



# Not So Hidden Figures: Extraordinary Individuals Ensuring an Inclusive and Diverse Future in Space

**VANESSA WYCHE**

Director, NASA's Johnson Space Center  
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# Vanessa Wyche

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Native of South Carolina

Bachelor of Science in Engineering, Clemson University

Master of Science in Bioengineering, Clemson University

NASA's Johnson Space Center (JSC) is home to

America's Astronaut Corps

Mission Control Center

International Space Station and Artemis programs

More than 11,000 civil service and contractor employees

JSC is recognized by Forbes and Statista

As #1 Best Employer among Texas' major employers



# CHAPEA

Crew Health and Performance Exploration Analog



# Mars Sample Return - SRP

Sample Receiving Project





# CHAPEA Mission 1 Crew



**Kelly Haston**

*Commander*



**Ross Brockwell**

*Flight Engineer*



**Nathan Jones**

*Medical Officer*



**Alyssa Shannon**

*Science Officer*

# Astromaterials Research & Exploration Science

## Mars Sample Receiving Project Office



NASA Johnson Space Center, Houston TX

# Curation of all NASA-held Extraterrestrial Materials



Apollo program  
lunar rocks and  
soils; Luna  
samples  
1969

**LUNAR**



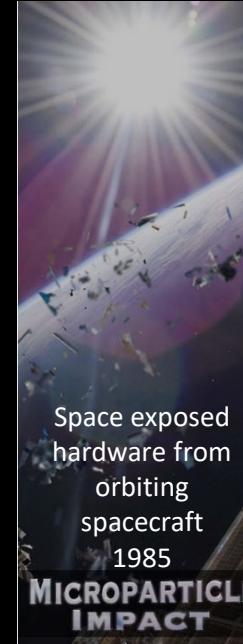
Antarctic Search  
for Meteorites  
(ANSMET)  
program  
1977

**ANTARCTIC  
METEORITES**



Cosmic dust from  
Earth's  
stratosphere  
from high  
altitude aircraft  
1981

**COSMIC  
DUST**



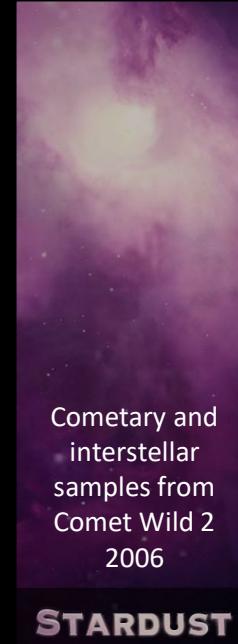
Space exposed  
hardware from  
orbiting  
spacecraft  
1985

**MICROPARTICLE  
IMPACT**



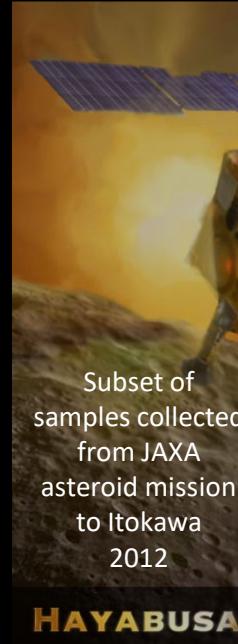
Solar wind  
samples at Earth-  
Sun L1 point  
2004

**GENESIS**



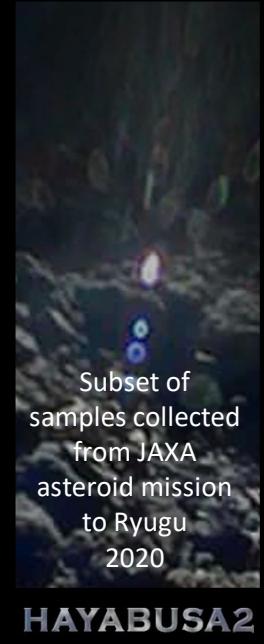
Cometary and  
interstellar  
samples from  
Comet Wild 2  
2006

**STARDUST**



Subset of  
samples collected  
from JAXA  
asteroid mission  
to Itokawa  
2012

**HAYABUSA**

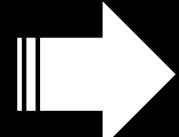


Subset of  
samples collected  
from JAXA  
asteroid mission  
to Ryugu  
2020

**HAYABUSA2**

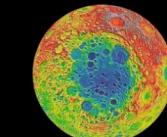
*Coming Soon . . .*

**OSIRIS-REx**  
2023  
Asteroid sample  
return from Bennu



*Our Future . . .*

**Moon**  
2020s  
Various sample types,  
Non-volatile farside,  
polar samples



**Phobos**  
2029  
JAXA MMX mission to  
bring back Phobos  
material



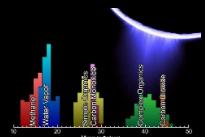
**Mars**  
2033  
NASA-ESA Joint Mars  
Sample Return Campaign



**Comet Nucleus,  
Icy Bodies**  
2030s+  
Enabling new types of  
samples



**Future**  
only limited  
by our  
imagination  
and ability to  
handle



# Mars Sample Return Campaign

## Following the Samples



### Mars 2020 Sample Caching

*Collect rock, regolith & atmosphere samples*

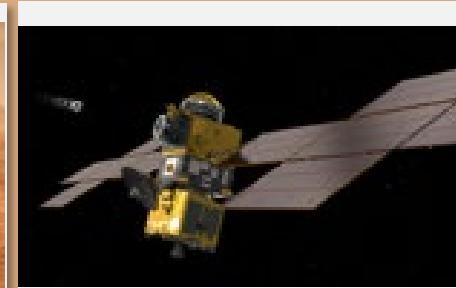
*Cache samples on the surface*



### Sample Retrieval Lander (SRL)

*Retrieve samples cached by Mars 2020 rover*

*Launch samples into orbit around Mars*



### Earth Return Orbiter (ERO)

*Capture & contain samples in Mars orbit*

*Safely return samples to Earth for recovery at landing site*

## Mars Sample Return Program

2

3

JSC-led

4



### Sample Receiving Project

*Recover & transport contained samples to receiving facility*

*Safety assessment & sample containment*

*Initial sample science and curation*



### Long-term Curation and Science

*Study, storage and processing*

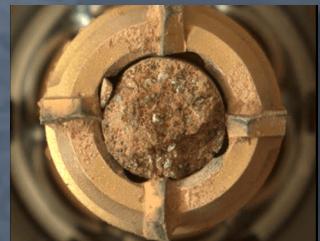


# Primary Goal

Enable safe and rapid release of returned samples to world-wide labs for scientific investigations



**Mars Sample Tube**



[Safety of Mars Sample Return Fact Sheet](#)

