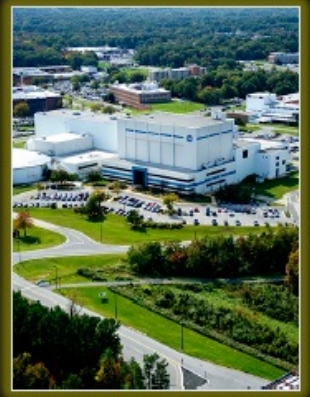


We Are OSTEM at GODDARD

ONE World-Class Science and Engineering Organization

SIX Distinctive Facilities & Installations

Maryland



Goddard Space Flight Center Main Campus

Virginia

Wallops Flight Facility

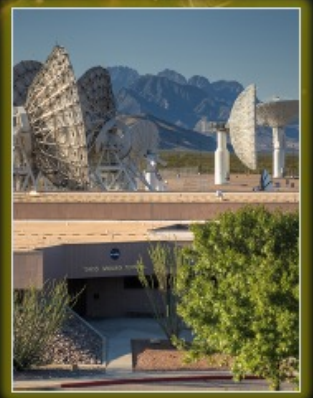
New York City

Goddard Institute for Space Studies

West Virginia

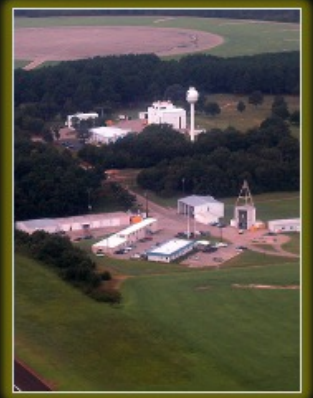
Katherine Johnson Independent Validation & Verification Facility

New Mexico



White Sands Complex

Texas



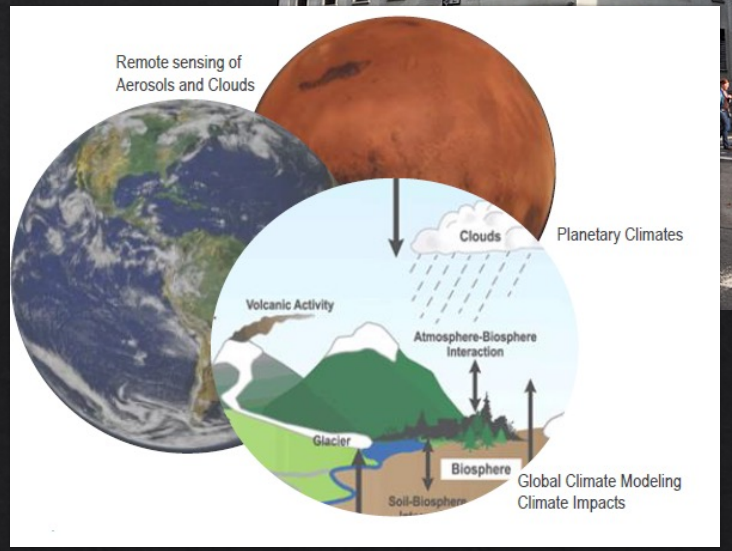
Columbia Scientific Balloon Facility

Goddard Space Flight Center is made up of 6 facilities across the United States. The main campus is located in Greenbelt MD, with 1,270 acres of land and over 35 official buildings, was established in 1959. Wallops Flight Facility is located on the eastern shore of Virginia, and is the largest in land size, 6,188 acres of land. This is because it owns and operates the only NASA owned launch range. The Goddard Institute for Space Studies is located in New York City, and is a collaboration between NASA and Columbia University. Fun Fact: the building that occupies GISS is located on top of Tom's Diner from the show Seinfeld. The Katherine Johnson Independent Verification and Validation Facility is located in Fairmont, West Virginia. The facility was renamed after Katherine Johnson, West Virginia native and NASA's "hidden figure" mathematician. The White Sands Complex is located in Las Crusas, New Mexico. While NASA's Johnson Space Center operates the White Sands Test Facility, the complex comprises of facilities run by Goddard. The Columbia Scientific Balloon Facility is located in Palestine, Texas. In 2006, it was renamed in memory of space shuttle Columbia, and was instrumental in the debris recovery operations.

In 2020 the Goddard Space Flight Center provided 436 internship projects at all of the locations. These interns participated in project work, professional development activities, and enrichment events. 2020

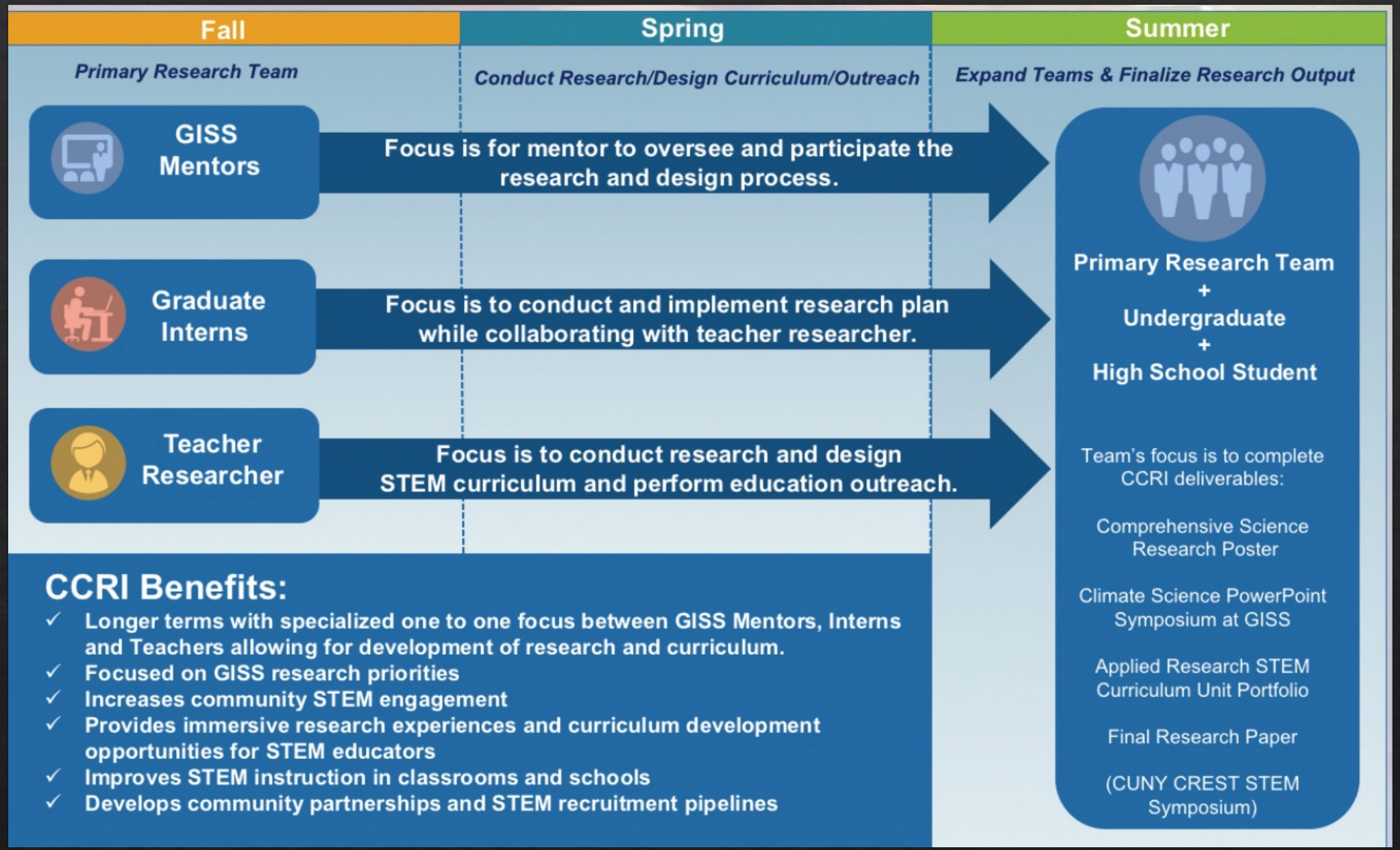
GISS

- The NASA Goddard Institute for Space Studies is a laboratory in the Earth Sciences Division of NASA's Goddard Space Flight Center.
- GISS conducts theoretical and experimental research on the causes and consequences of long-term global change, with an emphasis on education and outreach.
- Areas of research include climate modeling, climate impacts, remote sensing of climate system features such as aerosols and clouds, and comparative planetary climates.
- GISS Director, Dr. Gavin Schmidt, is NASA's Acting Senior Climate Advisor.
  - Feb 2021 to Jan 2022 - acting Senior Advisor on Climate to the NASA Administrator



OSTEM

- **NASA Office of STEM Engagement's Vision:** We immerse the public in NASA's work, enhance STEM literacy and inspire the next generation to explore.
- **NASA Office of STEM Engagement's Mission:** We engage the nation in NASA's mission.
  - Create unique opportunities for students and the public to contribute to NASA's work in exploration and discovery.
  - Build a diverse future STEM workplace by engaging students in authentic learning experience with NASA's people, content and facilities.
  - Strengthen public understanding by enabling powerful connections to NASA's mission and work.



The NASA GISS Climate Change Research Initiative (CCRI) is a year-long STEM engagement opportunity for NYC metropolitan area educators and graduate students to work directly with NASA scientists and lead research teams in a NASA research project.

CCRI 2021-22 Projects

- Atmospheric Rivers in a Changing Climate @ GISS
- Characterizing the Urban Land Surface Temperature via an Innovative, Multi-Platformed Suite of Satellite and Ground-Based Remote Sensing Technologies @ GISS
- Climate Change in the Hudson Estuary — Past, Present, and Future @ GISS
- Earth Observation Applications for Resiliency: Assessing Climate Change Impacts in Urban, Agricultural, and Natural Environments @ GISS

NEW 2022

- Connecting the Local Urban Fabric to Global Climate Change @ GSFC
- The Expanding Legacy of Landsat — Documenting Environmental Change Beyond Five Decades @ GSFC

https://tinyurl.com/CCRISummer2022

THE BEARING STRENGTH OF AN ABS SPECIMEN MADE OF ADDITIVE AND SUBTRACTIVE MANUFACTURING

Edward Pichardo and Elana Resnick

Dr. Sidi Berri – City Tech

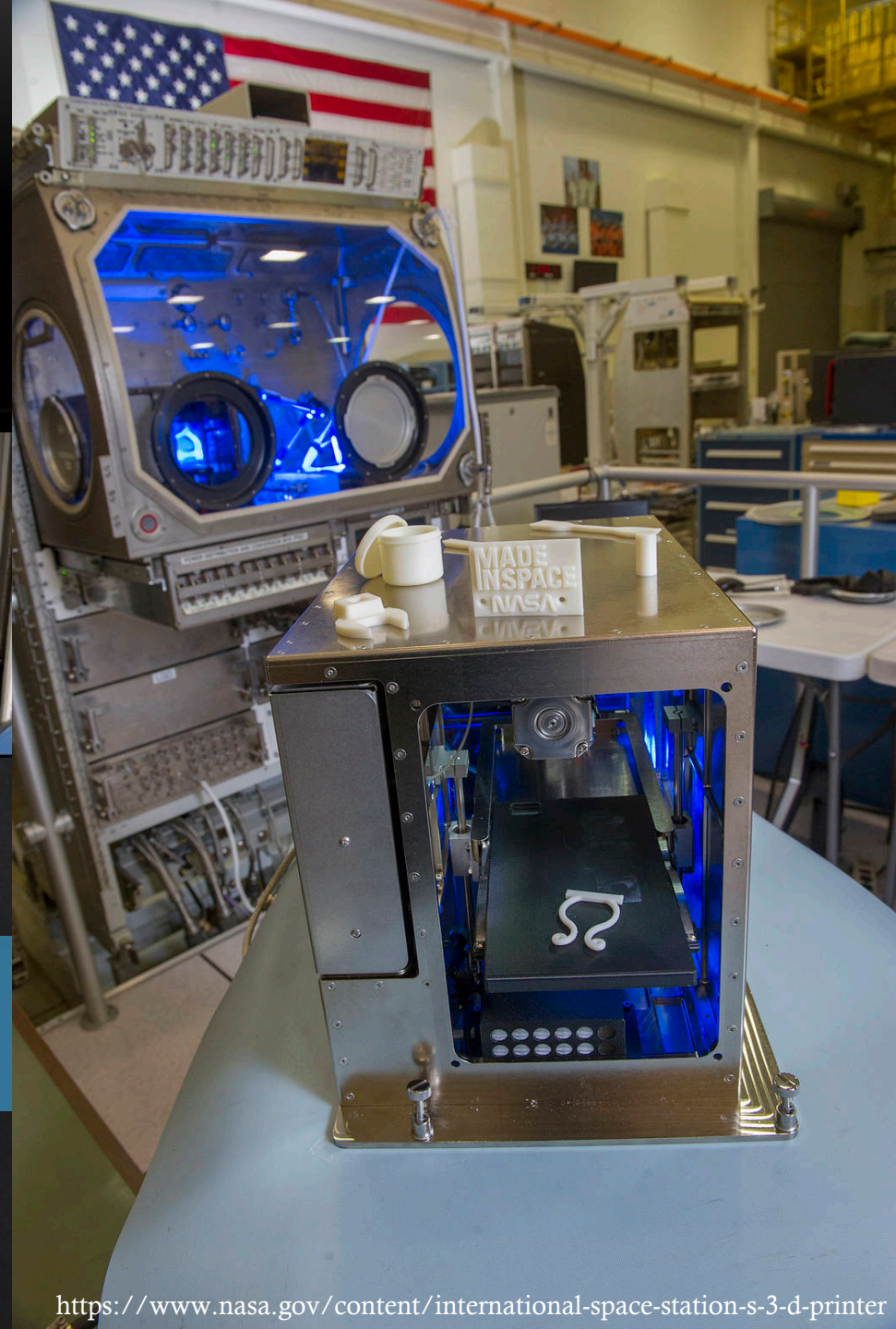
Dr. Malek Brahimi – City Tech

Dr. Gaffar Gailani – City Tech

Matthew Pearce – GISS Education Program Specialist

Dean Kern - Deputy Director for the Office of Education at Goddard

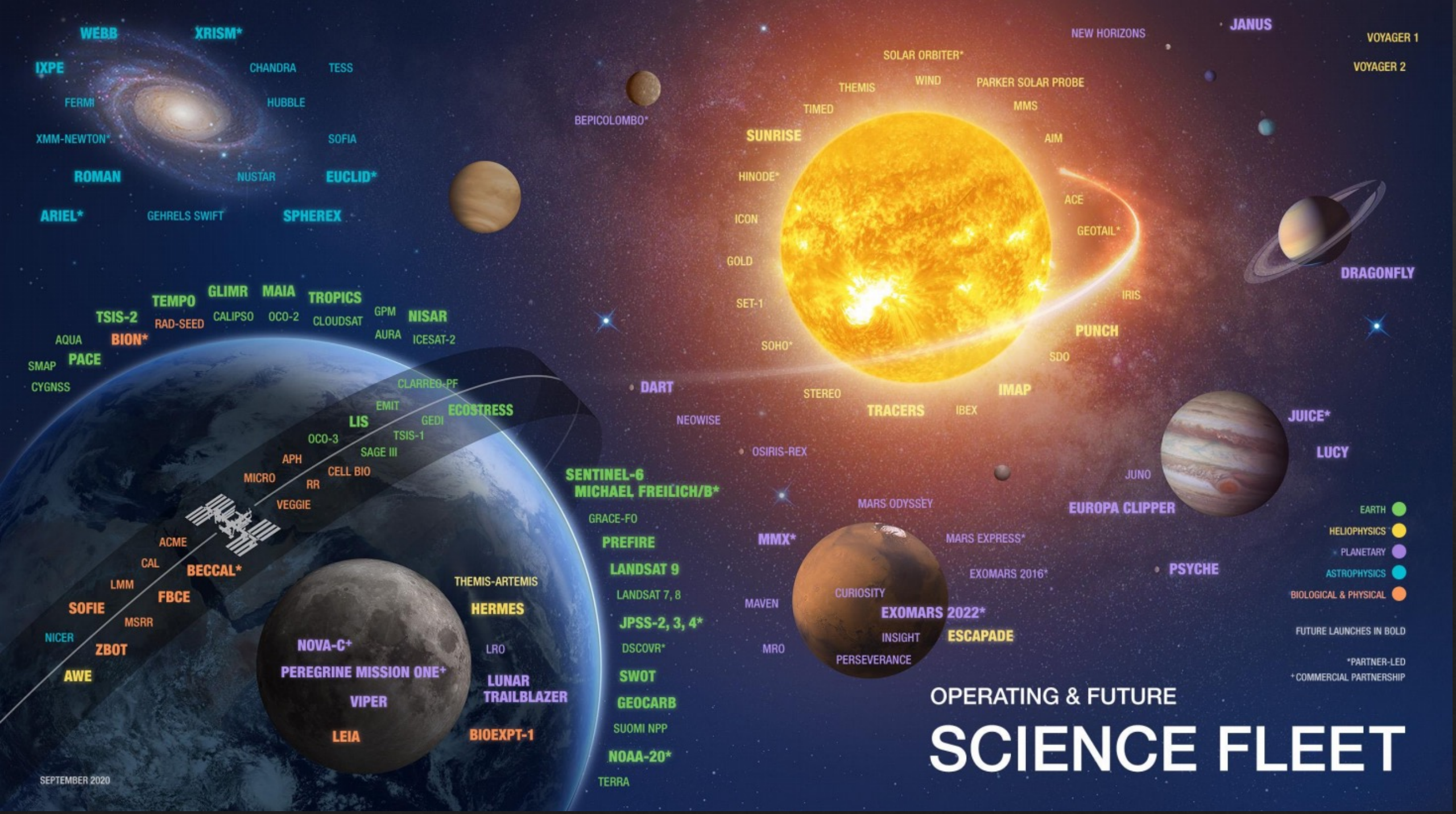
NEW YORK CITY COLLEGE OF TECHNOLOGY
CITY TECH
WHERE CAN TECHNOLOGY TAKE YOU?



https://www.nasa.gov/content/international-space-station-s-3-d-printer

Lunar Reconnaissance Orbiter

- Terra
- Aqua
- GPM
- IceSat-2
- Aura
- SMAP
- JWST
- Sentinel-6
- Landsat


WEBB
XRISM*
IXPE
CHANDRA
TESS
FERMI
HUBBLE
XMM-NEWTON*
SOFIA
ROMAN
NUSTAR
EUCLID*
ARIEL*
GEHRELS SWIFT
SPHEREX
TEMPO
GLIMR
MAIA
TROPICS
TSIS-2
RAD-SEED
CALIPSO
OCO-2
CLOUDSAT
GPM
NISAR
AURA
ICESAT-2
AQUA
BION*
SMAP
PACE
CYGNSS
CLARREO-PF
EMIT
ECOSTRESS
LIS
GEDI
OCO-3
TSIS-1
APH
SAGE III
MICRO
CELL BIO
RR
VEGGIE
ACME
CAL
BECCAL*
LMM
FBCE
SOFIE
MSRR
NICER
ZBOT
AWE
THEMIS-ARTEMIS
HERMES
NOVA-C+
LRO
PEREGRINE MISSION ONE+
LUNAR TRAILBLAZER
VIPER
LEIA
BIOEXPT-1
SEPTEMBER 2020
BEPICOLOMBO*
SOLAR ORBITER*
NEW HORIZONS
JANUS
VOYAGER 1
VOYAGER 2
THEMIS
WIND
PARKER SOLAR PROBE
TIMED
MMS
SUNRISE
AIM
HINODE*
ACE
ICON
GEOTAIL*
GOLD
DRAGONFLY
IRIS
SET-1
PUNCH
SOHO*
SDO
DART
STEREO
IMAP
TRACERS
IBEX
NEOWISE
JUICE*
OSIRIS-REX
LUCY
JUNO
SENTINEL-6
MICHAEL FREILICH/B*
MARS ODYSSEY
EUROPA CLIPPER
GRACE-FO
PREFIRE
MMX*
MARS EXPRESS*
LANDSAT 9
EXOMARS 2016*
PSYCHE
LANDSAT 7, 8
CURIOSITY
MAVEN
EXOMARS 2022*
JPSS-2, 3, 4*
INSIGHT
ESCAPADE
DSCOVR*
MRO
PERSEVERANCE
SWOT
GEOCARB
SUOMI NPP
NOAA-20*
TERRA
EARTH
HELIOPHYSICS
PLANETARY
ASTROPHYSICS
BIOLOGICAL & PHYSICAL
FUTURE LAUNCHES IN BOLD
*PARTNER-LED
+COMMERCIAL PARTNERSHIP
OPERATING & FUTURE
SCIENCE FLEET

NASA Educational Resources
GLOBE Highlight

Examples of NASA educational resources:

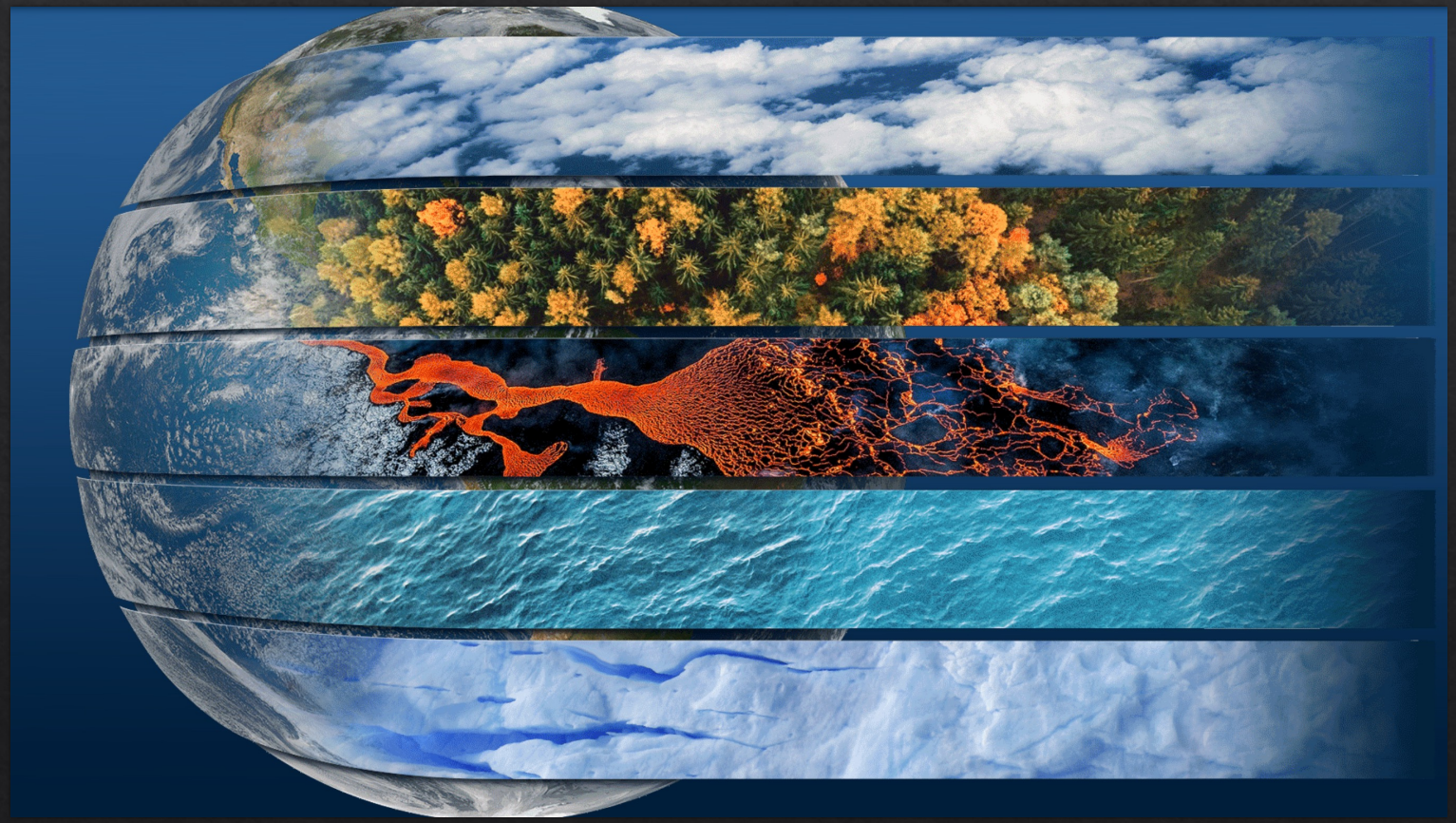
- ARSET / EARTHDATA
- Earth Now
- GLOBE
- My NASA Data
- NEO
- Worldview

THE GLOBE PROGRAM

NASA GLOBE Observer Clouds

My NASA Data


4. Ask
2. Search & Find
5. Connect
3. Analyze
6. Assess
1. Examine
my NASA data



Artemis

With the Artemis program, NASA will land the first woman and next man on the Moon by 2024, using innovative technologies to explore more of the lunar surface than ever before. We will collaborate with our commercial and international partners and establish sustainable exploration by the end of the decade. Then, we will use what we learn on and around the Moon to take the next giant leap – sending astronauts to Mars.

Next Gen STEM

- STEM products and opportunities that provide a platform for students to contribute to NASA's endeavors in exploration and discovery.
- Four areas:
  - Commercial Crew Program
  - Aeronaut-X
  - STEM on Station
  - Moon to Mars

Next Gen STEM – Commercial Crew

- Engineering challenges
- Coding
- Digital badging
- Virtual reality

Next Gen STEM – Aeronaut-X

- Engineering Design Challenges
- Activities
- Videos

Next Gen STEM – STEM On Station

- Collections of lessons for Science, Technology, Engineering and Mathematics
- STEMonstrations
- In-flight Education Downlinks
- Citizen Science Opportunities

Next Gen STEM - Moon to Mars

- Drawing
- Hands – on Science Activities (Orion, SLS, Gateway)
- App Development / Citizen Science Challenges
- Digital Badges
- Animations

Feb 11, 2021

NASA App Development Challenge Selects Artemis Generation Coders for Virtual Culminating Event

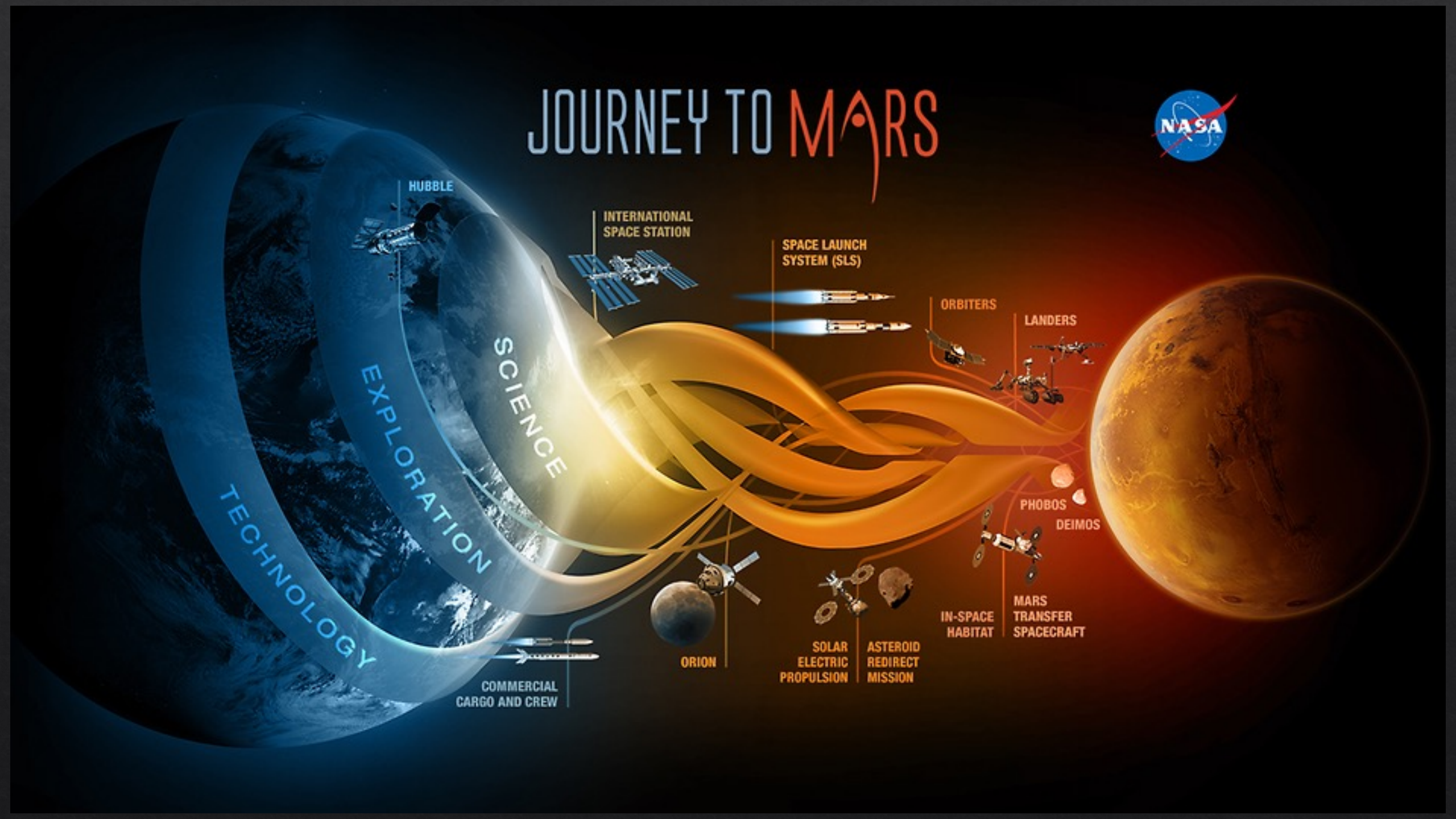
Academies of Loudoun: Leesburg, Virginia
Bell Creek Academy High School: Riverview, Florida
Bishop O'Connell High School: Arlington, Virginia
Falcon Cove Middle School: Weston, Florida

Gilman School: Baltimore, Maryland

McNeil High School: Austin, Texas
Middlesex County Academy for Science, Mathematics and Engineering Technologies: Edison, New Jersey
Millburn High School: Millburn, New Jersey
Moore Norman Technology Center: Norman, Oklahoma
Gretchen Whitney High School: Cerritos, California

10:30	Mission Visualization Toolkit for Outreach and Customer Engagement *Telecommunications Engineering, Data Modeling*	**Vicki Carrica, Aman Garg, Arya Kazemnia, Zoe Schoeneman-Frye, & Leo Wang** Near Space Network *Mentor: George Bussey, code 566*

3 PM	PSE: Garg/Kazemnia/Wang/Schoeneman-Frye/Dutt


JOURNEY TO MARS
NASA
HUBBLE
INTERNATIONAL SPACE STATION
SPACE LAUNCH SYSTEM (SLS)
ORBITERS
LANDERS
SCIENCE
EXPLORATION
TECHNOLOGY
PHOBOS
DEIMOS
ORION
SOLAR ELECTRIC PROPULSION
ASTEROID REDIRECT MISSION
IN-SPACE HABITAT
MARS TRANSFER SPACECRAFT
COMMERCIAL CARGO AND CREW

NASA EPDC

- EPDC is a national educator professional development system composed of and designed to serve STEM educators at all levels including K-12 educators, pre-service teachers, higher education faculty and informal educators.
- The EPDC coordinates the delivery of these learning experiences through a team of Texas State University educational specialists located regionally at each of NASA's 10 research and space centers.
- The EPDC provides professional learning experiences and resources to thousands of educators per year using integrated delivery mechanisms such as NASA Face to Face Institutes, Partner-delivered Educator Professional Development, Online Educator Professional Development and Community-Requested Educator Professional Development.

NASA Express

Keep up with the latest NASA STEM happenings by subscribing to the NASA EXPRESS newsletter.

OSTEM Internships Program

- OSTEM Internships provide high school to graduate level students with research and other experiential learning opportunities across the agency
- Internships are available for STEM and non-STEM students, up to 6 months post-graduation
- 3 internship sessions: spring, summer, and fall
- Students participate in enrichment activities during internship.

intern.nasa.gov

Links to resources

Earth Minute: https://climate.nasa.gov/climate_resource_center/earthminute
Earth Now : https://climate.nasa.gov/earth-now/
BEST: https://www.nasa.gov/audience/foreducators/best/activities.html
Earth Observatory Kids: https://earthobservatory.nasa.gov/blogs/eokids/
Worldview: https://worldview.earthdata.nasa.gov/
ARSET: https://arset.gsfc.nasa.gov/
Commercial Crew: https://www.nasa.gov/stem/nextgenstem/commercial_crew/commercial-crew-launch-kit.html
EPDC: https://www.txstate-epdc.net/
GLOBE Observer @ Home: https://observer.globe.gov/do-globe-observer/do-more/at-home
Scientific Visualization Studio: https://svs.gsfc.nasa.gov/
My NASA Data: https://mynasadata.larc.nasa.gov/
Climate Kids: https://climatekids.nasa.gov/
NASA STEM @ Home: https://www.nasa.gov/stem
NASA Express: https://www.nasa.gov/stem/express

Contacts

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Education Program Specialist

Office of STEM Engagement

Goddard Institute for Space Studies

Goddard Space Flight Center

Headquarters

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Thank You

Elana Resnick

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Ms. Elana Resnick

Project Support Specialist

Education

- M.Ed Science Education, Rutgers University Graduate School of Education
- B.A./Physics, Rutgers University School of Arts and Sciences