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Mission

To promote, preserve and restore artifacts and technology that chronicle the history of manned and unmanned spaceflight. We educate the public, and inspire the next generation of dreamers

The Spaceflight America Museum and Science Center is part of Volanz Aerospace, a non-profit (IRS 501c3) Maryland corporation formed to provide science and space-related education and research opportunities.

The Spaceflight America Museum and Science Center is an extension of the educational work to enhance science literacy using manned spaceflight operations as the theme.

From The Director

Welcome to a new issue of the museum newsletter. Before I go any farther, I want to thank Sigmund Gorski for coming up with the newsletter. Great Job!

The museum has undergone significant growth since it opened in November 2015. However we have a long way to go. We have over 1000 artifacts still in storage that need to be put on display. So how do we do that? We need your support - as docents and volunteers, and we need

The Museum and Planetarium are located beside Calvert High School at 520 Fox Run Boulevard in Prince Frederick, MD.

<http://www.spaceflightamericamuseum.org>

On Twitter @SpaceMuseumMd

On Facebook Spaceflightamericamuseum

Email: sa-museum@wsi-edu.org

Mailing address:

P.O. Box 81
Dunkirk, MD 20754-0081

Hours:

Usually open the third Saturday of the month from 10 AM – 4 PM.
Check the calendar on the museum web site for confirmed openings.

Entrance Fees:

\$5.00 per adult
\$4.00 for 10 and younger
3 years and younger free

CASH ONLY/NO CREDIT CARDS

BRING A GROUP TO THE MUSEUM

Contact us at sa-museum@wsi-edu.org to schedule a visit.

your continuing financial support. For example we have 6 space suits in storage, ranging from Apollo to Chinese. Many are historic. The problem is we have no cases to display them in. They need to be purchased, and that requires financial contributions.

No amount of support is too little. Come join us! We can use all the help we can get!

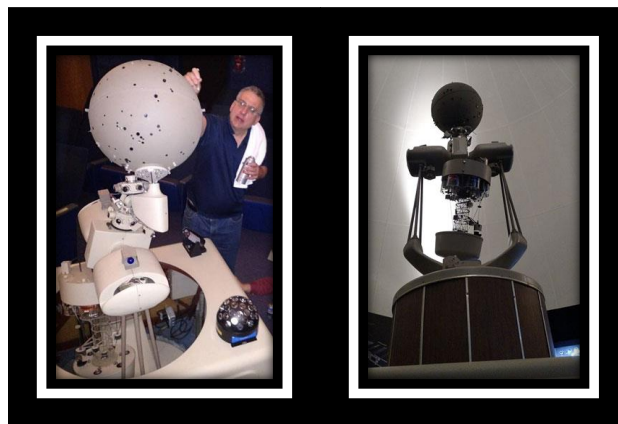
Alan

At the Museum

On March 18th the museum was open. We had 40 visitors tour the museum and enjoy a planetarium show. Visitors were treated to demonstrations and hands on experiences with actual space gear. We had two members of the Civil Air Patrol train as docents and help to guide visitors through the exhibits.



On April 21 the museum hosted Catholic Co-Op of Southern Maryland. A group of 29 students and adults were given guided tours of the museum and an hour long planetarium presentation from Mark Arness. Visitors were shown what happens to peeps when they are exposed to very little atmosphere. They got to wear an astronaut glove and a high altitude flight helmet.



Mark Arness Cleaning the Projector

On April 22 the museum was open for the day and hosted 25 families and couples. Mark Arness presented two Planetarium shows. Visitors were treated to demonstrations and hands on experiences with actual space gear. We had three members of the Civil Air Patrol train as docents and help guide visitors through the museum.



Help us make the museum a success.

Volunteer!

Volunteers are what makes the museum such an exciting place. The artifacts are interesting but the docents and curators help tell the stories.

If you are looking for a unique volunteering opportunity, join us at the Spaceflight America Museum and Science Center. Volunteering at the museum is a fun and rewarding experience.

Because we are a non-profit, we rely on volunteers for support in many areas, to share their creativity, talents, and expertise or simply use their skills to assist with special events, daily operations, and programs. Join Us!

For more information, check us out at <http://www.spaceflightamericamuseum.org>.

Spaceflight America Museum and Science center is in need of display cases. Currently, we have many more artifacts than can be displayed in the three used display cases we have. We have floor space for displays but no funds to buy them. If you know anyone with a business who has display cases they are not using please pass along our need. We have spacesuits we would like to display but cannot display them without the protection of a display case.



We could display this! It is an actual Apollo Space Suit that was made for the Apollo 18 mission. While it has never been in space (Apollo program was cancelled after Apollo 17) it was used in the training program for Sky Lab.

Think you want to be an Astronaut?

By Eugene McHugh

INTRODUCTION: The National Aeronautics and Space Administration (NASA) is now in the process of selecting a new class for astronaut training. Since the first class was selected in 1959, NASA has named only 21 previous classes. In total the 21 previous classes have produced only 338 astronauts in 60 years. There is no fixed interval or dates that NASA has defined for

selecting astronauts, but they occasionally put out a “Call” (an announce that NASA is seeking applicants) when NASA determines a need for increasing the size of their Astronaut Corp because of projected upcoming man space programs. The current Call for applicants began in December 2015 and was cutoff in February 2016. NASA received 18,300 applications, but only expects to pick 8 to 14. The evaluation and screening process has begun for selecting the next class of astronauts from the applicants. That process will continue another 12 to 18 months as NASA performs intense scrutiny of the applicants before NASA names the successful applicants. Then there will be a few more months before named candidates actually begin the intensive Astronaut Candidate Program at the Johnson Space Center.

REQUIREMENTS: If you think that you would like to be among the future candidates, you need to know what are the basic requirements and how best to prepare yourself to be one of the successful applicants. Here are the basic requirements that must be meet—the next Newsletter an article will outline what things you can do to enhance your probability of being selected:

- There are no age restrictions for the program. Astronaut candidates selected in the past have ranged between the ages of 26 and 46, with the average age being 34.
- You must be a US citizen to apply to NASA to be an American astronaut. Other nations have their own requirements and training programs, but astronauts from others countries can fly on NASA vehicles by international agreements.
- You can be military or a civilian.
- Candidates must pass the NASA long-duration astronaut physical, which includes the following specific requirements:
 - Distant and near visual acuity must be correctable to 20/20, each eye. The use of glasses is acceptable. The refractive surgical procedures of the eye, PRK and LASIK, are allowed. Note that such surgeries are permitted, but not required for potential applicants.
 - Since all crewmembers will be expected to fly aboard a specific spacecraft vehicle and perform EVA activities (spacewalks), applicants must meet the anthropometric requirements for both the specific spacecraft vehicle and the EVA mobility unit (spacesuit). Applicants brought in for an interview will be evaluated to ensure they meet the anthropometric requirements.
- You need a Bachelor's degree from an accredited institution in engineering, biological science, physical science, computer science, or mathematics.

*The following degree fields are not considered qualifying:

**Degrees in Technology (Engineering Technology, Aviation Technology, Medical Technology, etc.)

**Degrees in Psychology (except for Clinical Psychology, Physiological Psychology, or Experimental Psychology, which are qualifying)

**Degrees in Nursing

**Degrees in Exercise Physiology or similar fields

**Degrees in Social Sciences (Geography, Anthropology, Archaeology, etc.)

**Degrees in Aviation, Aviation Management, or similar fields

- At least 3 years of related, progressively responsible, professional experience obtained after degree completion OR at least 1,000 hours pilot-in-command time in jet aircraft. An advanced degree is desirable and may be substituted for experience as follows: master's degree = 1 year of experience, doctoral degree = 3 years of experience. Teaching experience, including experience at the K - 12 levels, is considered to be qualifying experience for the Astronaut Candidate position, provided the initial degree is qualifying.
- Applicants must be able to successfully complete a security investigation

Military personnel should apply through their local Personnel office. Civilians can apply online through NASA site USAJOBS at www.usajobs.gov.

CONCLUSION: Meeting the basic requirements is mandatory, but not sufficient to guarantee selection as an astronaut candidate. Applicants will have their academic records, work records, psychological evaluations, and many others areas of the applicant's life before the candidate is selected.

Commercial Space



SpaceX successfully launched its Falcon 9 rocket May 1 from historic Launch Complex 39A at NASA's Kennedy Space Center. The NROL-76 mission launched a classified mission for the National Reconnaissance Office at 7:15 AM EDT. Roughly nine minutes after liftoff, the rocket's first stage returned to Earth. Landing on Landing Zone 1 at Cape Canaveral Air Force Station, SpaceX is continuing its plan to make launches cheaper by reusing launch vehicles. This was the fourth successful land landing for SpaceX.



Cygnus Packed with Experiments to Support Future Exploration

By Bob Granath

NASA's Kennedy Space Center, Florida

The International Space Station serves as the world's leading orbital laboratory where crews conduct cutting-edge research and technology development. A crucial resupply line of spacecraft keeps work going that will enable human and robotic exploration of destinations beyond low-Earth orbit.

The next mission to the orbiting outpost will be Orbital ATK's seventh commercial resupply services (CRS-7) flight. Liftoff will take place from Space Launch Complex 41 at Cape Canaveral Air Force Station. The actual liftoff date will be determined when United Launch Alliance resolves a booster hydraulic issue that was discovered during prelaunch testing.

Cygnus consists of a pressurized cargo module for crew supplies, scientific experiments and equipment, together with an associated service module providing solar power and propulsion.

When members of the space station's Expedition 50 crew opens the hatch, they will be greeted with a sign noting the spacecraft was named in honor of John Glenn.

The spacecraft will launch on a United Launch Alliance Atlas V. The booster and Centaur upper stage for the mission arrived at Port Canaveral, Florida, Feb. 6. From the port, the launch vehicle was transported to the hangar at the Atlas Spaceflight Operations Center, located south of pad 41. After the Atlas V completed final testing in that facility, it was moved to the Vertical Integration Facility for stacking.

The Orbital ATK Cygnus pressurized cargo module arrived at the Space Station Processing Facility (SSPF) at NASA's Kennedy Space Center Jan. 9. The Cygnus service module arrived shortly thereafter.

In the SSPF, technicians and engineers loaded supplies, equipment and scientific research materials aboard a Cygnus PCM. Once mated to its service module, the spacecraft was transported to the Payload Hazardous Servicing Facility for propellant loading and final stowage of supplies.

After the Cygnus was encapsulated in its payload faring, it was transported to pad 41 to be mated atop the Atlas booster for final launch preparations.

When Orbital ATK CRS-7 arrives at the space station, Expedition 50 Commander Shane Kimbrough of NASA and Flight Engineer Thomas Pesquet of ESA (European Space Agency) will capture Cygnus with the station's robotic arm. After receiving ground commands, the arm will rotate and install Cygnus on the bottom of the station's Unity module.

A New Market Emerges

NASA Partnerships Open the Path from Ground to Space

By Steven Siceloff,

NASA's Kennedy Space Center, Florida

NASA recently marked a decade since it began a new era in commercial spaceflight development for low-Earth orbit transportation. The space agency inked agreements in 2006 to develop rockets and spacecraft capable of carrying cargo such as experiments and supplies to and from the International Space Station.

The first development agreements for elements of commercial crew spacecraft followed the initial commercial cargo agreements by about three years. Soon after that, NASA's Commercial Crew Program was created to shepherd human-rating requirements into existence and certify designs of spacecraft, launch pads and ground systems.

The aerospace companies NASA partnered with during the commercial crew and cargo development phases have infused expertise and innovation into the marketplace. These capabilities have set a foundation of new space-related industries with specialties in everything from engines and life support systems to complete spacecraft designs.

"With cargo, we wanted the capability to cost-effectively deliver research experiments, hardware and supplies to the space station. With crew, we needed continued U.S. human access to low-Earth orbit," said Phil McAlister, director of NASA's Commercial Spaceflight Development Division. "But another one of the rationales was to stimulate new markets. Seeing that emerge has been really gratifying."

Today, Boeing and SpaceX are deep into final testing and manufacturing of independent spacecraft and launch systems that will carry astronauts to the International Space Station. Boeing's CST-100 Starliner will fly into space on a United Launch Alliance Atlas V rocket. SpaceX is building the Crew Dragon spacecraft to launch on the company's Falcon 9 rocket. Both spacecraft are designed to take up to four astronauts on NASA missions, a number that will give the station a full-time crew of seven, ensuring maximum research time aboard the orbiting laboratory.

Through a combination of funded and unfunded space act agreements, NASA continues to provide its expertise to help advance the burgeoning commercial human space transportation industry.

Blue Origin and Sierra Nevada Corporation, partners with NASA since 2010, continue to develop and refine their respective crew spacecraft and launch systems. Under these agreements, NASA provides expertise and insight into their spaceflight designs. The benefits to NASA include a more diverse market of competition and capability.

Blue Origin and NASA worked together on the testing of the company's BE-3 thrust chamber, Space Vehicle spacecraft and subsystems of the New Shepard rocket. The BE-3 has powered several flights of a prototype New Shepard rocket designed to loft its spacecraft on suborbital missions. Later rockets are designed to be more powerful to launch satellites and its Space Vehicle spacecraft into orbit.

For Sierra Nevada Corporation, NASA provides assistance as the company refines its Dream Chaser spacecraft for future human spaceflight missions. SNC currently is developing its Dream Chaser Cargo System to fulfill a NASA contract to carry supplies to the space station and return them to Earth beginning in 2019. The winged spacecraft is designed to launch inside a payload fairing on an Atlas V rocket and at the end of the mission will glide back to Earth and land on a runway.

"We have a massive wealth of knowledge about human spaceflight, some of it gained with great sacrifice, so we set out to create a framework that could leverage that experience while allowing the companies to be innovative in developing their systems," McAlister said. "Then we built in a way to give industry the incentives to produce reliable and cost effective vehicles that could be used by private citizens as well as government astronauts."