Virginia Governor's Aviation & Aerospace Caucus

February 15, 2024

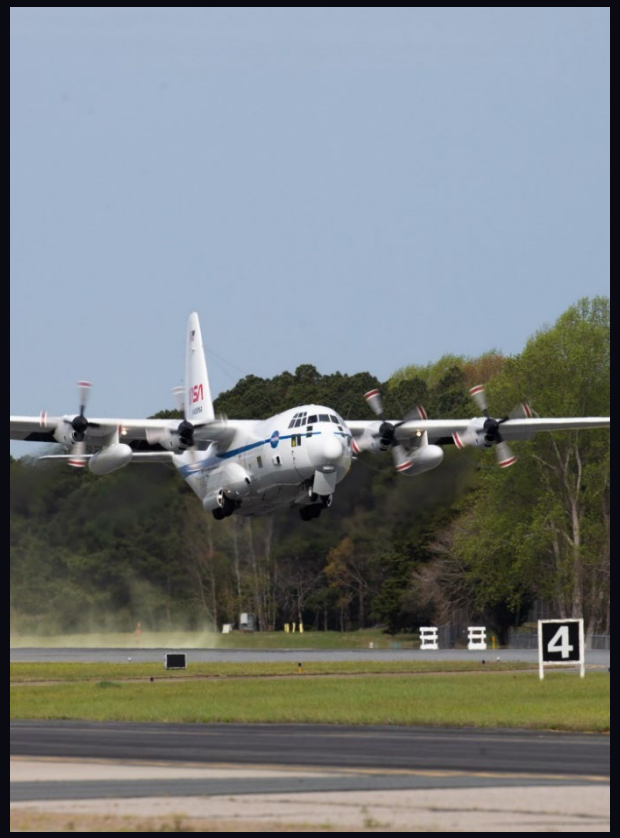
NASA Goddard Space Flight Center

Wallops Flight Facility

David Pierce, Director

Wallops is A Unique National Asset

Wallops provides agile, low-cost, suborbital and orbital flight and launch range services to meet NASA, DoD and commercial sector needs for accessing flight regimes worldwide from the surface to the Moon and beyond



NASA C-130 Aircraft

NASA Black Brant XII

Rocket Lab at Pad LC-2

US Navy Field Carrier Landing Practice

NASA Super Pressure Balloon (SPB)

Goddard/Wallops Manages NASA's Suborbital Program

WFF Research Airfield

WFF Launch Range

Sounding Rockets

*NASA **Sounding Rockets** provide scientific, technical, and educational contributions to the nation's space program*

Scientific Balloons

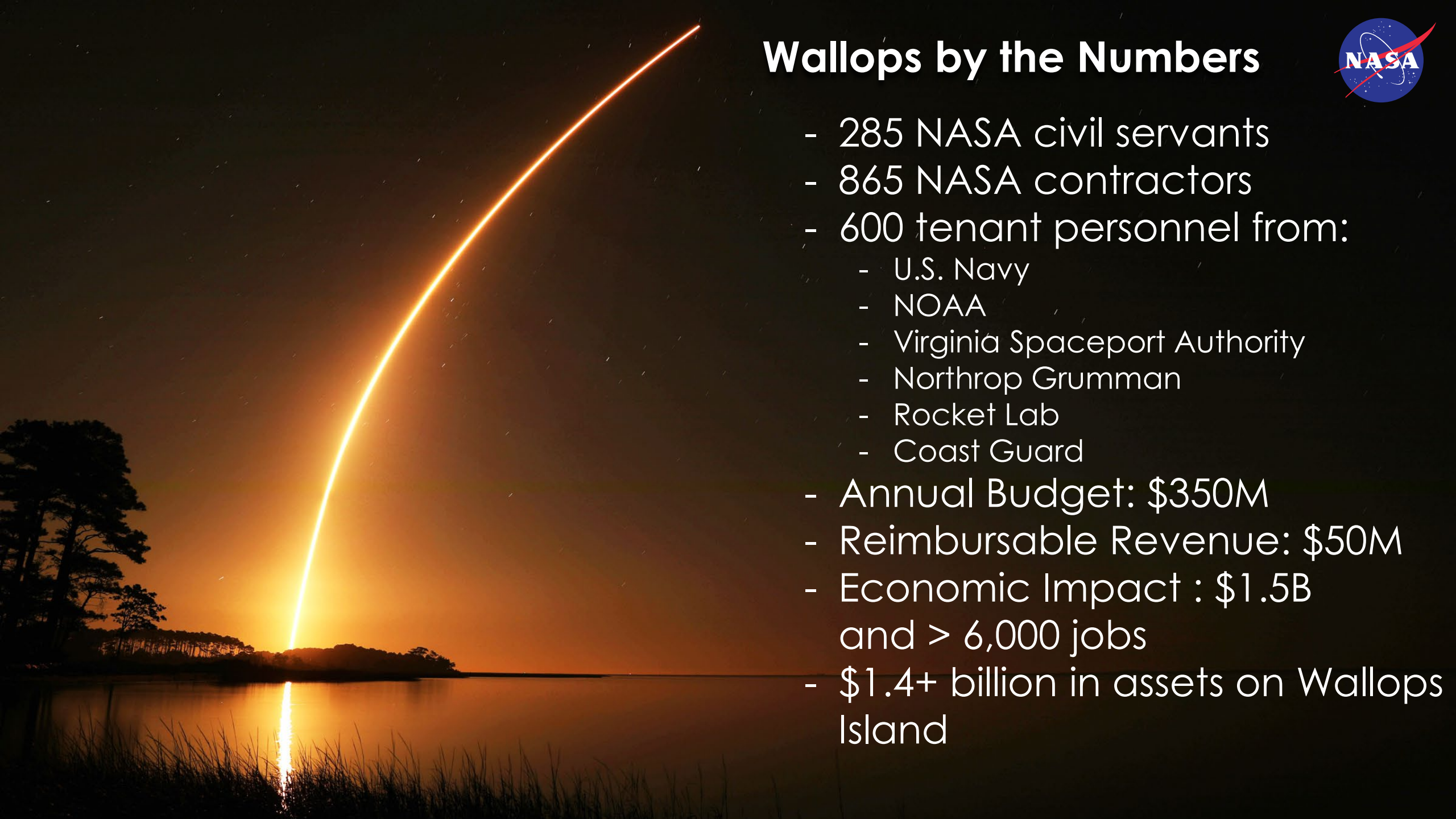
*NASA **Balloons** provide a versatile and cost efficient platform for conducting scientific and technological investigations*

Airborne Science

*NASA **Airborne Science** provides aircraft systems that further science and advance test, CAL/VAL and refine new instrument technologies*

Small Satellites

***Small spacecraft** help NASA advance scientific and human exploration, reduce the cost of new space missions, and expand access to space*



Wallops by the Numbers

- 285 NASA civil servants
- 865 NASA contractors
- 600 tenant personnel from:
  - U.S. Navy
  - NOAA
  - Virginia Spaceport Authority
  - Northrop Grumman
  - Rocket Lab
  - Coast Guard
- Annual Budget: $350M
- Reimbursable Revenue: $50M
- Economic Impact : $1.5B and > 6,000 jobs
- $1.4+ billion in assets on Wallops Island

Wallops Strategic Goals

Enable World-class Space Science, Technology, Exploration

- Internationally recognized strategic resource providing safe, rapid and cost-effective access to space for science, technology, exploration and education
- Unique location and facilities combined with our world-class expertise makes WFF the provider of choice.

Expand the Commercial Aerospace Sector

- Integrate WFF launch range, airfields, and suborbital capabilities for NASA, DoD, Industry
- Enable new lines of access to space using commercial nano-launch to support a frequent LEO launch model to enable commercial space sector

Effective Collaborations and Partnerships – High Performing Team

- Promote new government-private sector partnerships to achieve near weekly launch frequency
- Partner with local institutions to build a Diverse, Highly-Skilled Workforce
- Develop initiatives to inspire students and stimulate the workforce pipeline through STEM activities, hands-on student flight projects, internships aligned to regional universities, high schools, and companies.

Multidisciplinary Science

Commercial Space Launches

GSFC Partnerships/Agreements

NASA STEM Student Projects

Partnerships with local Universities & Schools

Wallops has developed partnership agreements with local institutions on Delmarva to inspire students, facilitate student Internships, and enable real world project collaboration.

- **Eastern Shore Community College**
- **Old Dominion University**
- **Salisbury University**
- **University of Maryland – Eastern Shore**
- **Wor-Wic Community College**
- **Junior Achievement**

WFF & LaRC Education Activities

STEM Take Flight Community College Research

Virginia Space Coast Scholars

Cubes in Space Workshop

Eastern Shore Leadership Workshop

NASA Community College Aerospace Scholars (NCAS)

Community College Faculty Workshop

Job Shadow Week

<u>Student Flight Opportunities:</u>

- HASP – 11 selected awardees
- RockOn! and RockSat-C Virtual Payload Build

RockOn/RockSat

GSFC/Wallops 2024 at a Glance

- **Sounding Rockets: 22 missions**, 4 launch campaigns worldwide
- **Balloons: 19 missions,** 4 campaigns worldwide
- **Aircraft:** 10 missions worldwide
- **WFF Launch Range: 24 Launches & 26 UAS Campaigns**, Field Carrier Landing Practice (FCLP) detachments
- **SmallSats:** 30 SmallSat missions; Heliophysics Strategic Technology Office (HESTO); CODEX solar telescope on ISS
- **Education:** 40 Internships, student and teacher Workshops, VA Space Coast scholars, 5 Student Rocket Launches (150 students), Junior Achievement (> 10K students)

Wallops Aircraft

10 worldwide operations

- ✓ **LaRC and WFF** Aircraft Transport GUSTO to Antarctica
- ✓ Commercial Crew Parachute Airdrop Testing for Boeing Star liner
- P-3 ICESat-2 Lake Ice
- P-3 ARC SIX
- Student Airborne Science

NASA
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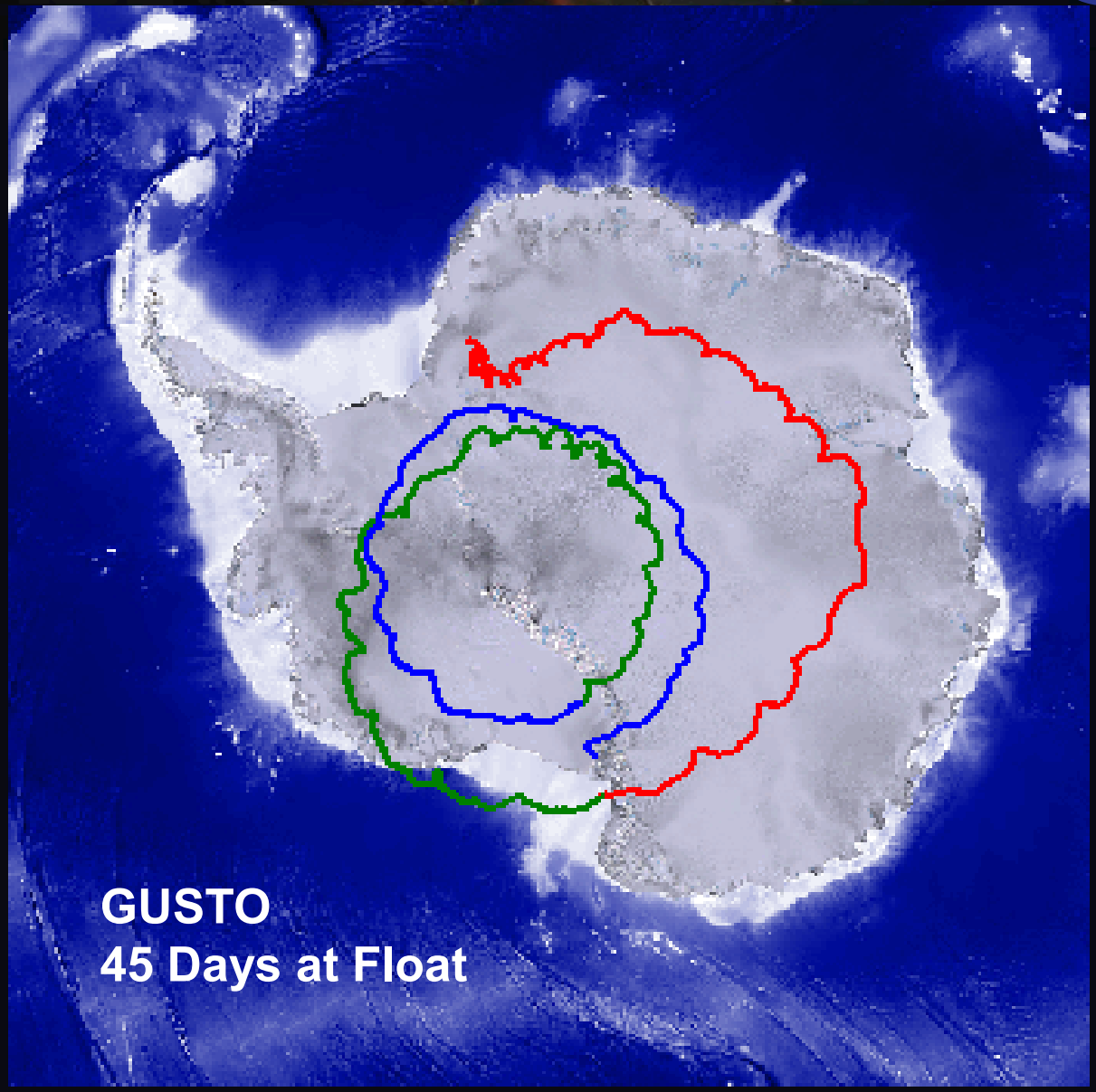
NASA Balloon Program Office



NASA's Balloon Program

4 Campaigns, 19 flights

- ✓ Antarctica campaign – 3 flights launched
- Sweden Campaign – 4 flights scheduled
- Palestine Campaign – 2 flights scheduled
- Ft. Sumner Campaign - 10 flights scheduled

GUSTO Balloon Mission Maintains Course Circling Antarctic Skies (Jan. 17)

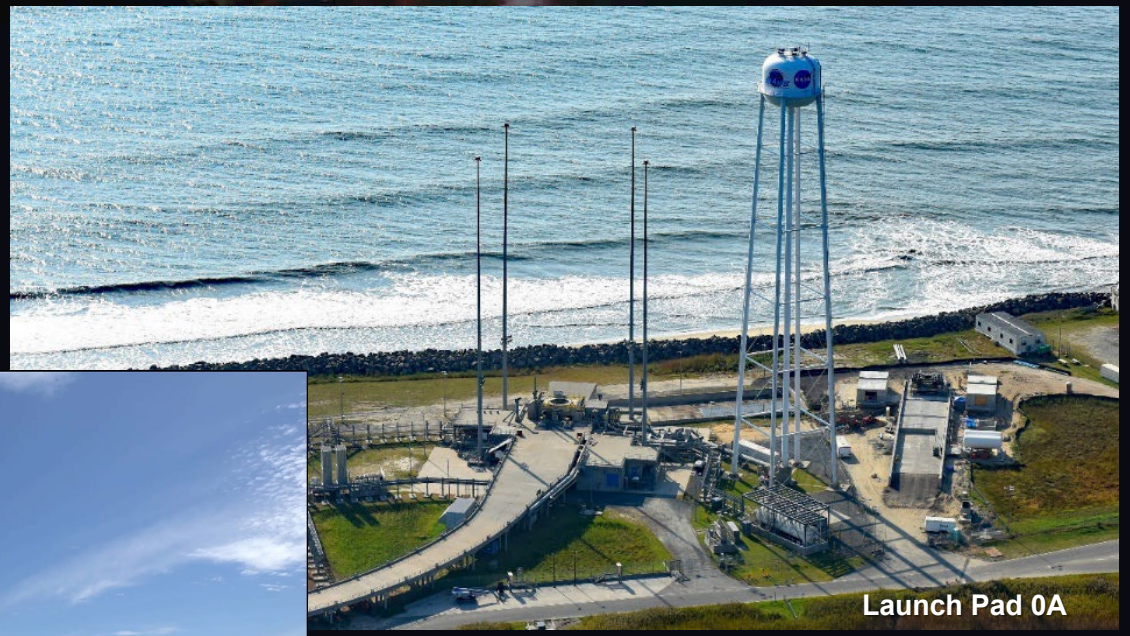
NASA Sounding Rockets Program

Wallops will host VIP launch and eclipse viewing during the April 8, 2024 - Solar Eclipse – 81% coverage at Wallops. We will be launching 3 sounding rockets from Wallops with instruments to study the eclipse

GSFC/Wallops Research Airfield

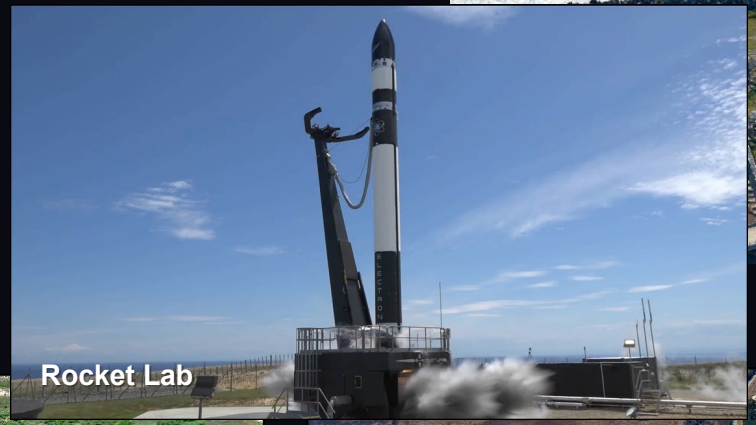
GSFC/Wallops Research Range

- NASA's only Launch Range,
- One of only four US orbital launch ranges
- WFF Research Airfield, UAS Runway, with Restricted Airspace provide direct access to VACAPES warning areas for global operations.
- Provides mobile launch range capability supporting worldwide operations - unique in NASA and the world.


Launch Pad 0A

Minotaur V: LADEE Mission to the Moon

Range Control Center

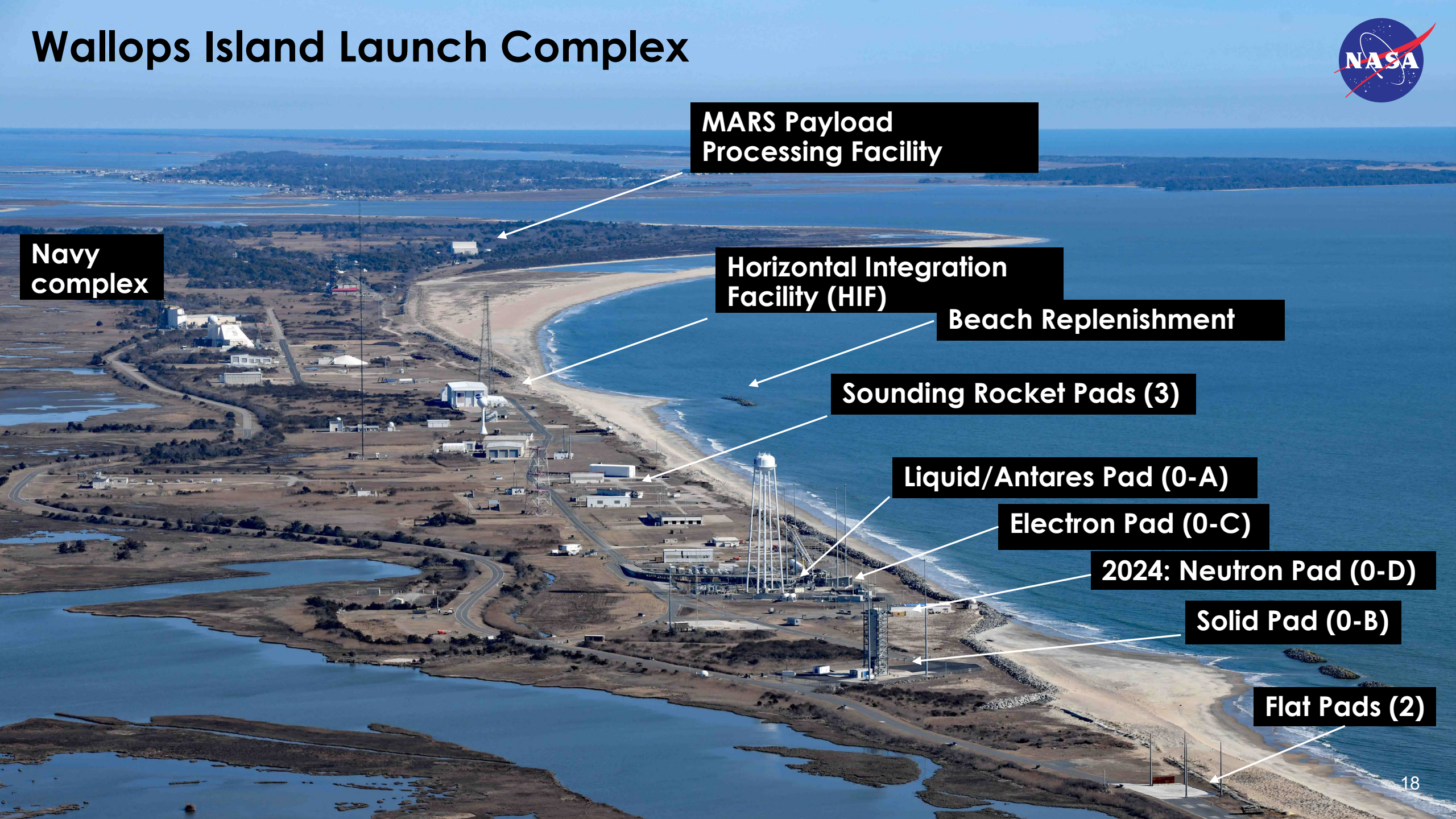

Rocket Lab

Payload Processing Facility

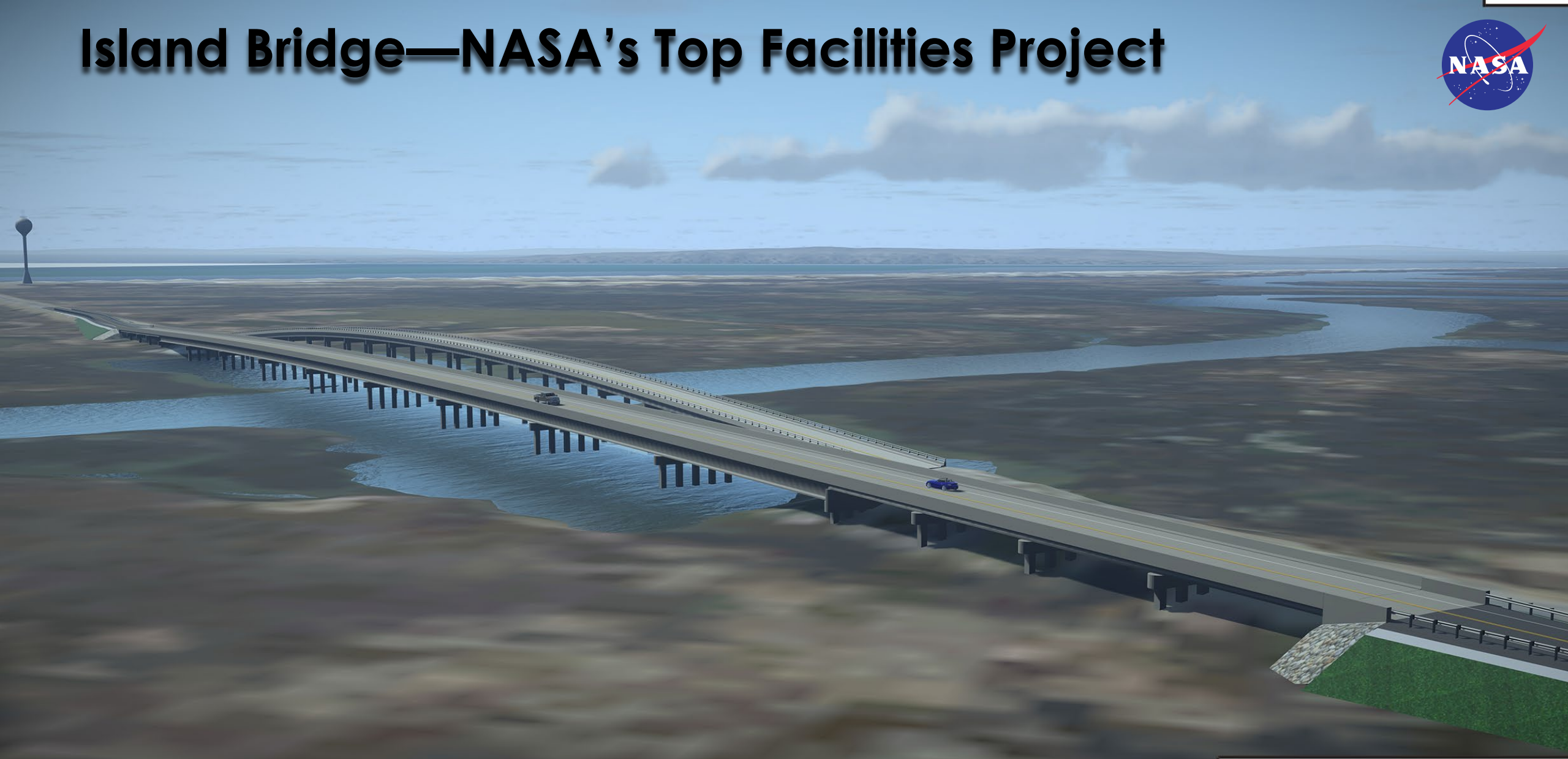
UAS Runway

Goddard SPACE FLIGHT CENTER

Wallops Island Launch Complex



Island Bridge—NASA's Top Facilities Project



U.S. Department of Transportation

NASA Wallops Flight Facility

Cat Creek Bridge Replacement

Commercial Resupply

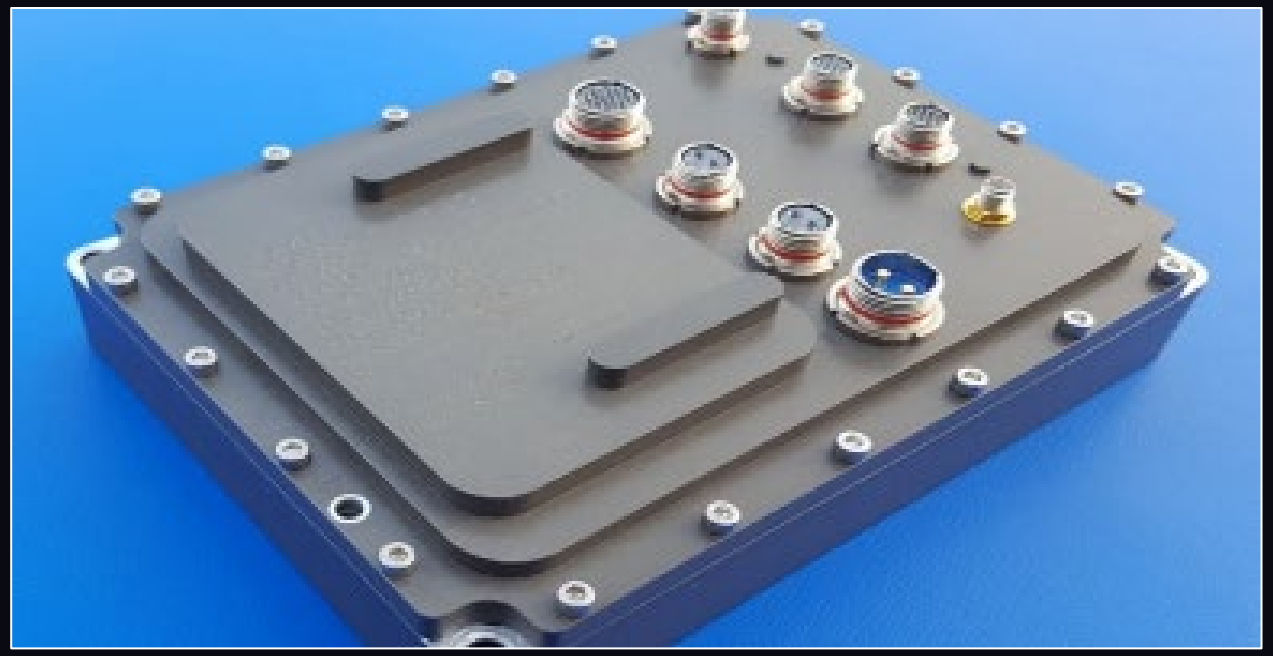
- NG-19 (last launch of A230+) Aug 2023 with some 8,000 pounds of cargo, experiments to the International Space Station
- New All-US (A330/NG-Firefly) Antares Rocket will begin processing at Wallops in mid-2025

Antares NG-19 with Virginia Governor Youngkin

Navy GQM-Coyote Live Fire Fleet Exercise

Enabling new lines of access to space using commercial nano-launch

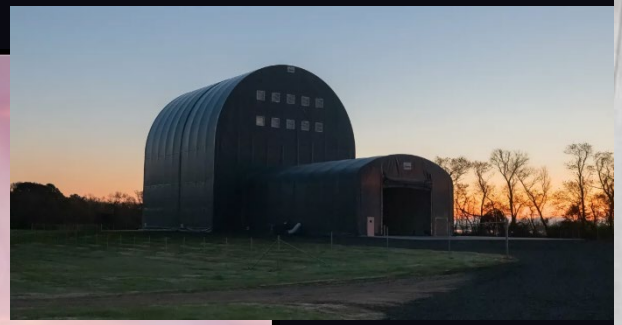
- The NASA Autonomous Flight Termination (NAFTU) is an autonomous flight safety system providing launch command and control. GSFC/WFF partnered with USSF to develop NAFTU to enable the Rocket Lab launches.
- NAFTU reduces launch infrastructure, increases launch resiliency, and drives down range costs. AFSS is a major component of The USSF "Range of the Future" initiative.



Launch Concept

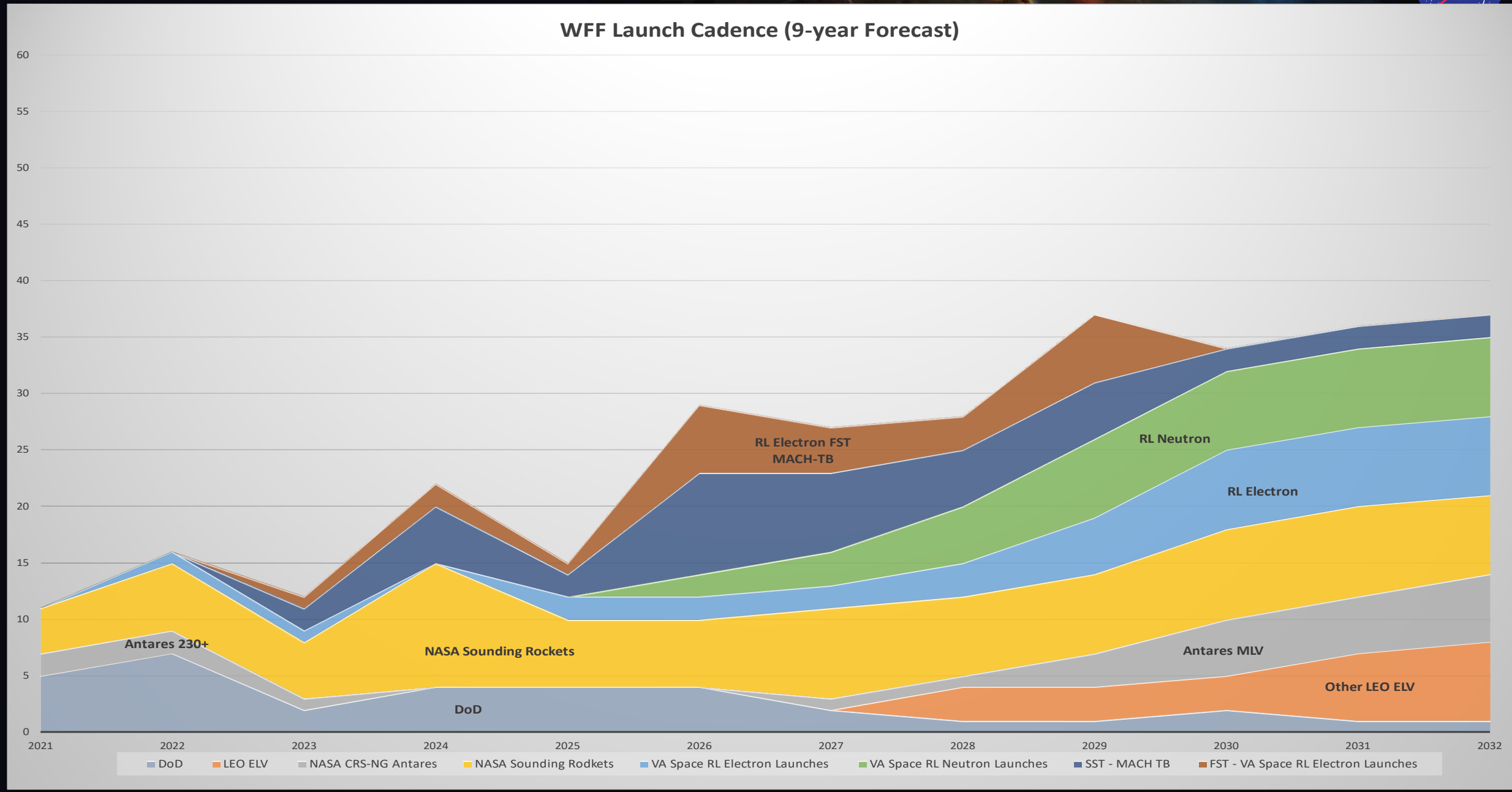
What We're Working Toward Rocket Lab Neutron

- Rocket Lab's new, medium-lift class launch vehicle - Neutron- is coming to Wallops in 2024
  - Height: 40 m (131 ft) comparable to an Antares rocket
  - 8,000 kg to low-Earth orbit
- Neutron requires a new, state-of-the-art manufacturing facility ~ 250 new jobs



Rocket Lab CEO Peter Beck and the Neutron fairing

Wallops Projected Launch Rate 2024-2030



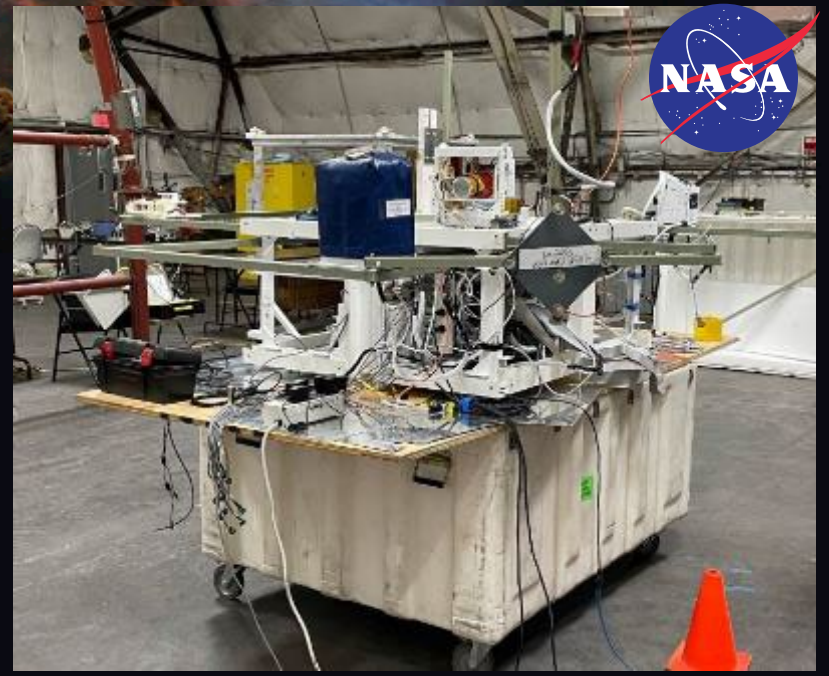
Questions?

Junior Achievement (JA) INSPIRE

- Wallops Complex Booth in the Aerospace Career Cluster
- 4,500+ Middle School Students over 2 days
- 10 school districts across Delmarva & private schools
- NASA, SCSC, NOAA

Wallops – JA Inspire

March 2024

- NASA/Wallops will be at the Wicomico Youth and Civic Center in support of JA Inspire
- Virginia Spaceport Authority (VSA)
- National Oceanic and Atmospheric Administration (NOAA)
- Naval Air Warfare Center (NAWC)
- Naval Sea Systems Command (NAVSEA)
- Robotics Alliance Project
- Rocket Lab

HASP