January 2026

TRAJECTORIES

Official Newsletter of the Cape Canaveral Space Force Museum

Quote of the Month:
"Spacepower is the ultimate high ground."
General Bernard Schriever

1776 Campaign

This year, the United States of America celebrates its 250th birthday, marking a remarkable milestone in the ongoing story of a nation shaped by ideas, perseverance, and exploration. In conjunction with this historic anniversary, the Cape Canaveral Space Force Museum is preparing a special year-long series of outreach and heritage programming designed to connect America's founding ideals with one of its most consequential frontiers: space.

Our 1776 campaign will unfold throughout 2026 and feature 17 distinct themes that collectively celebrate 76 years of innovation and launch from Cape Canaveral. Each theme will tie into key historical anniversaries, special events, and interpretive activities that highlight the Cape's unique role in national defense, scientific discovery, and space exploration.

From early missile tests to modern space operations, Cape Canaveral has been an integral part of America's ongoing experiment in democracy, technology, and global leadership.

Plans are already well underway. We have big ideas for this momentous year. Many thoughts are percolating to make it informational and unforgettable. Stay tuned for more details as 2026 unfolds.

DID YOU KNOW?

Our Titan I missile has stood watch on the Museum grounds since 1965, representing America's earliest steps into the intercontinental ballistic missile and space age. Recent research suggests it may be the only surviving Research and Development Titan I and likely the oldest Titan missile on public display anywhere. While time has left its mark, plans for future restoration are being discussed to preserve this rare artifact for generations to come.

Message from the Director

James W. Draper

One of the traditions I am most proud of at the Cape Canaveral Space Force Museum is how we begin each new year. In recent years, we have set a deliberate pace by opening January with a major addition to our historical collections, reinforcing our commitment to preservation, research, and public interpretation.

Last year, that milestone came in the form of a remarkable acquisition: thousands of volumes focused on space and missile history. Our team moved quickly to unpack, catalog, and rehouse the books in archival enclosures, ensuring long-term protection and preservation. It was a quiet but powerful investment in the future of historical scholarship.

This year, we are thrilled to begin with an equally significant and highly visible addition to Hangar C. After several years of discussions and careful planning, we are proud to introduce the IFLOT, or Intermediate Focal Length Optical Tracker. Dating to 1965, this extraordinary piece of instrumentation served for decades at Cape Canaveral and Kennedy Space Center, capturing launch imagery across multiple film formats during some of the most pivotal moments in America's spaceflight history.

The IFLOT was one of more than a dozen such systems operating throughout Florida's Space Coast, with some even deployed aboard tracking ships offshore. The photographs and film it captured were only one part of a much larger data ecosystem that supported every launch. Telemetry, radar, and optical tracking all worked together to provide engineers, scientists, and range safety teams with the information they needed.

Instrumentation like the IFLOT is an essential, and often overlooked, part of the Eastern Range story, and this unit gives us a powerful way to share that history with visitors.This particular IFLOT arrived with several of its original cameras still mounted, making it a rare and tangible connection to the launch operations of its era. Preserving and presenting artifacts like this is central to our mission, not just as objects, but as storytellers that help bridge generations.

As always, we continue to seek out historical materials that fill gaps in our collections. Several future acquisitions are already in motion, including one that I can safely say will stop people in their tracks. Stay tuned.

Finally, I want to thank our dedicated staff and volunteers, our supporting nonprofit foundation, and our many mission partners. Your commitment makes this work possible. Together, we continue preserving America's space and missile heritage for generations to come.

James W. Draper, Museum Director

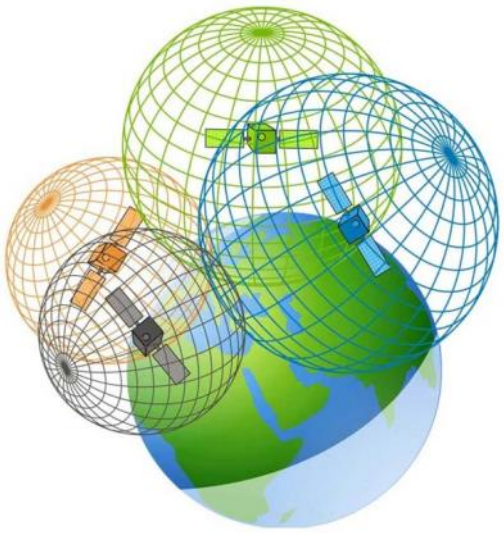
The Curator's Corner

with Sabra Gossett

How Cape Canaveral put GPS on the Map

From everyday navigation apps and fitness trackers to delivery services and ridesharing, GPS (Global Positioning System) has become an invisible but essential part of modern life. What many people don't realize is that GPS has deep roots at Cape Canaveral and a long history tied to the U.S. Air Force and today's U.S. Space Force.

GPS is a satellite-based navigation system that provides precise location information to both military and civilian users worldwide. It works using trilateration: a GPS receiver measures the time it takes to receive radio signals from at least three satellites, calculates its distance



from each one, and determines an exact position on Earth. GPS requires no subscription and takes nothing from the user—it freely provides its signals to anyone with a receiver. The satellite constellation is arranged in six orbital planes, ensuring global coverage at all times.

Development of GPS began in the early 1970s. Between 1978 and 1985, ten GPS Block I satellites were launched from Vandenberg Air Force Base in California. These early spacecrafts were proof-of-concept models with relatively short lifespans of about five years. Their success paved the way for an operational system—but two key elements were needed to make GPS fully viable: a reliable launch vehicle and a dedicated launch site. Those needs were met by the Delta II rocket and Cape Canaveral Air (now Space) Force Station's Launch Complex 17.

The centerpiece of early operational GPS was the Block II and Block II/A satellite series, also known as Navstar 2. Launches of Block II

satellites began in 1989, and by 1995 the GPS constellation was declared fully operational. Almost all Block II/A satellites were launched aboard Delta II rockets from Launch Complex 17 at Cape Canaveral. Remarkably, the final Block II/A satellite remained in service until 2019—nearly three decades after its launch.

Originally designed and built by McDonnell Douglas, the Delta II was an expendable launch vehicle. It became one of the most recognizable rockets of its era, distinguished by its blue-green paint scheme (chosen to help engineers see ice during night launches)

and the ring of graphite epoxy motors (GEMs) clustered around its first stage.

The first Delta II launch took place on 14 February 1989, when a Delta 6925 lifted off from Launch Complex 17A carrying the first GPS Block II satellite. Over the next 29 years, Delta II launched an impressive range of missions. In

addition to nearly all early GPS satellites, it carried NASA's Mars rovers Spirit and Opportunity, as well as the Kepler space telescope. In total, Delta II flew 155 times, with 110 launches originating from Cape Canaveral. At its peak, the rocket launched as many as twelve times in a single year. Its reliability was exceptional, with only one partial failure in 1995 and one full failure in 1997.

The final Delta II launch from Cape Canaveral occurred on 10 September 2011, when a rocket lifted off from Pad 17A carrying NASA's GRAIL lunar mission. Five additional launches took place from Vandenberg Space Force Base in California, with the final Delta II flight occurring in 2018.

Today, the GPS constellation is operated by the 2nd Navigation Warfare Squadron (2 NWS) of Mission Delta 31, U.S. Space Force.

From its origins as an experimental military system to its role as a cornerstone of modern life, GPS stands as a lasting legacy of innovation—one that owes much to the rockets, launch pads, and people of Cape Canaveral.

2025 Holiday Dinner Highlights

On 11 December 2025, we gathered for our annual Holiday Dinner at the Tides, graciously sponsored by the U.S. Space Force Historical Foundation. It was a wonderful evening filled with great food, shared laughs, and heartfelt moments. During the program, we recognized our volunteers with longevity and outstanding achievement awards, celebrating the dedication that keeps our mission moving forward. We also paused to honor the memory of five volunteers who passed away this past year and whose contributions remain part of our story. Evenings like this remind us how fortunate we are to work alongside the best volunteer corps in the galaxy, and we look forward to another active and rewarding year together.

Museum Updates and News

Restoration in Progress

Three rare artifacts recently departed Museum grounds for professional restoration: the Arcas Launcher, Big Shot Shroud, and Subroc. Each will be conserved, mounted on custom cradles, and returned for display in Hangar C later this year. This mission-critical work is generously supported by the U.S. Space Force Historical Foundation through funding from Jared Isaacman. *(To the right is a view of contractors hoisting the Big Shot Shroud from its display location on the grounds to a trailer for transportation.)*

What's on the Menu?

Museum staff and volunteers recently installed a special temporary exhibit, *Space Eats*, at the Sands Space History Center. The display features images, videos, artifacts, and stories tracing astronaut food from early Soviet and American missions to the cuisine enjoyed today aboard the International Space Station. What do you think Rupert is dining on in orbit? Hhhmmmm. *(To the left is just a sampling of the delectable space fare on display.)*

Heritage Up Close

During a recent weeklong series of national Space Force events in Florida, Museum staff met with CMSSF John Bentivegna and Brig Gen Nick Hague as part of a factfinding effort on current Space Force heritage programs. Conversations focused on current museum activities and future expansion efforts. The discussions concluded with Gen. Hague presenting a space-flown artifact, soon to be placed on public display. *(To the right is a photo from the meeting held at the Astronaut Memorial Foundation conference room at Kennedy Space Center.)*

Museum Updates and News

T-Minus 10-Miler Momentum

Another annual T-Minus 10-Miler is in the books, with thousands of runners and spectators celebrating at the Hangar C finish line. The night before the race, more than 150 runners fueled up at the Sands Space History Center during a STARCOM-sponsored pasta dinner. Several distinguished visitors, including commanders of Space Force's STARCOM and CFC, joined the festivities, making it a memorable weekend for all. *(On the left is a view of the History Center packed with runners enjoying a hearty pasta dinner before the next day's run.)*

Celebrating Martin Caidin

In conjunction with a newly released documentary by local television and film producer, Jim Lewis, the Museum is featuring a temporary display at the Sands Space History Center honoring Martin Caidin. A local author, Caidin wrote some of the most iconic works of aerospace fiction and nonfiction, helping shape how generations of readers understood aviation and spaceflight. *(To the right is a view of one section of the display focused on The Six Million Dollar Man, a television show derived from Caidin's novel, Cyborg.)*

Making History with SYD 80

We don't just preserve history. Sometimes, we help make it. On 12 December 2025, Space Systems Delta 80 was formally activated during a ceremony at the Sands Space History Center. The event was officiated by Lt Gen Philip Garrant of Space Systems Command. SYD 80 will ensure space mobility through launch solutions, on-orbit servicing, and range systems. *(To the left is a view of Lt Gen Garrant handing the unit's first guidon to* Col. Ryan Hiserote, the first commander of SYD 80.*)*

Rupert's Launch Pad

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LIFT OFF!

CAPE CANAVERAL SPACE FORCE MUSEUM

Coming Home Soon!

My time aboard the International Space Station with my friend Mike Fincke and Crew-11 is almost over. The last I heard we will be returning to Earth in our Dragon spacecraft sometime in February. Not sure yet if it will be in the Pacific Ocean or the Gulf of Mexico. No matter where, I can't wait to come home to Cape Canaveral and tell you more about my adventures.

Word of the Month

"re-entry"

[**ree**-enn-tree]

In spaceflight this is the fiery period of time when a spacecraft launched from Earth returns by falling through the planet's atmosphere for a landing on the ground or on water.

Rupert Remembers

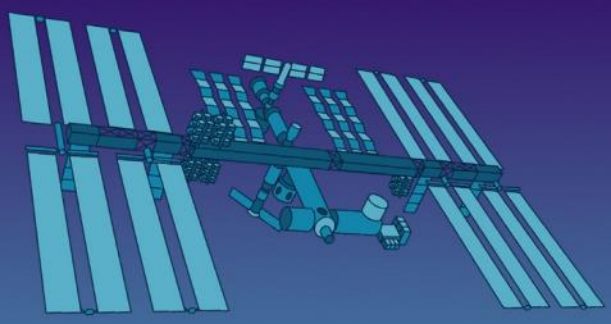
It was actually before my time, but my family remembers that for many years there was a pair of active launch pads neighboring the Cape Canaveral Space Force Museum. This was Launch Complex 17 and it was home to the Delta rocket. Originally known as the Thor missile in 1957, in 1962 NASA named it the Delta rocket and used it to send satellites and probes into space. Through the years the Delta grew larger and became a reliable workhorse booster for the space program. In 1989 the Delta 2 was introduced and flew from Cape Canaveral until 2011. You can see a Delta 2 on pad 17-B here, right next to museum property where a Titan 1 is laying on its side. The launch complex with its twin towers was torn down in 2018.

My Favorite Things

One of the most historic hangars at Cape Canaveral Space Force Station is this one — Hangar S. Way back during NASA's Project Mercury, which flew from 1960 to 1964, this hangar was where the original Mercury Seven astronauts worked and where their tiny spacecraft were prepared for launch. A lot of famous people visited this place, including President John F. Kennedy. Today the commercial space company Blue Origin uses the hangar.

Can you decode this?

Rupert sent this message to Earth from the International Space Station but solar radiation messed it up. Can you figure out what it says? Unscramble the blocks of letters by filling them into the blanks. A few are done to get you started.



p	a	c	e	.	W	i	s	o	u	w	e	r	n	i	h	y	n	s
H	a	v	e	h	e	r	e	f	u	!	i	n	g					

H	a	v				e	.	W	i	s
				e	r	e	!			

Our Museum Family

Museum Staff:
James Draper, Museum Director
Sabra Gossett, Museum Curator
Rupert the Space Armadillo, Mascot

Museum Volunteer Association:
Bill Jelen, Chairperson
Susan Dabrowski, Vice Chairperson
Jack Kennedy, Secretary

Executive Committee Members:
Raymond Sands, Chairman
Rob Quigg, Treasurer
Roger McCormick, Secretary

Board Members:
Robert VanVonderen
Stephen Houser
Victor Latavish
Tim Oliver
Jim Banke *(Honorary Member)*

Foundation Employees:
Deborah Allison, Foundation Services Manager
Sharon Rodriguez, Executive Assistant

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