



NASA Ames Engineering Directorate (Code R) ***Spaceflight Division (Code RS)***

Organizational Overview



SILICON
VALLEY

AMES RESEARCH CENTER



NASA Ames Research Center

Founded 1939



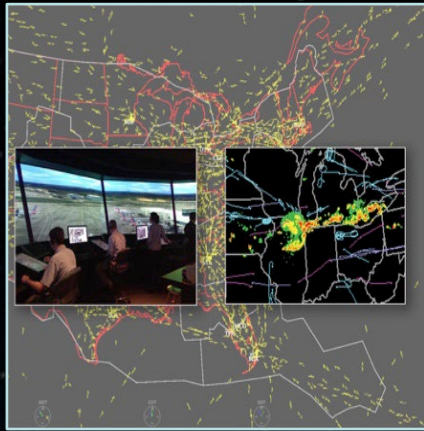
San Francisco Bay Area captured by Landsat-8
Credit US Geological Survey



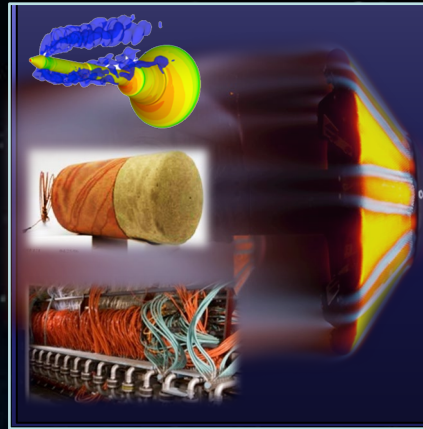
Core Competencies



Air Traffic Management



Entry Systems



Advanced Computing and IT Systems



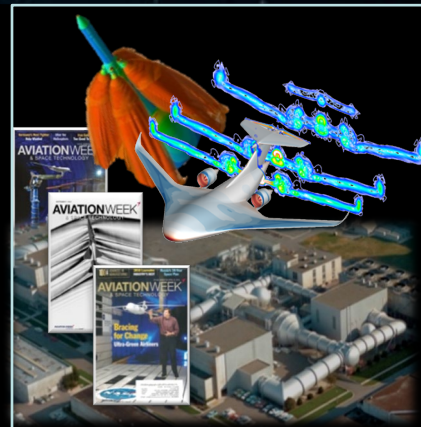
Intelligent and Adaptive Systems



Cost-Effective Space Missions



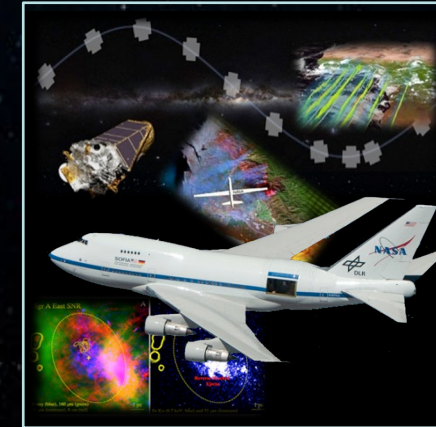
Aero sciences

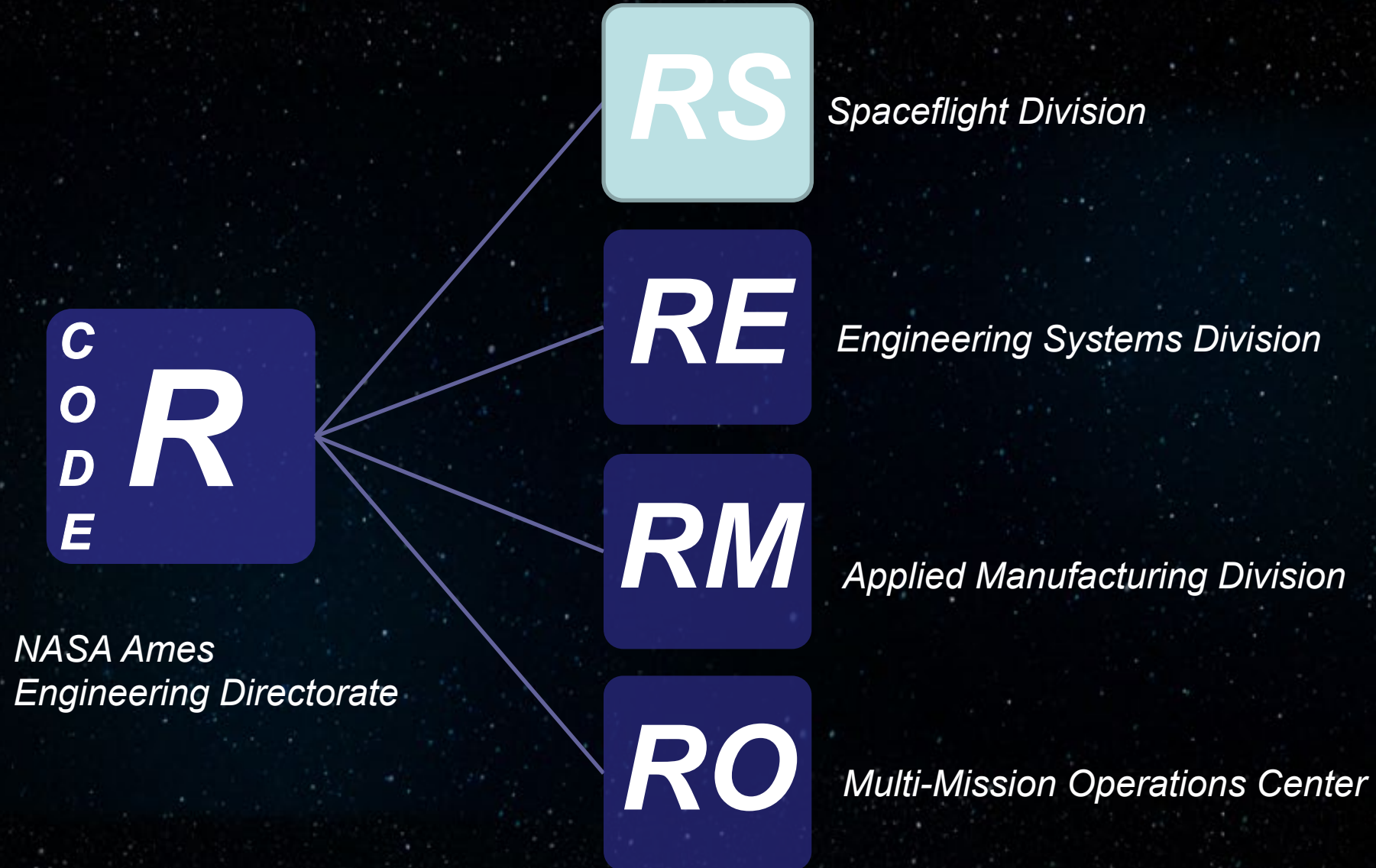


Astrobiology and Life Sciences



Space and Earth Sciences





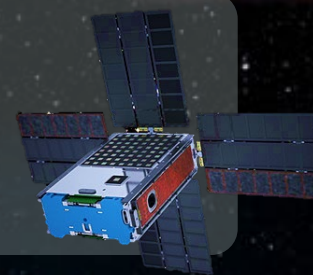


Spaceflight Division (Code RS)

Chief: Matthew Napoli

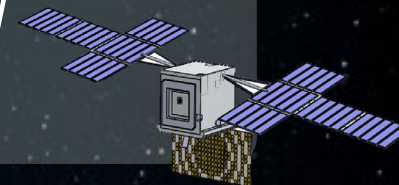
Spaceflight
Projects
Office

Technical Area Lead:
Ben Bradley



Mission
Design
Center

Technical Area Lead:
Alan Cassell



Flight
Dynamics

Technical Group Lead:
Andres Dono-
Perez [MEI]



System
Engineering
Integration
& Testing

Technical Area Lead:
Stephen Walker

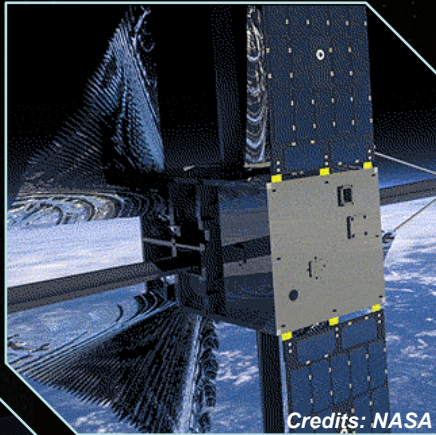


The Spaceflight Projects Office – *the managers that make it all happen*



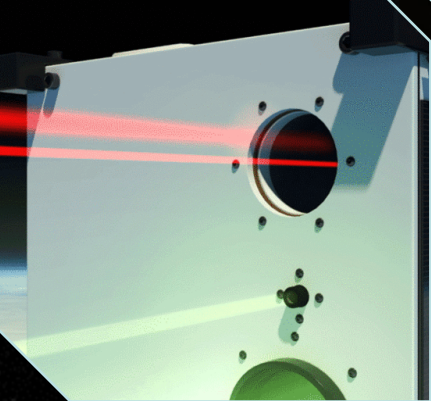
The Spaceflight Division provides project management for spaceflight projects through a Spaceflight Projects Office (SPO).

Credits: NASA/Dominic Hart



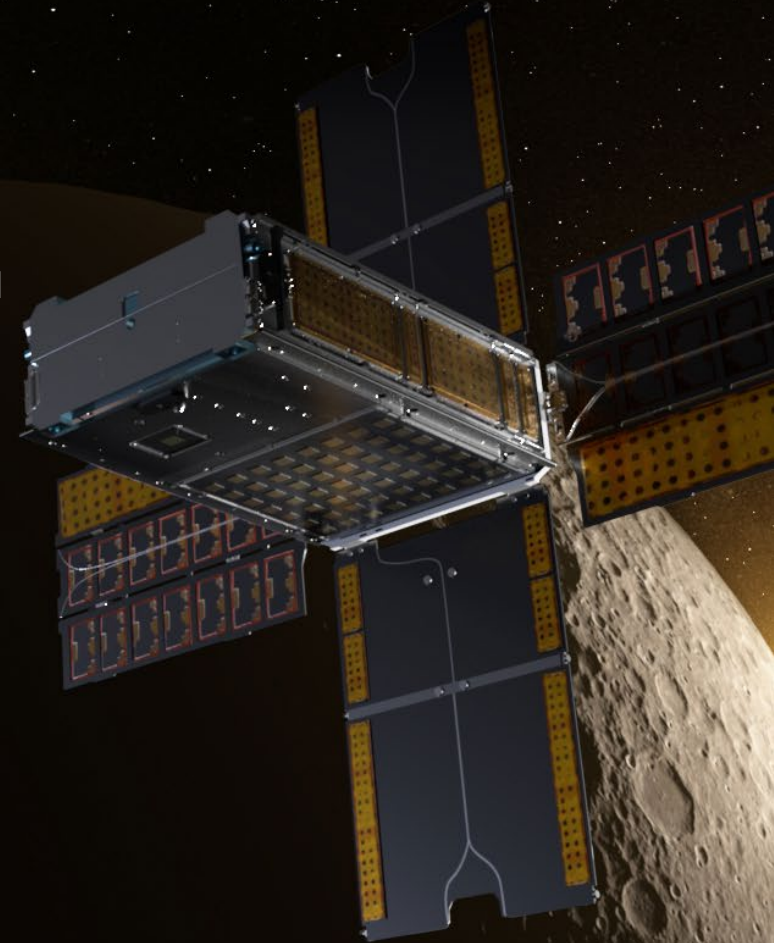
Credits: NASA

Credits: NASA



Our capabilities include project and technical management of:

- Small Spacecraft (from design and development through deployment and operations)
- International Space Station (ISS) science payloads and mission operations
- On-orbit technology demonstrations
- Swarm technology
- Mission operations



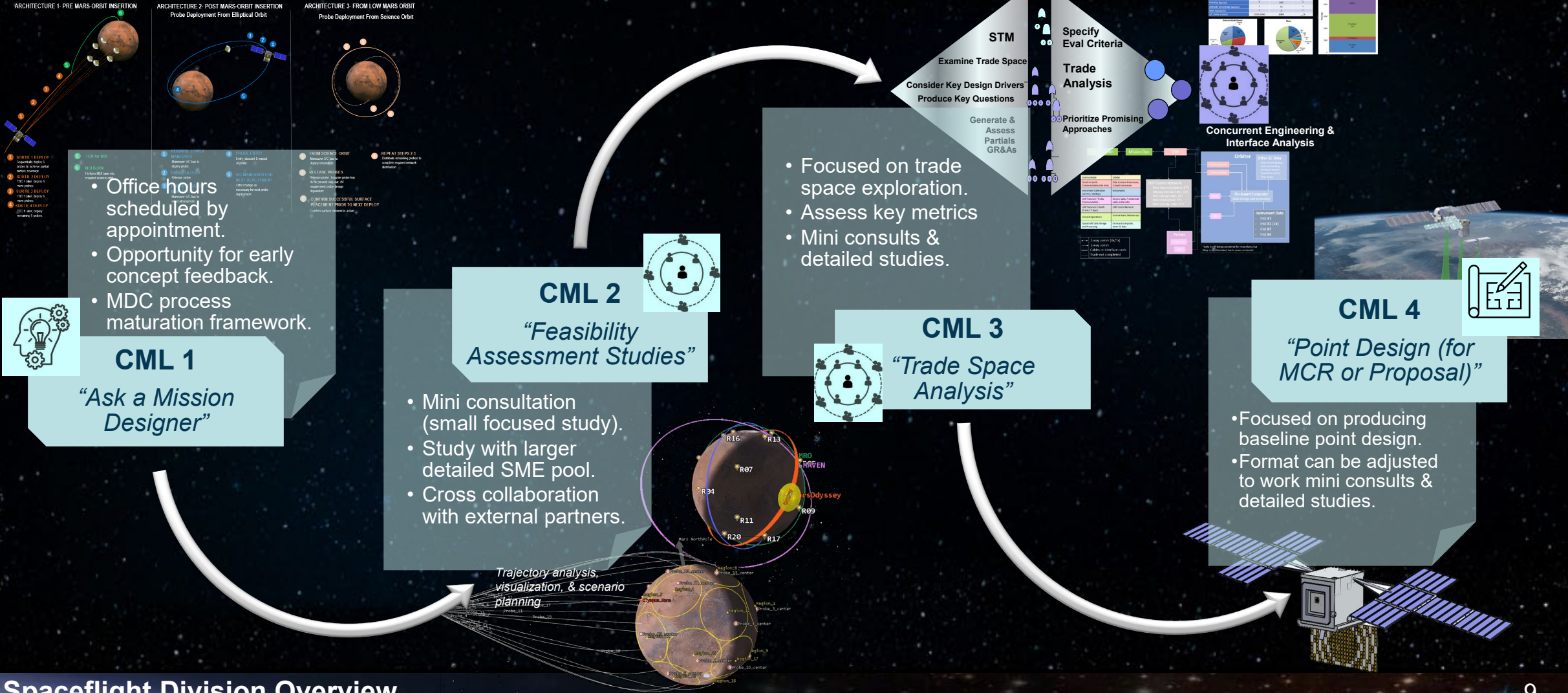
Credits: NASA/Daniel Rutter

We partner with universities, industry, and government agencies

The Mission Design Center- where ideas take life



The NASA Ames Mission Design Center (MDC) is a multi-disciplinary, concurrent engineering Technical Area within the Spaceflight Division that specializes in conceptual mission design. The MDC focuses on the following activities: Spaceflight mission concept idea lab and Concurrent Engineering Services.

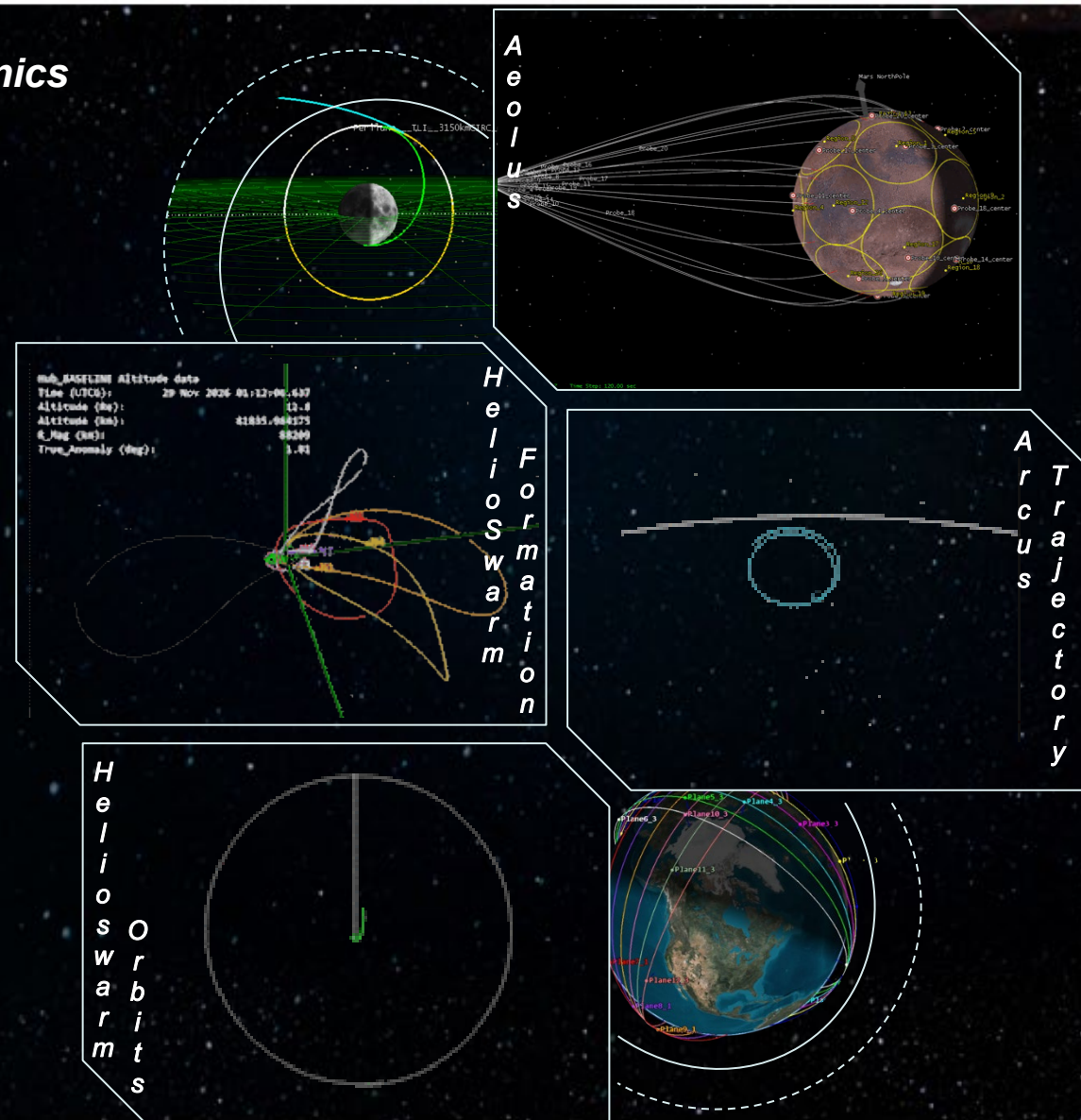


The team has extensive experience in all aspects of astrodynamics including:

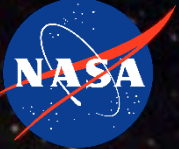
- Trajectory Design – *Earth transfers, **cislunar** and interplanetary*
- Orbital analysis – *to maximize science return*
- Relative motion – *including constellation and swarms*
- Navigation – *Earth and Deep Space*
- Tool development – *Monte Carlo, orbit stability, swarm motion*

Some recent missions include:

- HelioSwarm (trajectory design, relative motion and tool development)
- BioSentinel (trajectory design, navigation and tool development)
- Starling (orbit analysis and navigation)
- ACS3 (orbit analysis and navigation)



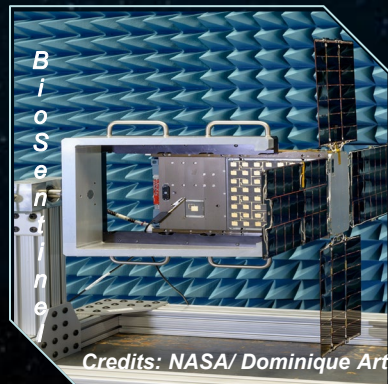
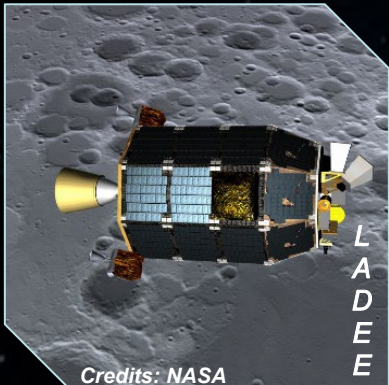
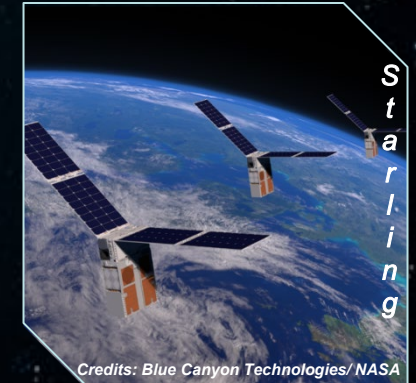
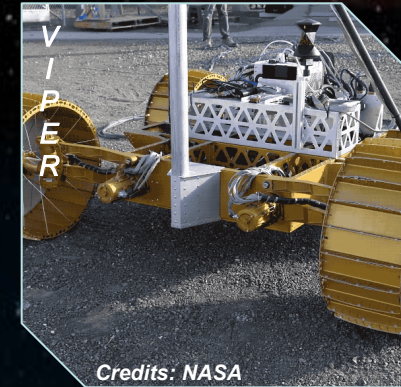
Systems Engineering Integration Testing (SEIT) - *where technical leadership resides*



Systems engineering includes the engineering and technical management processes that consider the interface relationships across all elements of the system, other systems, or as a part of a larger system

The team is made up of individuals with broad technical backgrounds and diverse experiences to tackle and manage a variety of current and recent projects:

- BioSentinel
- Starling
- Near Infrared Volatile Spectrometer Subsystem (NIRVSS)
- ArcJet Modernization
- Volatiles Investigating Polar Exploration Rover (VIPER)



- Lunar Atmosphere and Dust Environment Explorer (LADEE)
- Kepler
- Stratospheric Observatory for Infrared Astronomy (SOFIA)
- Pathfinding for Airspace with Autonomous Vehicles (PAAV)



Artemis and Moon to Mars -

Supporting humanity's next giant leap beyond LEO



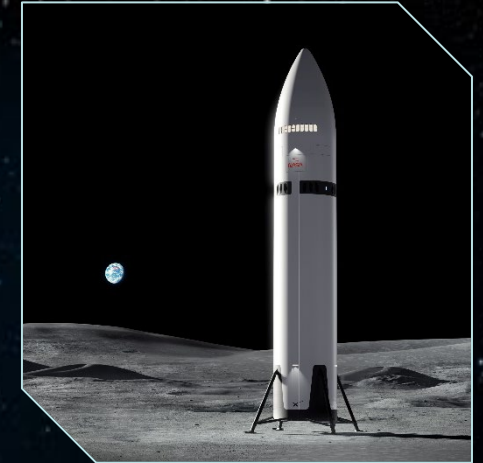
The Spaceflight Division ensure coordination of efforts and resources within the Agency and with our Industry partners



Credit: JPL/NASA - Artist's concept of First Humans on Mars



Credit: NASA - Artist's concept of Artemis astronaut stepping onto the Moon



Credit: SpaceX - Artist's rendering of SpaceX Starship lunar lander

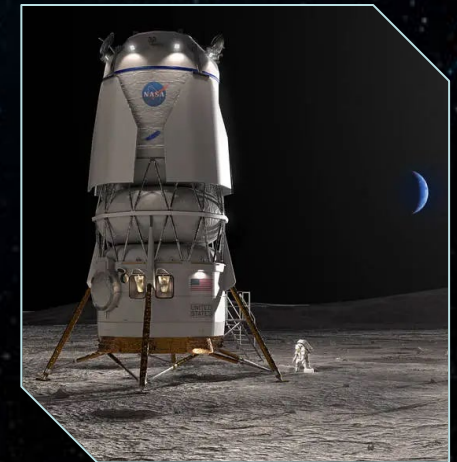


Credit: NASA - Artist's rendition of Lunar Terrain Vehicle

The Spaceflight Division provides staff to support the roles of Point of Contacts for the entire center for the following programs:

- Mars Campaign Office (MCO)
- Human Landing Systems (HLS)
- Lunar Terrain Vehicle (LTV)
- Commercial Lunar Payload Services (CLPS)

We provide the interface for the center with our Industry partners engaged in Artemis and Moon to Mars



Credit: Blue Origin - Artist's rendering of Blue Origin Blue Moon lander

