

## Research and Education Affiliate Quarterly Newsletter



### CSF Research and Education Affiliates,

We here at the Commercial Spaceflight Federation hope you've had a wonderful start to the year. In 2015, the commercial space industry gifted us all with a number of amazing achievements. 2016 has just begun, and already it is shaping up to be a momentous year!

In late November of last year, Blue Origin pulled off the incredible launch and landing of its New Shepard space vehicle, which traveled past the boundary of outer space and was then guided down to a gentle, controlled landing at Blue Origin's launch site in West Texas. More recently, Blue Origin successfully launched and landed that same rocket on January 22. Blue Origin's remarkable achievements speak to the revolutionary technological progress being made in our industry toward launch vehicle reusability, which hold the promise of innovating how we access space while driving down launch costs.

On December 21, SpaceX achieved another feat with the return-to-flight launch of its upgraded Falcon 9 rocket. Minutes into flight, after decoupling from the rocket's

second stage, the Falcon 9's first stage turned around, boosted back, and pulled off a landing on solid ground just miles from its launch site at Cape Canaveral, while the second stage continued onward to deploy eleven satellites. This is a true testament to the pioneering work that makes our industry great.

As if all this wasn't enough, the FY2016 omnibus spending bill, which does great things for NASA and the commercial space industry, was signed into law. The bill provides NASA with \$19.3 billion for FY2016, the most the agency has seen in years. Crucially, this includes full funding for the commercial cargo and crew programs. As excellent examples of successful public-private partnerships, these programs have proven vital for fostering development in the commercial space industry and for returning human-launch capabilities to the United States.

The bill also includes critical funds to initiate development of a habitation augmentation module, fully funds the Flight Opportunities program to enable affordable testing of new technologies necessary for future exploration plans, and provides an increase in millions of dollars for the FAA's Office of Commercial Space Transportation.

We also have many exciting plans for the REM program in 2016! We hope to help bridge the gap between academia and industry by connecting our REM affiliates with other industry members through research partnerships. We are also in the processing of revamping the Ambassadors program which features monthly webinars from different industry perspectives. If you have any further thoughts on what you would like to see out of your membership with CSF, please let us know!

As always, feel free to reach out if you have any questions.

Sincerely,

Eric

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## UPCOMING EVENTS AND DEADLINES

[NASA Astronaut Application Period Closes](#)

**February 18, 2016**

[2nd IAA Latin America CubeSat Workshop](#)

**February 28 - March 2, 2016 | Florianopolis, Brazil**

[International Astronomical Conference Paper Abstracts Due](#)

**February 29, 2016**

[Satellite 2016](#)

**March 7 - March 10, 2016 | National Harbor, Maryland**

[Space Generation Fusion Forum](#)

**April 10 - 11, 2016 | Colorado Springs, Colorado**

[32nd Space Symposium](#)

**April 11 - 14, 2016 | Colorado Springs, Colorado**

[2016 Humans to Mars Summit](#)

**May 17 - 19, 2016 | Washington, D.C.**

[Space Tech Expo](#)

**May 24 - 26, 2016 | Pasadena, CA**

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## **CSF UPDATES**

**January 8:** CSF President Eric Stallmer and Executive Director Tommy Sanford attended Stuart Witt's Farewell Party.

**January 12:** CSF hosted a meeting with its Regulatory Committee to discuss recent events.

**January 15:** Executive Director Tommy Sanford attended a Space Traffic Management Roundtable.

**February 1-2:** Tommy Sanford and Jane Kinney attended the SARG Committee meeting in Titusville Florida

**February 2-3:** CSF co-sponsored the FAA's 19th Annual Commercial Space Transportation Conference in Washington, D.C.

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## **RESCHEDULED EXECUTIVE LEADERSHIP FORUM**

The Forum that was originally scheduled for January 27 has been moved to Friday, February 26, 2016. Coffee will be available starting at 7:30 AM and breakfast will be served at 8:00 AM (concluding by 9 AM). The event will be held at the [Army and Navy Club in Washington, D.C.](#) There is still space available for this inaugural event and we encourage you to consider registering. We look forward to having you in attendance!

The Forum is \$35 for CSF Members, Government Employees, and Non-Profits and \$50 for Non-Members.

[Click Here to Register](#)

REPRESENTATIVE JIM BRIDENSTINE (R-OK)  
HOUSE SCIENCE, SPACE, AND TECHNOLOGY COMMITTEE  
HOUSE ARMED SERVICES COMMITTEE



Congressman Bridenstine has been a huge proponent of the aerospace and defense industries and serves on the House Science, Space, and Technology Subcommittee and House Armed Services Committee, Strategic Forces subcommittee. He also serves on numerous Caucuses, including Missile Defense Caucus and Space Power Caucus.

If you have any questions or would like additional information about the forum, please contact Jane Kinney, [jane@commercialspaceflight.org](mailto:jane@commercialspaceflight.org).

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# 10TH ANNIVERSARY CELEBRATION

On the evening of March 2, CSF will be hosting a large reception to celebrate CSF's 10th Anniversary at the Army and Navy Club. The reception will be held from 6:30 PM - 10 PM EST.

## Venue Information:

901 17th Street NW  
Washington D.C., 20006

If you have questions or would like additional information, please contact Jane Kinney, [jane@commercialspaceflight.org](mailto:jane@commercialspaceflight.org).

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## AFFILIATE SPOTLIGHT

At Research and Education Affiliate **The University of Florida**, assistant professor Tommy Angelini pioneered a method for 3-D printing soft matter that allows him to manufacture objects more fragile than anything found in nature. University officials believe this research will lead to a new discipline in mechanical engineering and have already created a new Soft Matter Engineering Research Group. Learn more about the methods behind and potential of this new technology [here](#).

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## RECENT INDUSTRY NEWS

**January 4:** Virgin Galactic has pledged to be a customer of the [proposed spaceport](#) in the United Kingdom. The site for the new spaceport has not yet been selected by government officials.

**January 7:** Planetary Resources has [successfully created](#) hardware that is 3-D printed from asteroid metal. In the future, the company plans to use 3-D printing to manufacture replacement parts or other construction elements for its mining spacecraft.

**January 8:** [Surrey Satellite Technology Ltd.](#) is developing non-toxic thruster. This technology could be useful in the event the European Union implements a ban on hydrazine.

**January 14:** SpaceX [won a contract](#) to launch a telecommunications satellite for Eutelsat. With this new contract, SpaceX now has business with the 5 top satellite operators. SpaceX, Sierra Nevada, and Orbital ATK [won NASA CRS-2 contracts](#). Each company will complete at least 6 missions starting in 2019.

**January 16:** Ted Turner Expeditions and Spaceport America have [established a partnership](#) to give tourists a chance to explore the spaceport and the surrounding area.

**January 19:** [World View announced](#) that Tucson, Arizona will be site of the company's global headquarters. The company plans to conduct its balloon launches at Spaceport Tucson.

**January 22:** Blue Origin [launches and lands](#) the same recovered rocket that they launched in November. The capsule reached an altitude of 101.7 kilometers.

**February 4:** The government of Luxembourg [announced](#) a new space resources initiative. They are considering working with U.S.-based companies Deep Space Industries and Planetary Resources.

**February 9:** The Obama administration's final budget proposal [offers \\$19 billion for NASA in 2017](#), but with cuts in some key programs.

**February 11:** Scientists [announced](#) the discovery of gravitational waves, confirming a prediction made by Einstein a century ago.

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## CSF INTERNSHIPS

The Commercial Spaceflight Federation is seeking candidates for summer internships in our Washington, D.C. office to work on broad commercial space issues and space policy. The successful candidate will be energetic, able to thrive in a fast-paced environment, personable, and passionate about commercial spaceflight and space exploration. Individuals with a background in engineering, science, or space policy, or students currently pursuing these fields, are particularly encouraged to apply.

Some of the activities the successful candidate will participate in this summer will

include:

- Research and create white papers/briefs about commercial space policy issues
- Support meetings on Capitol Hill and with various government agencies
- Support CSF Member meetings in Washington, D.C.
- Perform administrative and organizational tasks
- Network with other D.C. space professionals

To apply, please send a short cover letter and resume in an email to [jane@commercialspaceflight.org](mailto:jane@commercialspaceflight.org) with the subject heading "DC internship." Eligible candidates include undergraduates, graduate students, recent graduates, and other qualified applicants. Excellent research, writing, and organizational skills are a must. This position for the summer will be unpaid.

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## MEMBER INTERNSHIPS

CSF's executive and associate members are always looking for talented individuals in a wide range of majors from engineering to business development. These companies are currently seeking summer interns:

[AGI](#)

[ARES Corporation](#)

[ASRC Federal](#)

[Blue Origin](#)

[Griffin Communications Group](#)

[IFG](#)

[Jacobs](#)

[Kimley Horn](#)

[Made in Space](#)

[MDA Corporation](#)

[Masten Space Systems](#)

[Moon Express](#)

[Planetary Resources](#)

[Penn State ARL](#)

[Sierra Nevada Corporation](#)

[Southwest Research Institute](#)

[SpaceX](#)

# RECENT LAUNCHES

**January 15:** A Chinese Long March 3B rocket launched the Belintersat 1 communications satellite for the government of Belarus.

**January 17:** SpaceX launched the Jason 3 ocean altimetry mission on a Falcon 9 rocket. Jason 3 will measure ocean surface topography to aid in ocean circulation and climate change research for NOAA, EUMETSAT, NASA and the French space agency, CNES.

**January 20:** India's Polar Satellite Launch Vehicle (PSLV) launched the IRNSS 1E navigation satellite. The payload is the fifth spacecraft in the Indian Regional Navigation Satellite System, which aims to improve positioning services over India and neighboring regions.

**January 27:** Arianespace used an Ariane 5 ECA rocket to launch the Intelsat 29e communications satellite. Intelsat 29e is the first Intelsat Epic high throughput satellite, hosting a next-generation all-digital payload that can be reconfigured in orbit and is resilient to interference and jamming. Intelsat 29e offers coverage spanning North and South America, the Gulf of Mexico, the Caribbean Sea, and the North Atlantic aeronautical route connecting North America and Europe

**January 30:** An International Launch Services Proton rocket with a Breeze M upper stage deployed the Eutelsat 9B communications satellite owned by Paris-based Eutelsat. Eutelsat 9B will provide digital television and video programming across Europe. The spacecraft hosts the first payload for the European Space Agency's European Data Relay Satellite (EDRS) system to relay communications between ground stations and satellites in low Earth orbit.

**February 5:** A United Launch Alliance Atlas 5 rocket launched the U.S. Air Force's 12th Block 2F navigation satellite for the Global Positioning System.

**February 6:** A Russian government Soyuz rocket launched a Glonass-M navigation satellite.

**February 10:** A United Launch Alliance Delta 4 rocket launched a classified payload for the National Reconnaissance Office, the U.S. government agency that develops and owns spy satellites.

**February 16:** A Eurockot Rockot vehicle launched the Sentinel 3A Earth observation satellite for the European Space Agency and the European Commission. Sentinel 3A

carries instruments to measure sea surface topography, sea and land surface temperature, and ocean and land color.

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## UPCOMING LAUNCHES

**February 17:** After a rescheduling caused by poor weather conditions, a Japanese H-2A rocket will launch the Astro-H X-ray observatory for the Japan Aerospace Exploration Agency. Astro-H will observe the X-ray universe, studying objects such as supernova explosions, supermassive black holes, and galaxy clusters.

**February 24:** A SpaceX Falcon 9 rocket will launch the SES 9 communications satellite. Owned by SES of Luxembourg, the spacecraft will provide communications services to Northeast Asia, South Asia and Indonesia.

**March 9:** Arianespace will use an Ariane 5 ECA rocket to launch the Eutelsat 65 West A communications satellite. Eutelsat 65 West A will provide direct-to-home video broadcasts and broadband Internet services to Eutelsat customers in Latin America and Brazil.

**March 10:** A United Launch Alliance Atlas 5 rocket will launch the sixth Orbital Sciences Cygnus cargo capsule on its fifth operational cargo delivery flight to the International Space Station. The mission is known as OA-6.

**March 14:** A Russian government Proton rocket with a Breeze M upper stage will deploy the European Space Agency's ExoMars Trace Gas Orbiter. The mission will make improved measurements of trace gases in the Martian atmosphere, such as methane, which could be an indicator of biological activity. ESA's Schiaparelli lander will accompany the Trace Gas Orbiter to Mars.

**March 18:** Russian government Soyuz rocket will launch the manned Soyuz spacecraft to the International Space Station with members of the next Expedition crew. The capsule will remain at the station for about six months, providing an escape pod for the crew.

**March 20:** A SpaceX Falcon 9 rocket will launch the 10th Dragon spacecraft on the eighth operational cargo delivery mission to the International Space Station. The flight is being conducted under the Commercial Resupply Services contract with NASA.

**March 31:** A Russian government Soyuz rocket will launch the 63rd Progress cargo

delivery ship to the International Space Station.

**March 31:** India's Polar Satellite Launch Vehicle (PSLV) will launch the IRNSS 1G navigation satellite. The payload is the seventh spacecraft in the Indian Regional Navigation Satellite System, which aims to improve positioning services over India and neighboring regions.

**April 12:** An Arianespace Soyuz rocket will launch on a mission from the Guiana Space Center in South America. The Soyuz will carry the Sentinel 1B radar observation satellite for the European Space Agency and the European Commission, the Microscope microsatellite to research gravitational forces, Norway's Norsat 1 microsatellite for ship tracking and space weather and solar radiation research, and a CubeSat sponsored by the European Space Agency.

Consult the [Spaceflight Now Launch Tracker](#) for regular launch updates.

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Please send any company news to [news@commercialspaceflight.org](mailto:news@commercialspaceflight.org).

[www.commercialspaceflight.org](http://www.commercialspaceflight.org)