

# SPACE FLIGHT CENTER

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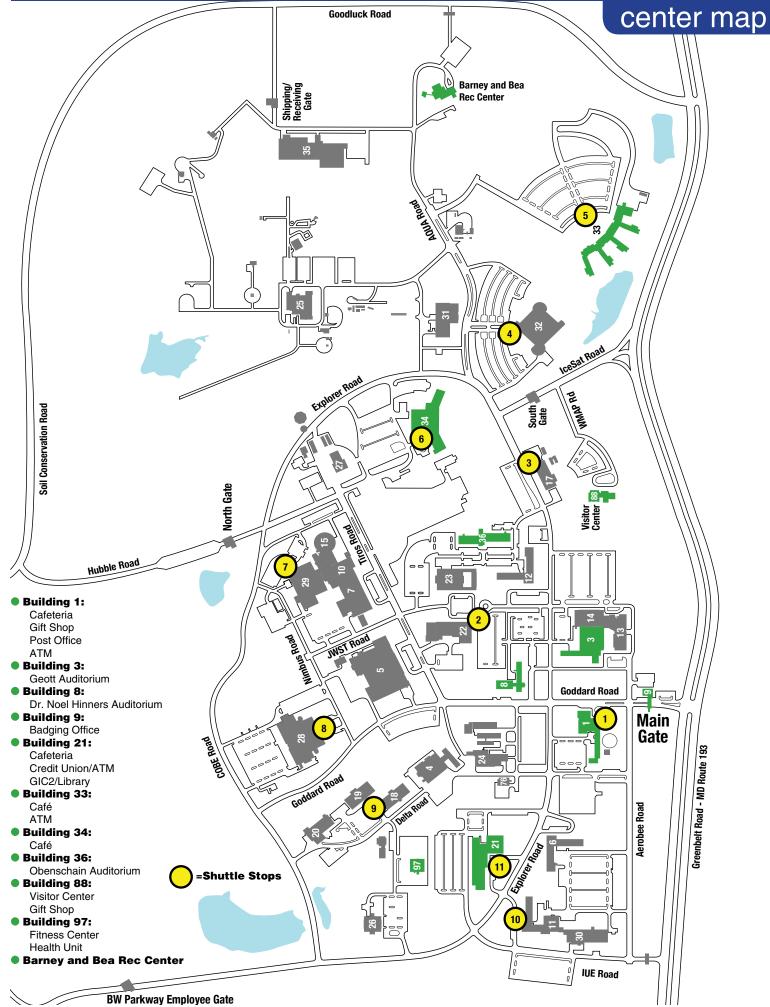
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# a message from the Center Director

Since its establishment in 1959 as the agency's first spaceflight center, NASA's Goddard Space Flight Center has addressed some of humanity's greatest questions regarding the nature of the universe and the systems of life here at home. Our exhaustive portfolio of research and missions spans the disciplines of astrophysics, Earth science, heliophysics and planetary science, making our center a definitive resource for the global scientific community. Today, Goddard boasts the world's largest concentration of scientists, engineers and technologists dedicated to the study of space.

Dating back to its beginnings, Goddard has played instrumental roles in NASA's human spaceflight endeavors, from the Mercury and Apollo missions to the more recent Space Shuttle Program and International Space Station expeditions. And several of our current missions are helping further the agency's goal for a human return to the Moon, followed by missions to Mars and beyond. We have launched more than 300 missions throughout our history; and since the Hubble Space Telescope's launch in 1990, Goddard has assumed responsibility for its ongoing operations and servicing missions as the lead ground control center. We are inspired by, and grateful for, the exceptional legacy that forms the backbone of our work.

As you navigate your way through our facilities, you will see what makes Goddard a special place. It is one of the few organizations that can do it all: imagine it, build it, test it, launch it, operate it and reap the scientific bounty. The talented people behind our success are highly dedicated to their mission, collectively aspiring to make new discoveries and advance scientific understanding for the benefit of society. This commitment is as strong today as it was on the day we opened our gates.

On behalf of the Goddard community, thank you for taking the time to visit our center. We look forward to showing you how Goddard is pushing the boundaries of what is possible in the universe.

Chute J. Surt

Dr. Chris Scolese Center Director



# General Visitor Badging Information

If you are not a NASA employee, you are required to obtain a visitor badge by reporting to the Main Gate at 8800 Greenbelt Rd. Greenbelt, MD, 20771. Be prepared to show a government-issued photo identification. For U.S. citizens, this would be a driver's license or passport; for foreign nationals, this would be a passport. Visitors are required to display their badge above their waist at all times when on Center. Upon exiting the Center at the conclusion of your visit, deposit the badge in the drop box located at any of the gates.

\*Note: It is recommended that you have your Goddard point-of-contact information with you when you arrive at the badging office.

#### **Code of Conduct**

Visitors are prohibited from carrying/introducing onto the center firearms or other dangerous weapons; explosives, incendiary devices; illegal substances; or materials likely to produce injury to persons or damage to property. Improper use of a badge issued may result in revocation of the badge, at which time the visit may be terminated or the sponsor may be required to make arrangements to provide 100-percent escort of the visitors for the remainder of their visit. Unauthorized movement outside designated work or meeting spaces, or failure to follow guidelines, may result in termination of the visit. In addition, sponsors may terminate the visit at any time if they believe the visitor is acting in a strange manner or failing to follow security protocols.

#### **Inspection Notice**

NASA policy for entry into, continued presence on or exiting from this real property, facility, or installation is contingent upon the visitor's consent to inspection of his person, and property in his possession or under his control. Therefore, all vehicles and bags are subject to inspection, and visitors may experience a slight delay upon entering the center. Please factor this potential delay into your schedule.

#### Cameras

Visitors will only be allowed to take pictures at the outdoor display areas or inside facilities designated as tour stops during scheduled tours led by a NASA escort. If uncertain, visitors should check with a member of the NASA staff. Visitors observed taking pictures beyond these areas may have their cameras and/or film (or digital media) confiscated.

# Access for Children 16 and Under

Visitors who are 16 years or older require a visitor badge. Children under the age of 16 must be escorted by a parent or guardian with a visitor badge or by their PIV-credentialed parent or guardian. Children under the age of 16, escorted by their PIV-credentialed parent or guardian, may be granted access to the facility 24 hours a day, 7 days a week, without signing in at the gate. The officer at the gate will take the word of the parent or guardian in regards to the age of the children. This policy will apply to all Goddard entry gates with the exception of the Island gate at Wallops Flight Facility or other restricted areas. The parent or guardian will have total responsibility of their escorted children at all times.



visitor policies

NASA Goddard Space Flight Center's main campus is located within Greenbelt, Maryland, about 14.5 miles northeast of Washington, DC, and 27 miles southwest of Baltimore, MD. The center is a major U.S. laboratory for developing and operating unmanned scientific spacecraft. Goddard manages many of NASA's Earth observation, astronomy and space-physics missions.

The campus encompasses 1,270 acres. These grounds include more than 34 buildings that provide more than 3 million square feet of research, development and office space. Goddard also maintains outlying facilities on 149 acres of land leased from the U.S. Department of Agriculture. These sites include the Magnetic Test Facility, Propulsion Research site, the Antenna Performance Measuring Range, and the Optical Tracking and Ground Plane Facilities.

Goddard operates around the clock—24 hours a day, 7 days per week—with the largest population of employees occurring Monday thru Friday 8:00 am to 5:00 pm Security guards monitor the location continuously and operate a checkpoint at each entrance to the facility. About 9,000 employees (both contractor and civil servants) work for Goddard.

#### Science Comes Alive at NASA Goddard

Visit <u>https://www.youtube.com/watch?v=ZUu-F3KuCvM</u> to view an engaging overview of the work of Goddard's scientists, engineers, and others.

#### Follow Goddard through the following social media networks:



For more information on NASA's Goddard Space Flight Center and the most recent stories about the center's work, visit <u>www.nasa.gov/goddard</u>.



# traveling to Goddard Greenbelt

# **Goddard's Address**

NASA's Goddard Space Flight Center 8800 Greenbelt Road Greenbelt, MD 20771

# **General Driving Directions**

From areas north, follow 295-South (Baltimore-Washington Parkway) towards Washington, DC, and take the exit for MD-193 East. Turn left at the first traffic light onto Southway (follow signs for MD-193). Turn left onto MD-193/Greenbelt Rd. The main gate will be on the left at the 5th traffic light. Alternatively, follow 95-South to the Capital Beltway (495); follow 495 East (left-hand split) to MD-193/Greenbelt Road. Follow MD-193 East to Goddard.

From areas south, follow 295-North towards Baltimore, and take the exit for MD-193 East. Follow MD-193 East to Goddard. Alternatively, take 95-North to 495-West, and follow the beltway to the exit for Baltimore-Washington Parkway then take exit for MD-193/Greenbelt Road. Follow MD-193 East to Goddard.

From areas east, follow Rt. 50 West towards Washington, DC, and exit onto 495 North. Take the MD-193/Greenbelt Road exit and follow MD-193 East to Goddard.

# **Traveling from Local Airports**

Use driving directions for areas north above, or the following mass transit directions.

#### Baltimore/Washington International (BWI)

BWI to Greenbelt via Metro Bus, Amtrak or Mark trains to the G14 Metro Bus or a taxi.

Distance in Minutes ~ 120 minutes once boarding the train

BWI to Greenbelt via Metro Bus using the B30 line.

- Distance in Miles 22. 3 miles
- Distance in Minutes +/- 30 minutes
- Best Route Via Baltimore-Washington Parkway South (I-295)

## **Places to Stay**

#### **Holiday Inn Greenbelt**

7200 Hanover Drive Greenbelt MD 20770

1-877-859-5095

1.4 miles/approx. 3-minute drive from Goddard Check in: 3:00 pm; Check out: 12:00 pm Amenities: shuttle service to Greenbelt metro, free high-speed internet, self-parking, business center, fitness center, swimming pool

#### Hilton Garden Inn/Greenbelt

7810 Walker Drive, Greenbelt MD 20770 301-747-7400 2.2 miles/approx. 4-minute drive from Goddard Check in: 3:00 pm; Check out: 11:00 am Amenities: business center, fitness center, hotel restaurants, self-parking only

#### **Residence Inn Greenbelt**

6320 Golden Triangle Drive Greenbelt MD 20770 301-982-1600 2 .2 miles/approx. 5-minute drive from Goddard Check in: 4:00 pm; Check out: 12:00 pm Amenities: pet friendly, free breakfast, free high speed internet, fitness center, outside pool, on-site parking

#### Dulles International (IAD)

- Distance in Miles 39. 1 miles
- Distance in Minutes +/- 55 minutes
- Best Route Via I-495 East

#### Reagan National (DCA)

- Distance in Miles 17. 5 miles
- Distance in Minutes +/- 45 minutes
- Best Route Via Baltimore-Washington Parkway North (I-295)

#### **Staybridge Suites**

10500 Eastgate Drive Lanham, Maryland 20706 240-553-7761 2.4 miles /approx. 5-minute drive from Goddard Check in: 3:00 pm; Check Out: 12:00 pm Amenities: business center, pet friendly, free on-site parking, free breakfast, fitness center

#### **Greenbelt Marriott**

6400 Ivy Lane Greenbelt MD 20770 301-441-3700 3.5 miles/approx. 8-minute drive from Goddard Check in: 4:00 pm; Check out: 12:00 pm Amenities: hotel restaurants, fitness center, continental breakfast (\$), swimming pools (outdoor and indoor)

# traveling to Goddard Greenbelt

# **Traveling by Train**

Local rail stations are served by the MARC commuter train service, Amtrak Northeast Regional® and Acela Express® trains. Rail service along the East Coast corridor links Baltimore, Philadelphia, New York and Boston to the north; Richmond, Charlotte and Atlanta to the south; and Pittsburg, Toledo and Chicago to the west.

# The MARC Station:

5600 Greenbelt Metro Drive, Greenbelt, MD 20770 Driving distance: 4.8 miles, +/- 15 minutes

# The Amtrak Station in New Carrollton:

4300 Garden City Drive, New Carrollton, MD 20784 Driving distance: 5.1 miles; +/- 15 minutes

# The Amtrak Station in DC:

1401 W St, NE, Washington, DC 20018 Driving distance: 10. 8 miles, +/- 20 minutes

# Local Transportation

Public transit is available within Greenbelt and to other cities near to Goddard, including College Park and Washington, DC. Access the Washington Metropolitan Area Transit Authority's website to plan your trip, http://www.wmata.com.

Metro Bus

Take G12 or G14 from New Carrollton Station, 32 mins

## Metro (Subway)

The two Metro stations closest to Goddard are:

## New Carrollton:

4700 Garden City Drive, New Carrollton, MD 20784 Driving distance: 4. 5 miles, +/- 10 minutes

## Greenbelt:

5717 Greenbelt Metro Drive, Greenbelt, MD 20740 Driving distance: 5 miles, +/- 10 minutes

Use your favorite Internet search engine to find a taxi or other shuttle option.

# The DC Metropolitan Region

NASA's Goddard Space Flight Center in Greenbelt, MD, is close to several cities in the DC metropolitan region.

#### College Park, MD

Driving distance from Goddard: 6 miles, +/- 15 minutes. Public transit available from Greenbelt using Metro http://www.collegeparkmd.gov

## Washington, DC

Driving distance from Goddard: 15 miles, +/- 30-minute drive. Public transit available from Greenbelt using Metro http://dc.gov

# Annapolis, MD

From Goddard: 25 miles, +/- 30-minute drive. No public transit from Greenbelt <u>http://www.visitannapolis.org</u>

## Baltimore, MD

From Goddard: 30 miles, +/- 40-minute drive. No public transit from Greenbelt <u>http://www.baltimorecity.gov</u>

#### Arlington, VA

From Goddard: 21 miles, +/- 45-minute drive. Public transit available from Greenbelt using Metro https://www.arlingtonva.us/

#### Alexandria, VA

From Goddard: 24 miles, +/- 35-minute drive. No public transit available from Greenbelt <u>https://alexandriava.gov/</u>



## **On-Campus Dining Options**

The Greenbelt campus has four on-site dining options:

Building 1	Subway: 7:00 am – 3:00 pm
	Starbucks: 7:00 am – 3:00 pm
	Hana Noodles & Sushi: 10:30 am – 1:30 pm
	Grab and Go Sushi: 1:30 am – 3:00 pm
	LC Mexican Grill: 11:00 am – 2:30 pm
Building 21	Cooked Breakfast: 7:00 am – 9:30 am (Includes eggs, sausage, bacon, potatoes, etc.)
	Continental Breakfast: 9:30 am - 11:00 am (Includes fruit, bagels, donut, etc.)
	Lunch: 11:00 am – 2:30 pm
	(Full service cafeteria including hot entrees, sandwiches, salad bar and snacks)
Building 33	Continental Breakfast: 7:00 am - 10:30 am (Includes variations of egg sandwiches)
	Lunch: 10:30 am – 2:45 pm
	(Includes pizza, Jamaican patties and burritos)
Building 34	Continental Breakfast: 7:00 am - 10:30 am (Includes variations of egg sandwiches)
	Lunch: 10:30 am – 2:45 pm
	(Includes pizza, Jamaican patties and burritos)

Please call (301) 286-6730 with any questions related to Goddard's cafeterias. Vending machines are also available in most buildings.

#### **Restaurants**

Greenbelt and surrounding communities offer a number of dining options.

#### Across from Goddard's Main Gate

In Cipriano Shopping Center

#### **Dunkin Donuts**

Coffee/Breakfast – Quick service 5900 Greenbelt Rd Greenbelt, MD 20770 (301) 220-3806 6:00 am to 10:00 pm

#### **Five Guys**

American – Quick service 8863 Greenbelt Rd Greenbelt, MD 20770 (301) 552-9522 11:00 am to 10:00 pm

#### Ledo Pizza

Pizza – Quick/Full service 8839 Greenbelt Rd Greenbelt, MD 20770 (301) 552-4600 11:00 am to 10:00 pm

#### **Orion Gourmet Take Away**

Deli (Breakfast and Lunch) – Quick service 8837 Greenbelt Rd Greenbelt, MD 20771 (301) 552-4600 6:00 am to 4:00 pm

#### **Osaka Restaurant**

Japanese, sushi – Full service 8855 Greenbelt Rd Greenbelt, MD 20770 (301) 552-1442 11:00 am to 2:30 pm; 4:00 to 10:00 pm

#### Papa John's Pizza

Pizza – Quick service 8857 Greenbelt Rd Greenbelt, MD 20770 (301) 552-4600 10:00 am to 12:00 am

#### **Ruby Tuesdays**

American – Full service 8811 Greenbelt Rd Greenbelt, MD 20770 (301) 552-0100 11:00 am to 11:00 pm

#### Weakness for Sweetness

Caribbean – Quick service 8821 Greenbelt Rd Greenbelt, MD 20770 (301) 552-3455 11:00 am to 9:30 pm

# places to eat

#### Driving Distance from Goddard's Main Gate

#### **Beijing of Greenbelt**

Asian – Quick Service 131 Centerway Greenbelt, MD 20770 (301) 345-3996 11:30 am to 9:30 pm

#### Chevy's

Mexican – Full service 7511 Greenbelt Rd Greenbelt, MD 20770 (301) 220-0078 Price range: 11-30 11:00 am to 11:00 pm

#### **East Pearl Asian Bistro**

Asian bistro – Full service 7701 Greenbelt Rd, Suite #101Greenbelt, MD 20770 (301) 982-4888 11:00 am to 10:00 pm

#### Hunan Treasure Restaurant

Chinese – Full service 7537 Greenbelt Rd Greenbelt, MD 20770 (301) 982-2012 11:00 am to 10:00 pm

#### Jersey Mike's Subs

Deli – Quick service 6000 Greenbelt Rd Greenbelt, MD 20770 (301) 486-0080 10:00 am to 9:00 pm

#### New Deal Café

Lebanese – Full service 113 Centerway Greenbelt, MD 20770 (301) 474-5642 11:00 am to 10:00 pm

#### SoBe Restaurant and Lounge

Seafood and a fusion of Latin, Asian, American, and Italian – Full service 10621 Greenbelt Rd, Suite 201 Lanham, MD 20706 240-334-2819 11:00 am to 12:00 am

#### TGI Friday's

American – Full service 6460 Capital Drive Greenbelt, MD 20770 (301) 345-2503 11:00 am to 2:00 pm

#### **Three Brothers**

Italian – Quick service 6160 Greenbelt Rd Greenbelt, MD 20770 (301) 474-5330 10:30 am to 9:00 pm

#### Uptown Grille

American – Quick service 7501 Greenway Center Drive (In the Lobby of MTC III) Greenbelt, MD 20770 (301) 345-3300 7:00 am to 4:30 pm

#### Chick-fil-a

American – Quick service 10631 Martin Luther King Jr Hwy Bowie, MD 20720 (301) 805-9880 6:30 am to 10:00 pm

#### **Buffalo Wild Wings**

American – Full service 10601 Martin Luther King Jr Hwy Bowie, MD 20720 (301) 464-9292 11:00 am to 1:00 am

#### Grace's

Asian – Full service 10531 Martin Luther King Jr. Hwy Bowie, MD 20720 (301) 809-2988 11:30 am to 11:00 pm

#### Jerry's Seafood

Seafood – Full service 15211 Major Lansdale Blvd Bowie, MD 20721 (301) 805-2284 11:30 am to 10:00 pm

#### **Mission BBQ**

Barbecue – Quick service 5506 Cherrywood Lane Greenbelt, MD 20770 240-542-9200 11:00 am to 9:00 pm

#### Panera

Bakery/café – Quick service 10631 Martin Luther King Jr Hwy Bowie, MD 20720 (301) 352-3673 6:00 am to 9:00 pm

# offsite services

# **Gasoline Stations**

Shell

Right out of the main gate 8711 Greenbelt Rd (301) 552-0491

#### Shell

Left out of the main gate 10000 Greenbelt Rd (301) 794-8828

#### Exxon

Right out of the main gate 7619 Greenbelt Rd (301) 441-2990

## **Full-Service U.S. Post Office**

**U.S. Post Office** Right out of the main gate 7600 Ora Glen Dr. Greenbelt, MD 20770

Lobby Hours: Monday-Sunday 12:01am – 11:59 pm Retail Hours: Monday-Friday 9:00 am – 5:00 pm Saturday 9:00 am – 12:00 pm Closed Sunday



# In an Emergency

Should you need to report an emergency while onsite, please dial: **911** (if you are calling from a desk phone) or **(301) 286-9111** (if you are calling from a cell phone).

Protective Services (Security)	(301) 286-8661
Main Gate	(301) 286-7233

# **Center Operating Status (Closures)**

To find out Goddard Greenbelt's operating status at any time, call (301) 286-6397 (NEWS). For operating status at Wallops, call (757) 824-2050.

# **Campus Information**

Goddard Phone Directory	(301) 286-2000
Intranet	https://internal.gsfc.nasa.gov
Online Phonebook	https://internal.gsfc.nasa.gov/phonebook
External Website	https://www.nasa.gov/goddard

# **Campus Amenities**

**Health Unit** 

Building 97 (301) 286-6666 8:00 am – 4:30 pm closed holidays and weekends

#### **Fitness Center**

Building 97 (301) 286-8404 6:30 am – 7:00 pm, Monday through Friday closed daily 12 pm – 1 pm

\*Note: Visitors can purchase a one day pass to access the fitness center.

Goddard Information and Collaboration Center (Library)	Building 21 (301) 286-7218 10:00 am – 4:00 pm, Monday through Friday
Greenbelt Campus Taxi	4-TAXI or (301) 346-8276
Gift Shops	
GEWA Exchange Store	Building 1 (301) 286-4327 8:30 am – 4:00 pm, Monday through Friday
Gift Shop	Visitor Center (301) 286-6476 9:00 am – 4:30 pm, Tuesday through Friday 11:00 am – 4:30 pm, Saturday and Sunday
GEWA Post Office	Building 1 7:30 am – 2:00 pm, Monday through Thursday
On-Site ATMs	Building 1, Building 21, Building 33

#### **Wireless Network Access**

To log into the wireless CNE Guest Network:

- Open web browser. You will be automatically re-directed to the login screen
- Accept terms and conditions
- Enter name, valid e-mail address and sponsoring organization.
- Click "Login" for system access

#### **Greenbelt Campus Taxi Service**

The Goddard Taxi provides transportation to and from all buildings on Goddard's Greenbelt campus. It operates on weekdays from 7:00 am to 5:30 pm. On days when the center's operating status is modified, the service is available one hour before the center's delayed opening and one hour after employees are dismissed early. To arrange a pickup, call the taxi driver 10 to 15 minutes in advance of the needed pickup time at 4-TAXI (from a Goddard desk phone) or (301) 346-8276.

#### **Greenbelt Shuttle Bus Service**

The Goddard Shuttle provides transportation Monday-Friday on a route of the Greenbelt campus. Each bus loop takes approximately 20 minutes. Please see the bus route map and schedule at: <u>https://ilmd.gsfc.nasa.gov/index.php/transportation/goddard-shuttle-bus</u>. The "NextBus" app and website (nextbus.com) can be used to quickly locate the shuttle and when it will arrive at a stop.

#### **Bike Share Program**

Bikes Around Goddard features 36 rugged bikes distributed around campus to make travel between buildings more convenient and less dependent on cars. When you have somewhere to go, look for a yellow Bikes Around Goddard bicycle, check to see that the "reserved" card is green, and go! A yellow card means someone may want to use it for the trip back to their building, so please be respectful. Park the bike at a rack or out of the pedestrian walkway at your destination. The bikes can only be used on the Goddard campus behind the gates.



# Goddard's visitor center

Goddard's Visitor Center, located on WMAP Road, demonstrates Goddard's innovative and exciting work in Earth science, astrophysics, heliophysics, planetary science, engineering, communication and technology development. The center has many interactive displays and models, as well as real examples of satellites and rocket flight hardware. The center even has a piece of the moon! One of the Visitor Center's highlights is an exciting exhibit called "Science on a Sphere." Instead of a flat screen, Science on a Sphere projects video onto a floating, 6-foot-wide white globe. Currently our playlist consists of 28 short animations and movies that are from five to 15 minutes in length. Science on a Sphere movies run periodically during most Visitor Center hours and are ordinarily available during visits unless the theater has been reserved for private programs by other groups.

Visits are free of charge. For more information on the Goddard Visitor Center, browse the center's website at <a href="https://www.nasa.gov/centers/goddard/visitor/home/">https://www.nasa.gov/centers/goddard/visitor/home/</a>, call (301) 286-8981 or email Cate Maynard at catherine.maynard@nasa.gov. You may also sign up for the Visitor Center's events mailing list by emailing goddard-visitor-center-programs@lists.nasa.gov. Many events are designed for families of elementary, middle and high school students.

#### **Hours of Operation**

NOTE: In case of inclement weather, if Goddard is closed the Visitor Center will be closed as well. The Visitor Center is closed Easter Sunday, July Fourth, Thanksgiving Day and Christmas Day. The Visitor Center is closed Mondays except for some federal holidays. It is open on Labor Day, Columbus Day, Veterans Day, Martin Luther King Day, Presidents Day and Memorial Day from noon to 4 pm. Please note that Visitor Center hours are subject to change. If you have a question about holiday hours, please call (301) 286-8981.

#### September through June

Tuesday to Friday: 10:00 am – 3:00 pm Saturday, Sunday: noon – 4:00 pm

#### July through August

Tuesday to Friday: 10:00 am – 5:00 pm Saturday, Sunday: noon – 4:00 pm

#### **Visitor Center Gift Shop**

The gift shop, located next to the Visitor Center, offers post cards, publications, patches, models, space-related educational toys, games, clothing and other NASA souvenirs. For more information, please call (301) 286-6476.



# Goddard's remote facilities

# **Goddard Institute for Space Studies**

Space-based observations provide a critical perspective for monitoring global climate and developing an understanding of Earth systems. Working with this data is a specialty of the climatologists at the Goddard Institute for Space Studies (GISS) in New York City. <u>https://www.giss.nasa.gov</u>

GISS occupies five of seven floors in Columbia University's Armstrong Hall in Manhattan's Morningside Heights neighborhood. The institute was originally established in May 1961 by Dr. Robert Jastrow to conduct basic research in space sciences in support of Goddard programs. Much of the institute's early work involved examination of planetary atmospheres using data collected by telescopes and space probes.

Current research at GISS emphasizes a broad study of global change, addressing natural and man-made changes in our environment that affect the habitability of our planet and occur on various time scales–from one-time events such as volcanic explosions, to seasonal effects such as El Niño, and on up to the millennia of ice ages.



Fans of the television program *Seinfeld* may recognize the restaurant on the GISS building's ground floor as the exterior of the diner frequented by Jerry, George, Elaine and Kramer in many episodes of the show.

GISS is a component laboratory of Goddard Space Flight Center's Earth Sciences Division.

## **Wallops Flight Facility**

Wallops Flight Facility (WFF), managed by Goddard and located on Virginia's Eastern Shore, is NASA's only owned and operated rocket launch range and NASA's principal facility for management and implementation of suborbital research programs. Wallops launches low-cost, versatile suborbital and orbital rockets, balloons and aircraft in support of Goddard Earth and space science research, including cargo launches to the International Space Station. Its Mid-Atlantic Regional Spaceport Unmanned Aerial Systems runway also has the capability to support drone work above land and sea.

Wallops manages the NASA Sounding Rocket Program (NSRP), which has provided important and often critical data to support the scientific community, NASA's orbital space programs, the Department of Defense, other Government agencies, and the international space community. NSRP's more than 2,500 missions have significantly added to our scientific knowledge in galactic astronomy, solar physics, planetary atmospheres, high-energy physics, and other disciplines.

The NASA Balloon Program Office at Wallops provides high altitude balloon platforms for scientific and technological investigations. These investigations include fundamental scientific discoveries that contribute to our understanding of the Earth, the solar system, and the universe. Scientific balloons also provide a platform for the demonstration of promising new instrument and spacecraft technologies.

The Aircraft Office at Wallops provides for the operation, maintenance, engineering, airworthiness, and mission support of assigned aircraft as well as the planning and conducting of airborne science missions. The Aircraft Office also supports logistical airlift needs, range surveillance, recovery operations, and a wide array of other aircraft functions.

One of the NASA-owned tracking stations, Wallops hosts five Near Earth Network antennas that provide high-quality, low-cost communications services to supported flight missions. Its Global Monitor and Control Center provides continual monitoring of passes allowing for remotely controlled, locally unattended station operations at other sites, including stations that provide critical launch communications capabilities to the Space Launch System rocket and Orion spacecraft. <u>https://www.nasa.gov/centers/wallops/</u>



# Goddard's remote facilities

#### **Independent Verification and Validation Facility**

A software error, no matter if it originates in a spacecraft or at control centers on the ground, has as great potential to bring a mission to a halt as does a hardware problem. That is why the Independent Verification and Validation Facility (IV&V) puts critical mission programs through elaborate testing. The primary function of the IV&V, located in Fairmont, West Virginia, is to ensure specialized computer programs developed for missions operate perfectly.

All aspects of software are examined, including design qualifications, documentation and more, to ensure every stage of program development proceeds without problems.



The IV&V Program was established in 1993 as part of a NASA-wide strategy to provide the highest achievable levels of safety and cost-effectiveness for mission critical software. The NASA IV&V Program was founded under the NASA Office of Safety and Mission Assurance (OSMA) as a direct result of recommendations made by the National Research Council (NRC) and the Report of the Presidential Commission on the Space Shuttle Challenger Accident.

The IV&V has a longstanding research agreement with West Virginia University. Goddard manages the IV&V Facility on behalf of NASA. <u>https://www.nasa.gov/centers/ivv/home/index.html</u>



#### White Sands Complex

For satellite data to be of any use, it has to be sent back to Earth. The Space Network (SN) is dedicated to providing highly reliable, global communications coverage to NASA missions. Two SN ground terminals, together called the White Sands Complex (WSC) and located close to the foot of the San Andres Mountains outside Las Cruces, New Mexico, provide the primary hub for managing SN communications.

The SN, comprised of an on-orbit constellation of Tracking and Data Relay Satellites (TDRS) and a supporting set of ground stations, including WSC, securely delivers mission-critical communication and tracking services to missions in low Earth orbit. User spacecraft connect with orbiting TDRS spacecraft located around the world and transmit their data to TDRS, which then relays the data to the SN ground stations. TDRS' locations ensure that Earth-orbiting satellites are within sight of at least one spacecraft at any time.

Ground terminals, such as those at WSC, provide the hardware and software necessary to monitor and maintain the health of the TDRS spacecraft, measure the range of each TDRS relative to the ground, ensure that all systems are properly configured and functioning, transmit data to TDRS for delivery to customer spacecraft, and receive and process customer spacecraft data from TDRS. The first missions to use these antennas were early space shuttle flights, STS-8 being the first. Later the Hubble Space Telescope and the International Space Station relied, and continue to rely, on dishes at the WSC. <a href="https://www.nasa.gov/centers/goddard/home/installations">https://www.nasa.gov/centers/goddard/home/installations</a>

#### **Columbia Scientific Balloon Facility**

The Columbia Scientific Balloon Facility (CSBF), located in Palestine, Texas, is a NASA facility managed by Orbital ATK. The contract to manage this facility is administered by the Balloon Program Office at Wallops Flight Facility of Goddard Space Flight Center.

The facility provides the following services: launching large (400 ft. dia), unmanned, high-altitude (120,000 ft.) research balloons; tracking; and recovering the scientific experiments suspended beneath them for NASA centers and universities from all over the world. <u>https://www.csbf.nasa.gov</u>