

National Aeronautics and Space Administration



WALLOPS FLIGHT FACILITY



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For more information on today's events, check out the our phone app by scanning this QR code on the map on page 4 or visiting <http://goo.gl/uTUIXP> (URL is case sensitive)

CONNECT WITH WALLOPS



www.facebook.com/NASAWFF



www.twitter.com/nasa_wallops



www.nasa.gov/wallops

WATCH A LAUNCH

Launch viewing: View rocket launches at the NASA Wallops Visitor's Center on Route 175 on the way to Chincoteague Island www.nasa.gov/content/nasa-wallops-visitor-center-launch-viewing

Wallops Information Line: Call 757-824-2050 for launch and project status recording

UStream: Can't make it the Wallops Island area? Watch from home on our UStream channel at www.ustream.tv/channel/nasa-wallops



From the Director

On behalf of NASA and all of our mission partners, welcome to Wallops Flight Facility! Today, June 27, 2015, marks exactly 70 years since our first launch, and we are thrilled to host you at our Open House in celebration of this milestone.

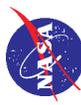
The history of NASA at Wallops dates back to the mid-1940's and the early work of NASA's predecessor, the National Advisory Committee on Aeronautics, or NACA. In need of a launch range to test developmental missile guidance and propulsion systems, the NACA started looking for a location with clear, unpopulated space down range with areas for radar tracking stations. In addition, officials sought an isolated area for safety and security considerations, and proximity to a military airfield was deemed a must.

Initially considered too remote, officials eventually chose the Wallops Island location. In April 1945, Congress appropriated funds for the research station at Wallops, and June 27, 1945, the facility conducted its first launch. Since then, the men and women of Wallops have launched literally thousands of rockets, hundreds of scientific balloons, and have logged thousands of flight hours in support of scientific investigations around the world.

Today, Wallops leads NASA's suborbital programs: airborne science, scientific ballooning, and sounding rockets. Furthermore, Wallops is home to NASA's only owned and operated launch range, one of only four ranges in our nation where payloads can be launched into orbit. In addition, we have an incredible science team here, an extremely talented, multi-disciplinary engineering group, a diligent environmental section, and a whole host of mission support personnel working in a wide range of fields. The diversity of our mission set here is complemented by our partnerships with the U.S. Navy, NOAA, the Mid-Atlantic Regional Spaceport, and the Eastern Shore community as a whole.

In the true spirit of NASA, thank you for taking the time to explore our facility today — I hope it will lead to new discoveries!

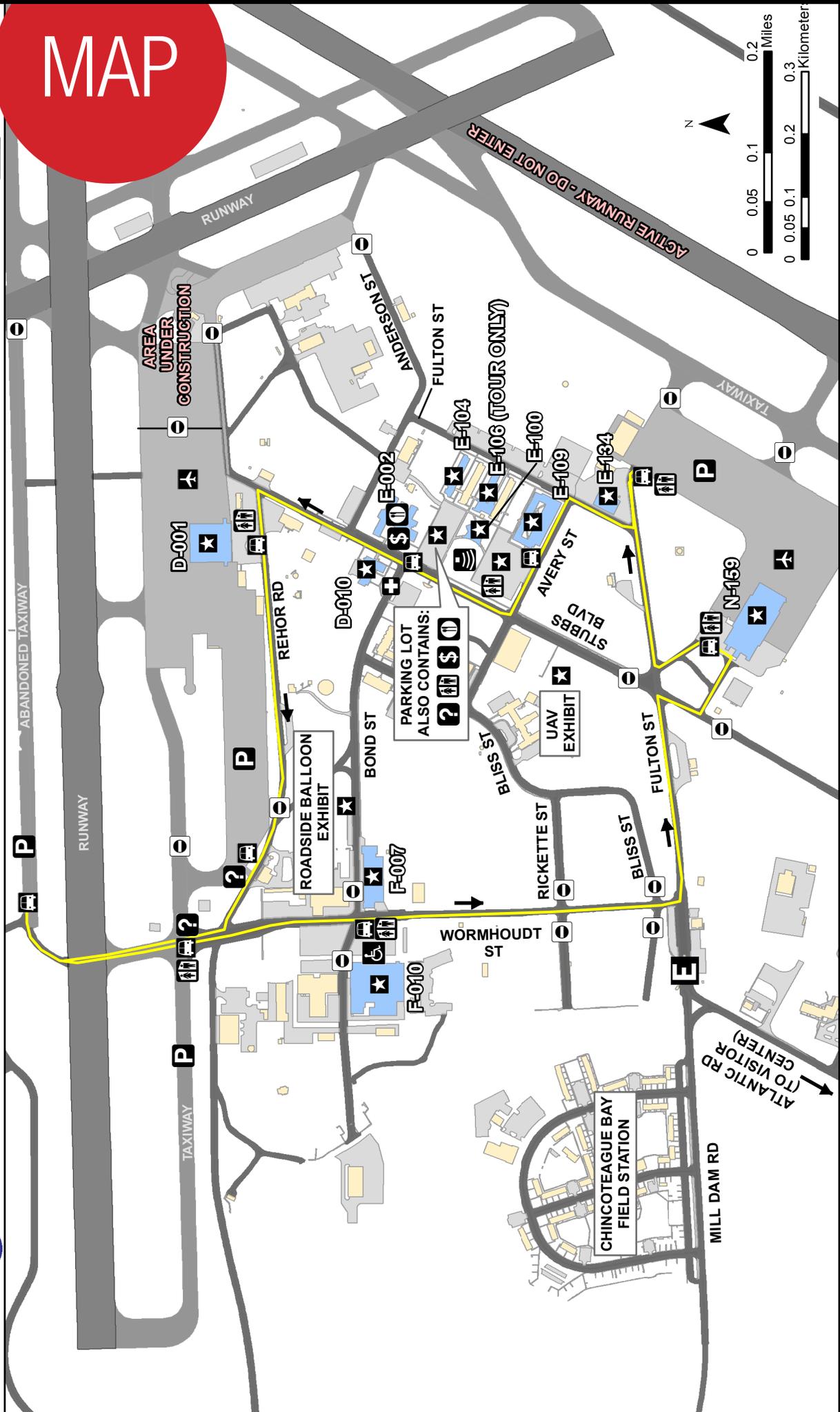
Wallops Flight Facility: Reaching Farther for Science and Technology



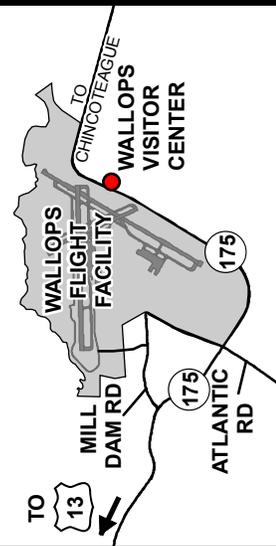
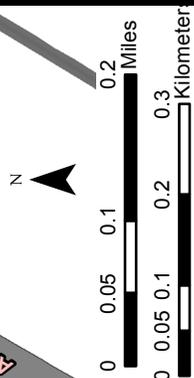
Wallops Flight Facility 70th Anniversary Open House



MAP



PARKING LOT
ALSO CONTAINS:



SCAN FOR DIGITAL MAP WITH GPS CAPABILITY

OR NAVIGATE TO <http://goo.gl/uTUXp> (CASE SENSITIVE)

				OR NAVIGATE TO http://goo.gl/uTUXp
				<p>(CASE SENSITIVE)</p>

FOR YOUR SAFETY. DO NOT ENTER RESTRICTED AREAS

Schedule of Events at NASA Wallops Flight Facility

8 a.m. – Wallops Runway 5K Run/Walk (pre-registraion is required)

9:30 a.m. – Awards Ceremony for Wallops Runway 5K Run/Walk

9:30 a.m. – Gates open to General Public

10 a.m.-4 p.m. – Open House

10:30 a.m. – Opening Ceremony with NASA leadership and federal, state and local officials

11 a.m.-4 p.m. Special Presentations Building E-100 listed below

11 a.m.-Noon T.J. Meyer “Wallops Flight Facility History”

Explore the Wallops Island/Chincoteague role in the U.S. history; from Early Settlement and Revolution-era Forts, to the need for the U.S. Navy and the growth of NASA.

Noon-12:30 p.m. Richard Paul “We Would Not Fail”

Award-winning public radio documentary producer Richard Paul will appear to talk about the new book he co-wrote with Steven Moss, “We Could Not Fail”. The book tells an inspiring, largely unknown story of how the space program served as a launching pad for a more integrated America. It profiles ten pioneer African-Americans space workers, including technicians, mathematicians, engineers and an astronaut candidate. “Surprising and insightful,” says Laura Helmuth, New York Times Sunday book review.

12:30-1 p.m. Phil Eberspecker “The Fun-Damentals of the Physics of Phlight”

The “Fun-Damentals of the Physics of Phlight” will explore the basic physics of how balloons, airplanes, and sounding rockets work. The 30-minute program is chock full of interesting demonstrations to help explain the concepts. Balloons will be flying, planes will be gliding, and who knows what might be shooting across the stage. As an added bonus, many of the demonstrations can be recreated at home. Come in out of the heat and enjoy the fun, and maybe learn a little bit of the interesting physics that helps Wallops achieve NASA’s scientific goals.

1-1:30 p.m. Jay Pittman “My Aerospace Career and What it Takes to Work at Wallops”

Come hear about Wallops Deputy Director for Strategy and Integration Jay Pittman’s career path! Mr. Pittman had several paths that led him to his current position and will discuss that, along with what it takes to work at Wallops. How does everyone work together?

1:30-2 p.m. Costen Gladding “Memories from a NACA/NASA Career”

Herbert C. Gladding (Costen) of Pocomoke City is a retired Electronics Technician/Field Engineer (originally with NAOTS, then NACA and NASA, and eventually retired from NOAA) discusses his work and life during times of the birth and early growth of Wallops Flight Facility up to 1968 when he transferred to NOAA.

2-2:30 p.m. Jim Mason-Foley “Launch Range Photography”

The Optical Systems Group presents “Launch Range Photography” to discuss how to capture near-impossible imagery. An Optical Subject Matter Expert showcases Wallops’ imagery collected over the past 70 years and discusses how the imagery was captured.

2:30-3 p.m. Dr. Joyce Winterton and Linda Sherman “How to Land a NASA Internship”

Learn about Internships that are provided through NASA Goddard Space Flight Center’s Wallops Flight Facility — how to apply, requirements and benefits.

3-3:30 p.m. Richard Paul “We Would Not Fail”

Award-winning public radio documentary producer Richard Paul will appear to talk about the new book he co-wrote with Steven Moss, “We Could Not Fail”. The book tells an inspiring, largely unknown story of how the space program served as a launching pad for a more integrated America. It profiles ten pioneer African-Americans space workers, including technicians, mathematicians, engineers and an

astronaut candidate. “Surprising and insightful,” says Laura Helmuth, New York Times Sunday Book Review

3:30-4 p.m. Brian Campbell “Earth Science at Wallops”

NASA Wallops is doing big things in Earth Science. Come hear about satellite missions, airborne research, and hurricane sentinels! From measuring rainfall on Delmarva to ice melt in Antarctica, NASA Wallops is on top of it!

11:30 a.m., 12:30 p.m., 1:30 p.m., 2:30 p.m. Nathan Riolo, Christian Billie, Alex Seo “Programming 101” E-104, Room 308

Learn about using of programming in the real world applications. Learn how to write basic code using the Python programming language. Are you are up for more? Take the 10 levels of code challenges. Still more? The ultimate challenge is here for you to solve the 70 Sudoku puzzles programmatically with the fastest time. Prizes will be distributed to the achievers. Anyone with or without experience in programming are welcomed. All children under the age of 13 must be accompanied by an adult. This activity is located in the Building E-104, room 308.

Aircraft on Static Display

NASA Wallops aircraft at N-159 Hangar	U.S. Navy aircraft at the D-1 Hangar
C-130 Hercules	E-2 Hawkeye
C-23 Sherpa	C-2 Greyhound
B-200	and more!
UH-1 Huey	
T-34	
And more!	

U.S. Coast Guard aircraft at the D-1 Hangar

Scientific Balloon Static Display, on road from F-7 to F-6

Wallops’ scientific balloons are as large as a football stadium!

Robotics Demonstration, D-1 Hangar

Entertainment on E-100 main stage area

U.S. Navy Brass Band	Voices of Wallops
Three Sheets	Wallops Music Club
Neil and Jessie	Heroes for Sale

Mission Area Tours:

Range Control Center (Building E-106) Meet at the staging area outside Building E-106

Scientific Balloons (Building F-7)

Sounding Rockets (Building F-10)

Engineering Labs including Mission Planning Lab, Small Satellites/ CubeSat display and Low-Dentisty Supersonic Decelerators presentation (Building E-109)

Food Vendors

Burgers, hot dogs, pulled pork BBQ, grilled chicken, sausage, salads, subs and pizza, ice cream, drinks and more (see map)

Wallops Visitor Center Activities, 10 a.m.–4 p.m. include:

10 a.m. – 4 p.m. Coloring, activities & craft tables.

Gift shop and observation deck will be open.

11 a.m. Glider Activity

1 p.m. Model Rocket Launch

3 p.m. Payload Drop

Wallops

BEFORE THE ROCKETS

Decades before NASA came into the picture, Wallops Island was home to the Wallops Island Association, later called the Wallops Island Club. On October 15, 1889, the Club set its constitution for the member's use of Wallops Island. Members of the Wallops Island Club and their guests vacationed on the island, where they enjoyed the Club House and the beach. In 1945, after many years of both prosperity and hardships, such as damage to the island by a great hurricane in 1933, the Club began leasing some of the Island to the U.S. Government. Thus began the relationship between Wallops Island, the Navy, and NASA, leading up to the government's eventual purchase of the Island.

Constitution of the Wallops Island Association. Adopted October 15th 1889.

Article 1
This Association shall be called Wallops Island Association.

Article 2
Its object shall be to own, manage and improve Wallops Island Accomack County, Virginia.

Article 3
Its membership shall be limited to thirty, and no member shall be received after this date, except upon receiving the unanimous vote of the Executive Committee.

Article 4
The officers shall consist of a Board of seven Directors to be elected annually by ballot, who shall elect from their number, a President, Vice-President, Secretary and Treasurer, and also an Executive Committee of three of which the President shall be one and shall act as Chairman. The Board of Directors

Form 723—Revised July 1939
TREASURY DEPARTMENT
INTERNAL REVENUE SERVICE

UNITED STATES FEDERAL TAX ON ADMISSIONS CERTIFICATE OF REGISTRY
INTERNAL REVENUE

OFFICE OF COLLECTOR OF INTERNAL REVENUE

District of Penna. Phila., Pa. Aug. 8, 1946., 19

This certifies that S. Walter Stauffer,
WALLOPS ISLAND CLUB INC.,
under the name of
as a person receiving payments for admissions and required to collect or pay tax on such admissions, or being the owner or lessee of any place which is ordinarily or at times leased to other persons who impose charges for admission thereto, has registered with the undersigned Collector of Internal Revenue with respect to the business located at WALLOPS ISLAND, ACCOMAC COUNTY, VA. SOCIAL CLUB as required by law and the regulations relating to the Federal Tax on admissions, and has been assigned Registry Number 28018

NOTE.—Under Section 3961, Internal Revenue Code, the tax collected is held to be a special fund in trust for the United States. The registrant must keep this certificate conspicuously posted in his box office or other place where admissions are sold.

Francis R. Smith
Collector.

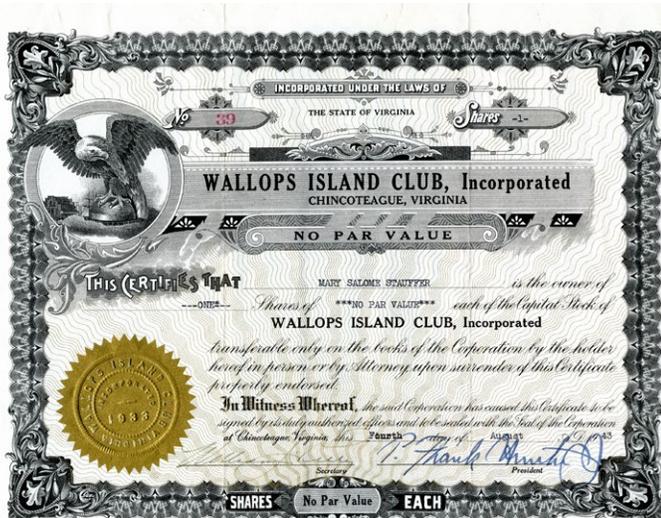
Standard Form No. 1044a—Rev. 5-15-45
Form approved by Comptroller General, U. S. May 26, 1945 (Amended August 14, 1941)

PUBLIC VOUCHER FOR PURCHASES AND SERVICES OTHER THAN PERSONAL

U. S. NATIONAL ADVISORY COMMITTEE FOR AERONAUTICS
(Department, bureau, or establishment)
Voucher prepared at Norristown, Pa. 6/30/45
(City, place and date)PAID BY

GENERAL ACCOUNTING OFFICE PREAUDIT
Certified for payment in the sum of \$ 250.00
Comptroller General of the United States
By: Walter A. R. Smith
Address Norristown, Pennsylvania.
Page's Account No. ATTENTION: MR. F. Frank Hunter (for use of Paying Office)D. O. Voucher No. _____
Bus. Voucher No. _____

No. and Date of Order	Date of Delivery or Service	Articles or Services (Enter description, item number of contract or general supply schedule, and other information deemed necessary) Terms _____ % Discount Cash _____ days Brought forward from continuation sheet(s)	Quantity	UNIT PRICE		AMOUNT
				Cost	Per	
				Dollars	Cts.	
<u>NAV-4319</u>	<u>5/16/45</u>	<u>Rental of a certain part of Wallops Island, Accomac County, Virginia to the National Advisory Committee for Aeronautics, for the period of May 16 through June 30, 1945.</u>				<u>\$2000</u> annual
<u>5/11/45</u>	<u>to 6/30/45</u>					<u>\$250.00</u>
Shipped from _____ to _____ Weight _____ Government B. I. No. _____ Total <u>250.00</u>				(Payee must NOT use this space)		
				Differences _____		
				Account verified, correct for <u>250.00</u>		
				(Signature or initials) _____		
Contract No. <u>NAV 4319</u>	Date <u>5-11-45</u>	Req. No. _____	Date _____	Invoice Rec'd _____		



250.00

MEMORANDUM

JOHN MUNICK
Authenticating Officer

ACCOUNTING CLASSIFICATION (for completion by Administrative Office)			
Appropriation, installation, or project symbol	Appropriation title	Limit's or Fund's Amount	Appropriation Amount
<u>3150100 .001</u>	<u>Advisory Committee for Aeronautics, 1945</u>		<u>250.00</u>

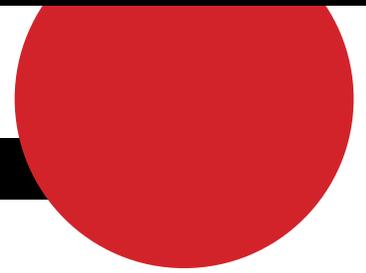
Allotment symbol	Amount	Obligations liquidated	COST ACCOUNT		OBJECTIVE CLASSIFICATION	
			Symbol	Amount	Symbol	Amount
<u>05-L</u>	<u>250.00</u>	<u>250.00</u>				

By: [Check No. _____] dated _____ 19____ for \$ _____ [on Treasurer of the United States in favor of] _____
[Cash \$ _____] on _____ 19____ Payee _____ [payee named above]

12-2296

On Station

THE NAVY



The Chincoteague Naval Auxiliary Air Station (NAAS) was commissioned on March 5, 1943, during World War II. Land was initially acquired in 1942 and a landing field was authorized through April 1943 for the Civil Air Patrol (CAP) to operate CAP planes engaged in anti-submarine war (ASW) patrols. Originally, NAAS was to serve as an outlying field for the housing, training and maintenance of Navy torpedo/fighter squadrons. By mid-1943 NAAS mission expanded to train PB4Y-1 ASW squadrons to combat German U-boats in the mid-Atlantic through 1945. The mission of Chincoteague NAAS continued to change several times over the course of Navy ownership through 1959, with the primary objectives of providing testing and development of weapons, ordnance, and

aircraft; fleet and squadron training; and conducting Cold War ASW patrols in the mid-Atlantic region. The Naval Aviation Ordnance Test Station (NAOTS) was established at Chincoteague NAAS in 1946 for new weapons development including 20 and 30 mm guns and ammo, aircraft, and rockets. Guided missiles were also evaluated and tested at Chincoteague NAAS including Bat, Dove, Gorgon, Kingfisher, Sidewinder, Petrel, and Regulus missiles. Numerous squadrons were stationed at Chincoteague NAAS between 1943-1959 including Patrol, Fighter, Bombing, Attack, Torpedo, Composite, Air Development, Utility, Fleet Service, Guided Missile Development, and Experimental Squadrons, as Department of Defense missions changed and expanded.

'40s

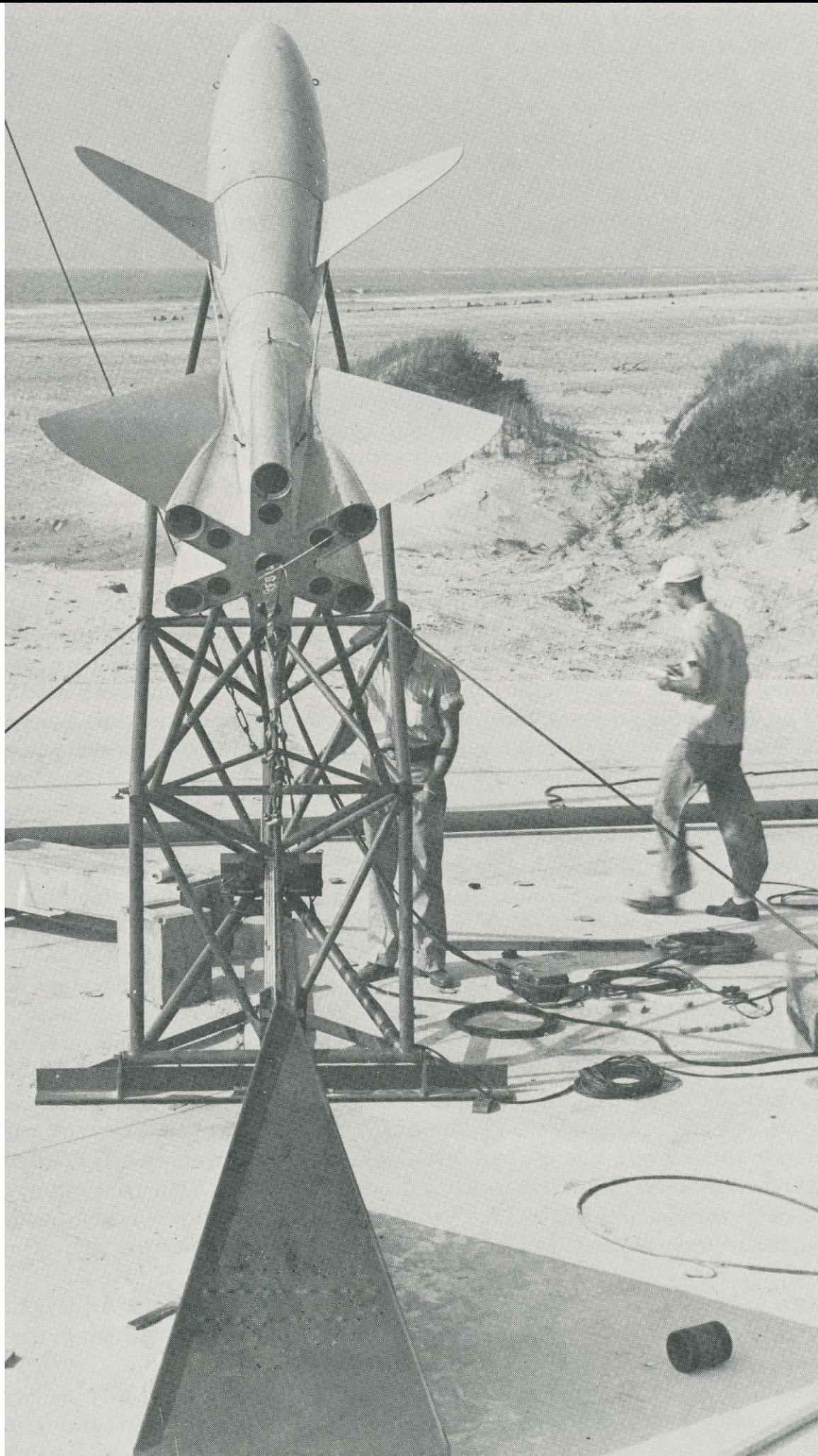
First Research Mission

The Tiamat missile was the first research mission launched at Wallops Flight Facility on July 4, 1945. The Tiamat was the Army Air Force's first air-to-air guided missile and was to be developed for combat use. However, the end of World War II changed the scope of the project from weapons to research on automatic control systems. The Tiamat program lasted until 1948 with nine more launches at Wallops.



DID YOU KNOW?

Even though the Tiamat was the first research launch, the first actual launch occurred from June 27, 1945. The operation was to check the tracking station location and operation, check the radar for measuring velocities of missiles, and to gain experience with actual rockets. The rocket was only 3.25 inches wide.





Project Mercury

Project Mercury was the first human spaceflight program of the United States. It ran from 1959 through 1963 with the goal of putting a human in orbit around the Earth. Wallops Flight Facility helped pave the way for this goal with earlier testing with Rhesus monkeys. One monkey, Sam, flew aboard a Little Joe 1B vehicle December 4, 1959. Researchers were studying the effects of stress on Sam. Although he was disturbed by the launch of the vehicle, he came through the flight unharmed. The vehicle was recovered in such good condition that it was used later in a Mercury-Redstone development firing in March 1961.





Explorer IX

The culmination of Wallops expansion came with the launch of the Explorer IX satellite on Feb. 16, 1961, which some called the Eastern Shore satellite. The payload, an inflatable sphere, was designed to study atmospheric density and also became the first payload to ride into orbit atop an all solid-fuel vehicle. The launch made Wallops Flight Facility the 3rd U.S. Range with an orbital capability. This Scout was a four-stage vehicle that stood 72 feet tall and weighed 40 tons. The launch also marked the first time a satellite was placed into orbit to support a purely scientific project.

DID YOU KNOW?

Wallops Flight Facility had many names through the decades:

- 1945-1958** Pilotless Aircraft Research Station
- 1958-1974** Wallops Station
- 1974-1981** Wallops Flight Center
- 1981-Now** Wallops Flight Facility



'70s



Solar Eclipse

On March 7, 1970, a total solar eclipse engulfed the entire Eastern seaboard. A total of 15 research organizations conducted experiments at Wallops in three disciplines — meteorology, ionospheric physics, and solar physics. A total of 32 sounding rockets were launched during the three-day period. Wallops launched eight different types of sounding rockets for the solar eclipse — Arcas, Nike-Apache, Nike-Cajun, Nike-Tomahawk, Nike-Iroquois, Aerobee 150, Aerobee 170, and the Javelin.



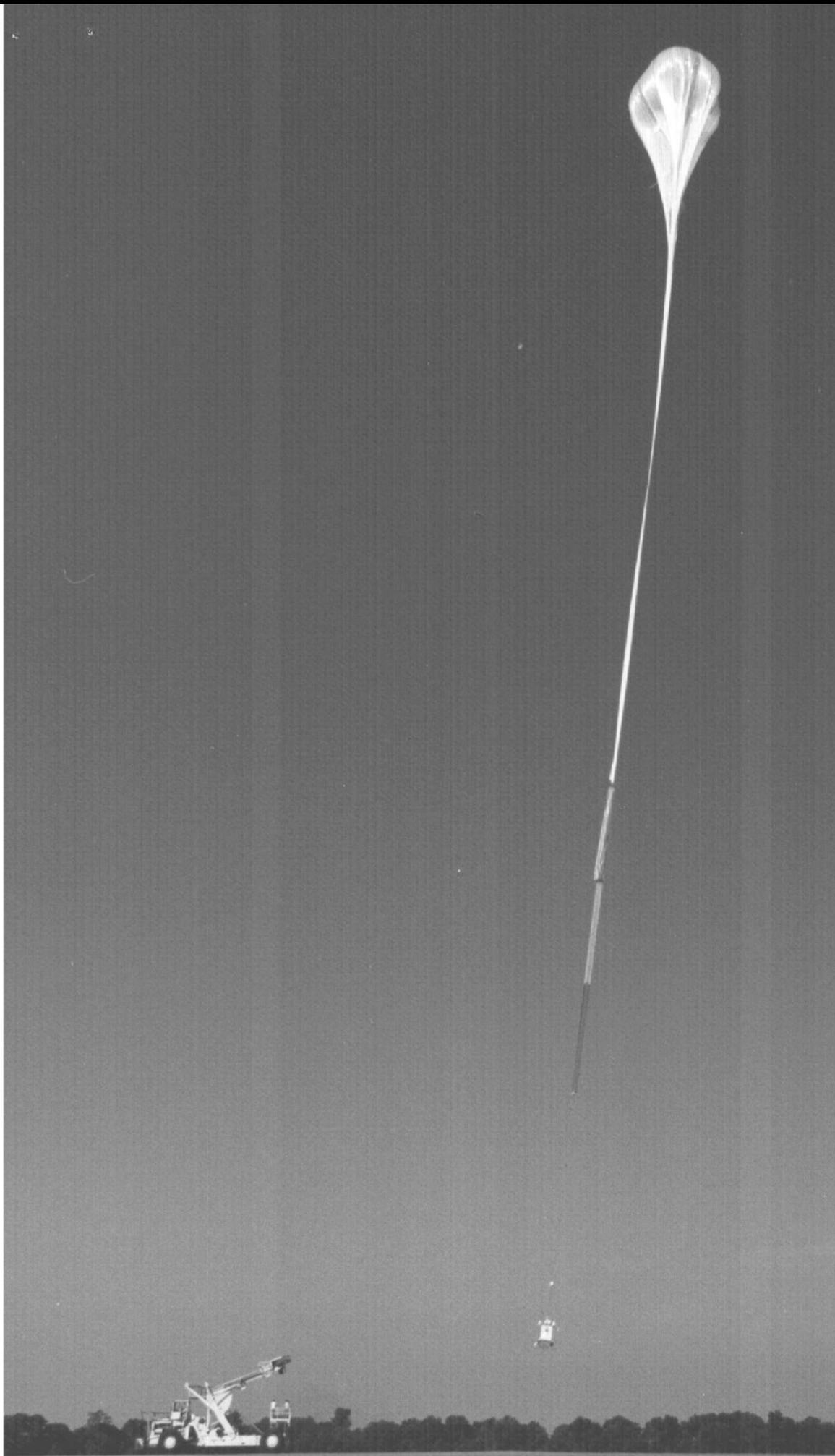
DID YOU KNOW?

Before LADEE's rocket frog, Wallops conducted an experiment using frogs as primary passengers on a vehicle launched into space. On Nov. 9, 1970, a pair of frogs climbed aboard a Scout rocket so scientists could research a frog's otolith, or balance mechanism under weightlessness and repeated accelerations. This was an initial step in a project in NASA's human factors systems program to investigate the functioning of the primary balance mechanism within the inner ear.



Balloon Program Office

The Balloon Program Office was established at Wallops Flight Facility in 1983. Since then, NASA has flown hundreds of balloons from locations around the world in support of scientific investigations. NASA balloons are enormous, the largest of which is made from more than 30 acres of material akin to a sandwich bag! A NASA heavy lift balloon has enough volume when fully inflated to encompass a football stadium (or nearly 200 blimps)! Our helium-filled balloons can carry more than 8,000 pounds to the near space environment some 130,000 feet above the Earth's surface.





Pegasus

Wallops launched the first of several Pegasus XL vehicles beginning November 1996 to conduct the High Energy Transient Experiment program. HETE was an international mission led by the Massachusetts Institute of Technology. Its prime objective was to carry out the first multiwavelength study of gamma ray bursts with ultraviolet, x-ray, and gamma ray instruments. A unique feature of the mission was its capability to localize bursts with arc second accuracy, in near real-time aboard the spacecraft. These positions were transmitted to the ground and picked up by a global network of ground stations enabling sensitive follow-up studies.



DID YOU KNOW?

The Range Control Center currently used for missions like Antares and sounding rockets opened in 1993 in Building E-106. But before it was there, it was located in Building N-159 since the 1960s.



TacSAT-2

Wallops Flight Facility returned to orbital satellite missions with the launch of the Air Force TacSat-2 Satellite. Aboard a Minotaur I launch vehicle, the spacecraft was placed into low-Earth orbit in the early morning hours of Dec. 16, 2006. A secondary payload was the GeneSat-1, which was developed by the NASA Ames Research Center. GeneSat-1 is a fully automated, miniature spaceflight system that provides life support for small living things. The mission looked for genetic changes in bacteria (E.Coli) during spaceflight. The E.Coli on board is E.Coli K-12, which cannot live within humans. The knowledge obtained from the GeneSat-1 experiment may contribute to safe, long-duration space missions by humans.





TODAY

Wallops' suborbital programs for 2015 include 16 scientific balloons flights, reaching operational altitudes up to 130,000 feet with payloads up to 8,000 pounds and 17 planned sounding rocket launches, reaching suborbital altitudes up to 900 miles with payloads up to 1,500 pounds. Recent missions of our scientific balloons include launching a flight of the Low-Density Supersonic Decelerator in Hawaii as part of a test program for NASA to land larger payloads on Mars and our super pressure balloon launch from New Zealand, pioneering new technologies on its way to setting world records. Wallops' recent sounding rocket missions enable scientific advances in understanding a range of topics from the solar system and the Sun's corona to how the aurora borealis impacts our atmosphere, with launch platforms at Wallops, Alaska and other worldwide sites. Our sounding rocket program also supports important Science, Technology, Engineering and Mathematics (STEM) education initiatives.



Our lower atmosphere airborne science missions fly 50 percent of NASA's aircraft science flight hours, with campaigns out of Wallops, the Arctic and Antarctica and other global sites. NASA's Wallops based aircraft, which include a P-3B Orion, four C-23 Sherpas, a King Air, two C-130 Hercules and a UH-1 Huey, fly missions for the Airborne Science Program. Wallops also supports test flights of Unmanned Aerial Systems (UAS) and the Virginia Commercial Spaceflight Authority's construction at Wallops of a 3,000 foot UAS runway to be completed this year.

Wallops has NASA's only owned and operated launch range and research airport which supports its mission to power scientific discovery and is a vital national asset as one of only four locations in the United States where the nation can launch government and commercial payloads into orbit. We work in partnership to support national missions with the U.S. Coast Guard, the Department of Defense, and the National Oceanic and Atmospheric Administration as well as commercial space initiatives with the Mid-Atlantic Regional Spaceport.

OCEAN TO THE MOON WALLOPS DELIVERS



FAIRBANKS
ALASKA

KODIAK
ALASKA

WHITE SANDS
MISSILE RANGE
NEW MEXICO

PALESTINE
TEXAS

WALLOPS ISLAND
VIRGINIA

COQUINA
NORTH CAROLINA

BERMUDA

ALCANTARA
SOUTH AMERICA

GREENLAND

ANDØYA
NORWAY

SWEDEN

WOOMERA
SOUTH AUSTRALIA

KWAJALEIN ATOLL
MARSHALL ISLANDS

WANAKA
NEW ZEALAND

MCMURDO
ANTARCTICA

KAUAI
HAWAII

Economic Impact

NASA budget: \$250M (FY15)

NASA workforce: 270 NASA civil servants, 800 contractors

Tenant workforce: 600 personnel (Navy, NOAA, MARS, industry)

Estimated regional economic impact: \$808M, 5,735 jobs

Facility

6,000 acres on Virginia's Eastern Shore

Green dots mark operational sites