NASA SMD Rideshare Office SmallSat 2023 Townhall August 7, 2023

Alan Zide– NASA SMD Heliophysics Program Executive

Agenda

1. SMD Rideshare Office Intro & Policy
2. Access to Space Options
3. RS Lessons Learned, Successes, & Challenges

NASA Science Mission Directorate Rideshare Office

- The Science Mission Directorate has a rideshare policy and an established the SMD Rideshare Office (SRO) to develop and maintain standard rideshare processes for the NASA SMD.
- SPD-32 Evolved Expendable Launch Vehicle (EELV) Secondary Payload Adapter (ESPA) Secondary Payloads Rideshare
  - Baseline policy signed Oct. 2018; Policy updated January 2021 (Rev 2); Rev 3 expected EOY 2023
    - SMD policy enables rideshare or launch accommodation opportunities using an ESPA-type ring integrated on the launch service procured for an SMD primary payload ***with identified excess performance***.
    - SMD may offer any excess capacity not utilized for SMD investigations to other NASA Mission Directorates (MD), other U.S. Government Agencies, or NASA's International partners in accordance with international agreements for international collaborative efforts relating to science, technology, and exploration goals.
    - *** This policy only applies to SPA-class and independent Cubesat missions on secondary ports (not Cubesats which are managed and launched through the NASA LSP CubeSat Launch Initiative-CSLI).*

NASA HQ Science Mission Directorate Rideshare Office (RSO) Organization

NEW SMD AA, Nicola Fox,

Embeds / POCs

Chief Engineer: Nick Jedrich

Deputy Chief Engineer: Synthia Tonn

Safety & Mission Assurance: Ariel Pavlick/Glen Lockwood

General Counsel: Erik Lundin

Legislative & Intergovernmental Affairs: Andrew Rowe

International & Interagency Relations: Gib Kirkham

Communications: Karen Fox

Procurement: Jerry Edmond

Office of the Associate Administrator

Associate Administrator (AA) Nicola Fox

Deputy AA Sandra Connelly

Deputy AA - Management	Deputy AA - Exploration	Deputy AA - Research	Deputy AA - Programs
Karen Flynn	Joel Kearns	Michael New	Wanda Peters
Assistant Deputy AA: Dan Woods	Assistant Deputy AA: Brad Bailey	Assistant Deputy AA: Dan Evans	Assistant Deputy AA: Shannon Fitzpatrick

Senior Advisor Paul Hertz

Space Traffic Coordination Program Officer Travis Blake

Mars Sample Return Program Office
- Director: Jeff Gramling
- Deputy-Business: Rich Ryan
- Program Scientist: Michael Meyer

Science Office for Mission Assessments (SOMA) at LaRC — Director: Cindy Daniels

Chief Technologist Carolyn Mercer

Conjunction Assessment Program Officer Lauri Newman

Policy Branch — Chief: Jens Feeley

Administration Branch — Chief: Thomas Reyna

Resource Management Division — Director: Holly Degn; Deputy: Kate Wolf

Science Engagement & Partnerships Division — Director: Kristen Erickson

Earth Science Division	Joint Agency Satellite Division	Heliophysics Division	Planetary Science Division	Biological and Physical Sciences Division	Astrophysics Division
Director: Karen St. Germain	Director: John Gagosian	Director: Peg Luce*	Director: Lori Glaze	Director: Diane Malarik*	Director: Mark Clampin
Deputy: Julie Robinson	Deputy: Charles Webb	Deputy: Nicole Rayl*	Deputy: Eric Ianson	Deputy: DeVon Griffin*	Deputy: Sandra Cauffman

Chief Science Data Officer Kevin Murphy

Earth Science Technology Office (ESTO) at GSFC — Associate Director: Michael Seablom*

Associate Director for Flight Programs Katie Boggs

Associate Director for Research Jack Kaye

Associate Director for Applied Sciences Lawrence Friedl

Associate Director for Flight Programs Nicole Rayl

Associate Director for Flight Programs Joan Salute

Research Programs Director Stephen Rinehart

Planetary Defense Coordination Office (PDCO) — Planetary Defense Officer: Lindley Johnson

Mars Exploration Program Director Eric Ianson

Mars Exploration Lead Scientist Michael Meyer

Planetary Exploration Science Technology Office (PESTO) at GRC — Director: Erica Montbach

Associate Director for Flight Programs Joe Smith

Associate Director for Research Eric Smith

Strategic Missions Program Manager Garth Hennina*

Roman Project Manager Jamie Dunn

* Acting
..... Matrixed

Updated May 2, 2023

Reports to DAAP

Supports all SMD Divisions and Missions

SMD Rideshare Office

Lead: *Aly-Mendoza-Hill*

- ~~Nicky Fox~~
- Peg Luce
- Alan Zide (PT)
- David Cheney (PT)

Florence Tan Deputy Chief Technologist, SSCG Chair

NASA Centers
ARC, GSFC, LaRC, MSFC, KSC, JPL etc.

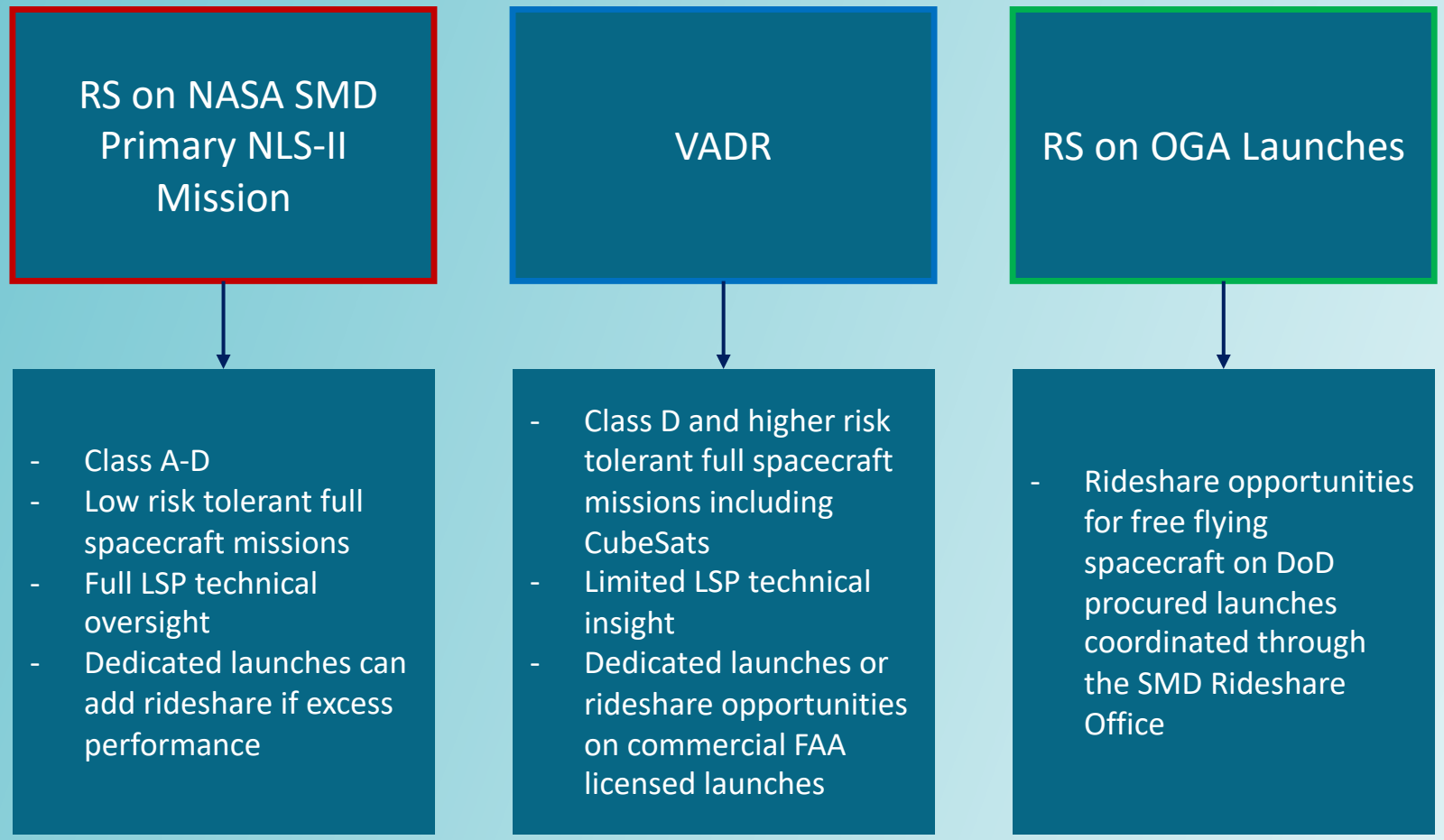
Launch Services Program
Space Operations Mission Directorate

2. Access to Space Launch Options

NASA SmallSat Access to Space Options

Launch Options:

- Utilize excess performance on NASA SMD Primary launches => RS Policy
- For NASA Science-unique orbits => VADR
  - •Promote expansion of commercial launch options for SmallSats with higher risk tolerance
- Partnering with government and commercial providers for increased opportunities



3. NASA Rideshare Example

SMD Primary NLS-II Rideshare Examples

Majority of excess performance utilized

JPSS-2

-Joint Agency Satellite Division

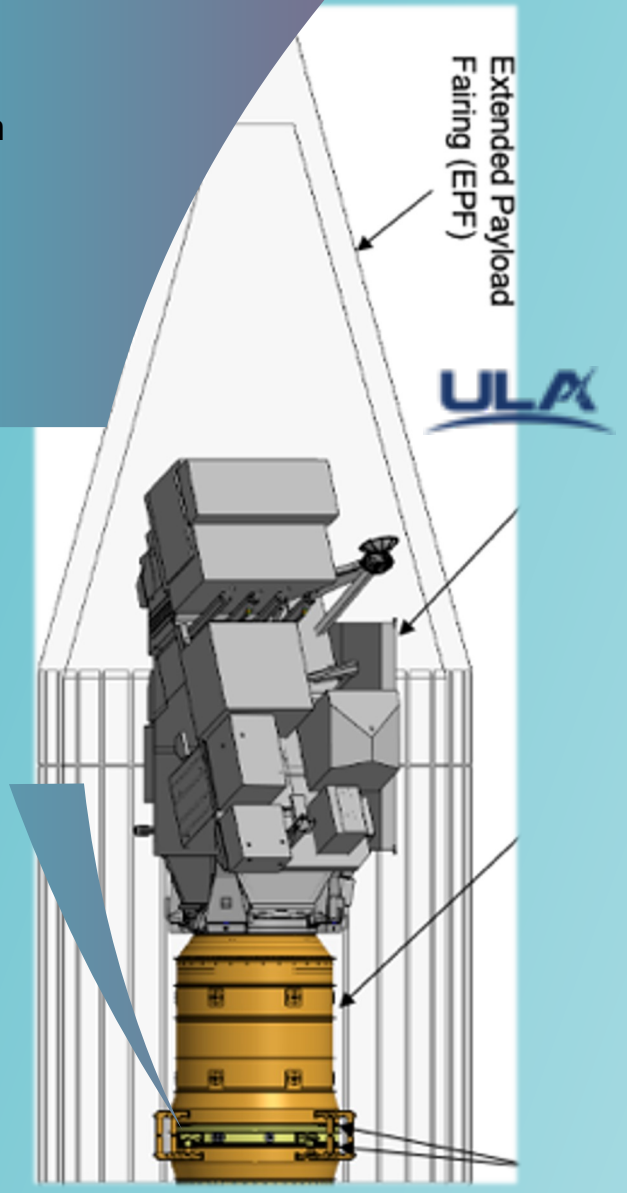
-LV: AtlasV-401

-ULA C-Adapters

-Rideshare Payloads:

-LOFTID

LAUNCHED 11/10/2022



IMAP

-Heliophysics Division

-LV: Falcon

-ESPA Grande

-Rideshare Payloads:

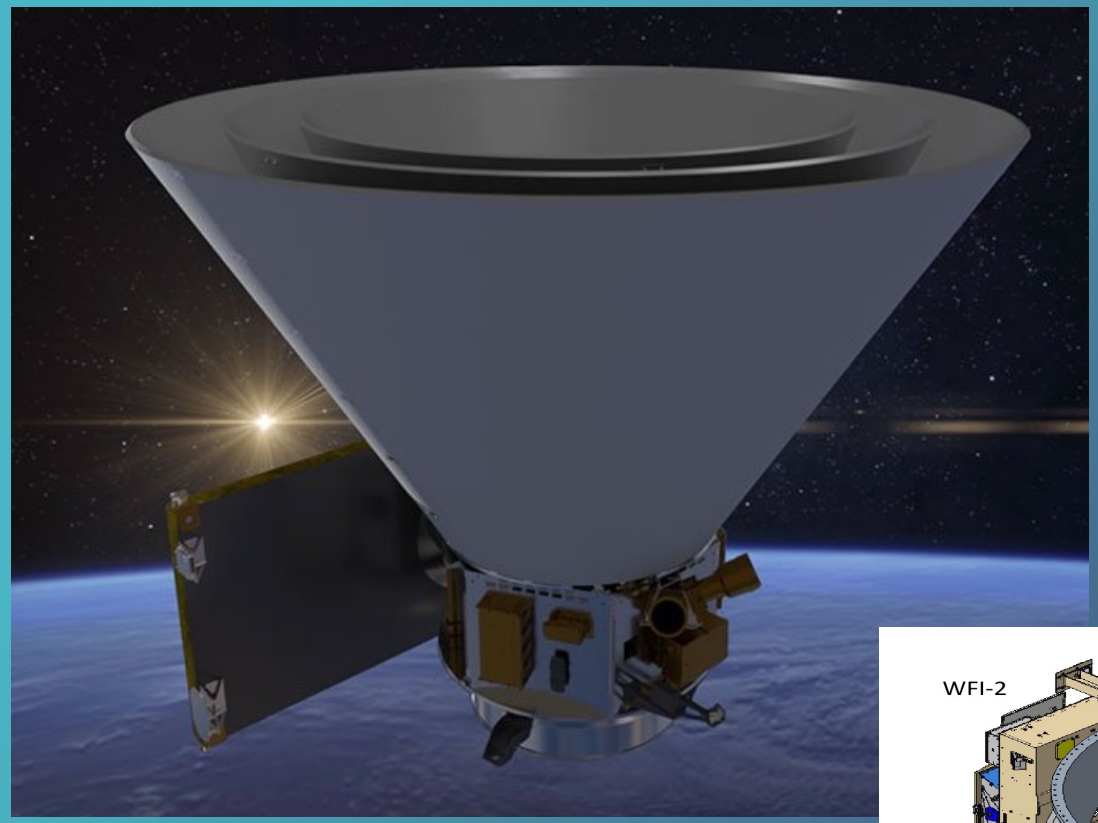
-SWFO L1

-HPD Carruthers Geocorona Observatory

LRD 2/1/2025

Images not to exact scale

SMD Primary NLS-II Rideshare Examples - continued



SPHEREx
-Astrophysics Division
-LV: Falcon 9
-ESPA Grande
-Rideshare Payload:
-PUNCH
-Heliophysics Division
-4 Spacecraft

LRD 2/28/2025

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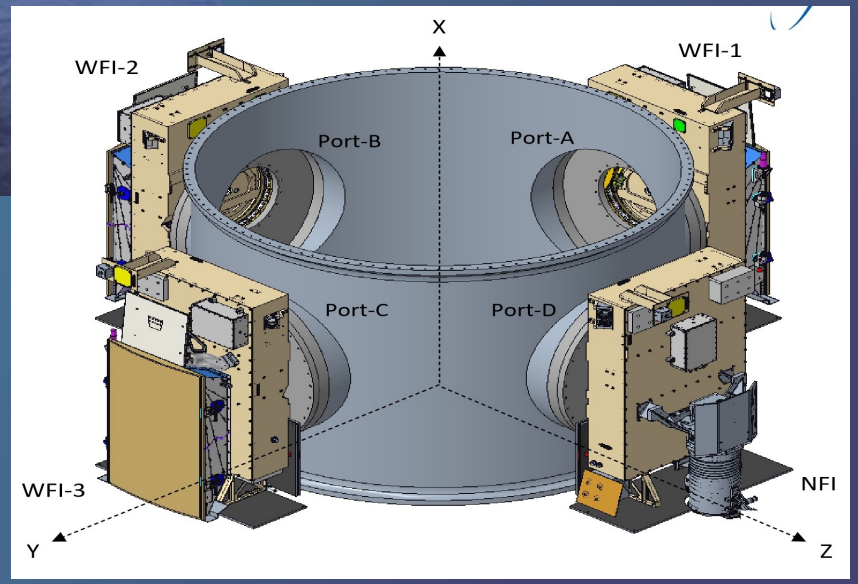


NASA SHORT TALKS

Tuesday, August 8
3:30 – 4:30PM MT
Fieldhouse Stage

Overview of NASA's Science Mission Directorate Small Satellite Activities

Florence W. Tan, Science Mission Directorate

Class D SmallSat Mission Acquisition Considerations

Alan J. Zide, Science Mission Directorate Explorers Program

CubeSat Launch Initiative Update - Lessons Learned

Norman L. Phelps, Launch Services Program

NASA MEET a PE-PM

Sessions held at the NASA Exhibit Lounge

Access to Space and Conjunction Assessment
Monday, August. 7, 3:30 – 4:30PM MT

- Norman Phelps, Launch Service Program, CSLI/ELaNa Lead
- Lauri Newman, Program Officer, Conjunction Assessment and Mitigation
- Danielle McCulloch, Program Manager, Flight Opportunities Program

NASA Science
Tuesday, August 8, 9:45AM – 10:45AM

- David Cheney, Program Executive, Heliophysics Division
- Alan Zide, Program Executive, Heliophysics Division
- Rachele Cocks, Program Executive, Astrophysics Division
- Florence Tan, Deputy Chief Technologist, Science Mission Directorate

NASA Project Management
Wednesday, August 9, 9:45AM – 10:45AM

- John Hudeck, Deputy Chief, Small Satellite and Special Projects Office
- Tom Johnson, Project Manager, Astrophysics and Heliophysics Portfolios

NASA Mission / Project Management
Thursday, August 10, 9:45AM – 10:45AM

- Matthew Napoli, Project Manager, BioSentinel
- Samuel Pedrotty, Project Manager, R5
- Elwood Agasid, Project Manager, CAPSTONE

NASA HQ
Science Mission Directorate
Rideshare Office (SRO)

For SMD Rideshare inquiries, contact us at:
HQ-SMD-Rideshare@mail.nasa.gov

Aly Mendoza-Hill

Alan Zide

David Cheney

Katie Nelson

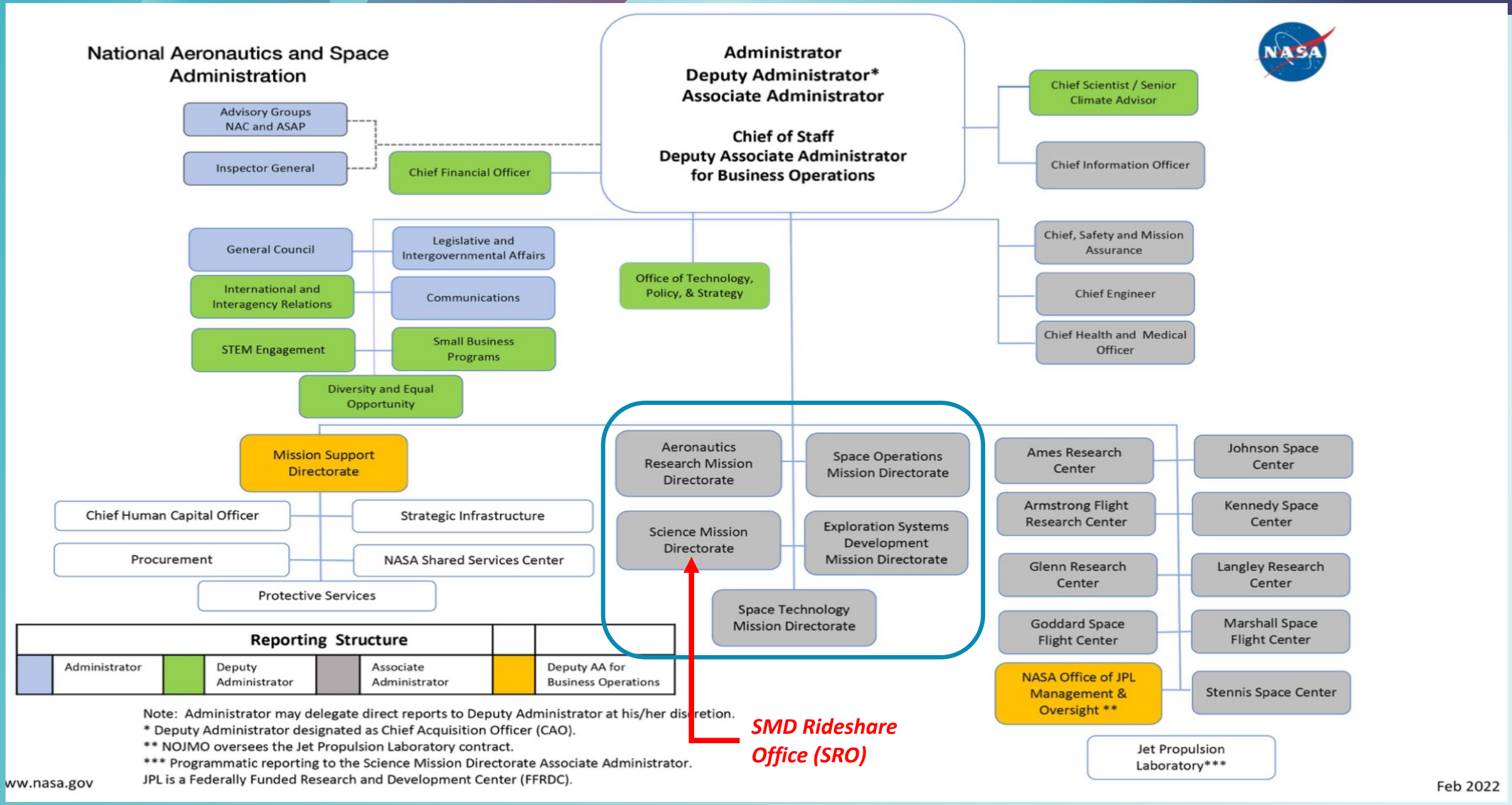
Current Opportunities & S3VI Resources:

- **NASA Launch Portal:** https://www.nasa.gov/smallsat-institute/launchportal
- **Upcoming SmallSat Mission solicitations:** https://www.nasa.gov/smallsat-institute/nasa-smallsat-opportunities
- **NASA SMD Rideshare Guide:** https://www.nasa.gov/sites/default/files/atoms/files/smd_spa_rug_with_dnh_generic_2021dec15.pdf

BACKUP

NASA SMD Rideshare Office (SRO)

- **Goal:** To provide a single POC for SMD Rideshare-related inquiries for both NASA Center and external partners; to maintain overall knowledge and tracking of Rideshare activities for SMD missions, and to ensure best utilization of excess LV performance to obtain maximum science on SMD missions
- Located within the Heliophysics Division
  - Supports **ALL** SMD Divisions
  - Aly Mendoza-Hill is the Rideshare Lead for SMD
    - Other key SMD Rideshare Team Members: Alan Zide, David Cheney, Pete Wilczynski, Florence Tan, & Katie Nelson
  - Works closely with the Launch Services Program at Kennedy Space Center
  - Works with NASA Center Rideshare POCs to create unified NASA/SMD Rideshare message; delegates tasks to appropriate Center POCs as required; does not replace Center-level Rideshare Payload development work
- Developing a robust rideshare program to utilize excess mass to orbit and enable additional launch opportunities for the science community
  - Standardized Announcement of Opportunity (AO) language and reviewing each AO for consistency
  - Developed key documents: SMD RS101, SMD RUG & DNH requirements, & the internal SMD RS Implementation Guide
  - Performing top-level payload compatibility analyses of rideshare missions to identify potential impacts to the primary payload or the success of the secondaries
  - Maintaining a list of SMD launch opportunities and tracking potential external launch opportunities
    - External information is made available on the Small Spacecraft Systems Virtual Institute (S3VI) website (NASA Launch Portal - https://www.nasa.gov/smallsat-institute)


National Aeronautics and Space Administration
Administrator
Deputy Administrator*
Associate Administrator
Chief of Staff
Deputy Associate Administrator for Business Operations
Advisory Groups NAC and ASAP
Inspector General
Chief Financial Officer
Chief Scientist / Senior Climate Advisor
Chief Information Officer
General Council
Legislative and Intergovernmental Affairs
International and Interagency Relations
Communications
STEM Engagement
Small Business Programs
Diversity and Equal Opportunity
Office of Technology, Policy, & Strategy
Chief, Safety and Mission Assurance
Chief Engineer
Chief Health and Medical Officer
Mission Support Directorate
Chief Human Capital Officer
Strategic Infrastructure
Procurement
NASA Shared Services Center
Protective Services
Aeronautics Research Mission Directorate
Space Operations Mission Directorate
Science Mission Directorate
Exploration Systems Development Mission Directorate
Space Technology Mission Directorate
Ames Research Center
Armstrong Flight Research Center
Glenn Research Center
Goddard Space Flight Center
NASA Office of JPL Management & Oversight **
Johnson Space Center
Kennedy Space Center
Langley Research Center
Marshall Space Flight Center
Stennis Space Center
Jet Propulsion Laboratory***
Reporting Structure
Administrator
Deputy Administrator
Associate Administrator
Deputy AA for Business Operations
Note: Administrator may delegate direct reports to Deputy Administrator at his/her discretion.
* Deputy Administrator designated as Chief Acquisition Officer (CAO).
** NOJMO oversees the Jet Propulsion Laboratory contract.
*** Programmatic reporting to the Science Mission Directorate Associate Administrator.
JPL is a Federally Funded Research and Development Center (FFRDC).
SMD Rideshare Office (SRO)
ww.nasa.gov
Feb 2022

NASA HQ Mission Directorates

To implement NASA's Mission, NASA Headquarters is organized into five principal organizations called Mission Directorates:

- Aeronautics: Pioneers and proves new flight technologies that improve our ability to explore and which have practical applications on Earth.
- Exploration Systems Development: Development programs for deep space exploration, including Artemis missions.
- Space Operations: Space operations in low-Earth orbit.
- Science: Explores the Earth, moon, Mars, and beyond; charts the best route of discovery; and reaps the benefits of Earth and space exploration for society.
- Space Technology: A catalyst for the creation of technologies and innovation needed to maintain NASA leadership in space while also benefiting America's economy.
- Mission Support: Oversees the management of the institutional functional areas that support the Agency mission.

Is Rideshare the solution for all SmallSats?

- Rideshare is the method of getting additional payloads to orbit by **connecting them with** a primary payload, **a pre-established launch**, that has excess performance capabilities.

- Rideshare is akin to using city bus system to get to the office;
  - the bus has specific rules for the passengers,
  - the routes/timelines are planned years in advance, and
  - you may still have an extended walk to your actual destination

- If you aren't flexible enough to match up with a Primary's launch parameters, then Rideshare is not for you!

The Rideshare ”Balance"

SC flexibility to meet Primary Launch Parameters

Minimized Launch Costs

Does not mean “free”