

2019

# FLORIDA Space Day

Florida Space Day is a milestone event that presents an opportunity to educate and bring awareness to Florida legislators on the significance of the aerospace industry and its impact on Florida's economy. The aerospace industry represents billions of dollars in annual economic impact and employs thousands of residents in the state's 67 counties.

## Orion (NASA/Lockheed Martin)

- Only spacecraft engineered for human deep space exploration to the Moon and ultimately Mars
- Assembly/manufacturing operations and launch from NASA's Kennedy Space Center
- Orion Exploration Mission-1 and Exploration Mission-2 spacecraft under production at KSC
- Radiation protection, systems redundancy and emergency abort capabilities to ensure astronaut safety

## RL10 Engine (Aerojet Rocketdyne)

- Nation's premier upper stage rocket engine
- Manufactured in South Florida since 1962
- Powers ULA's Atlas V, Delta IV and Vulcan, Northrop Grumman's Omega, and NASA's SLS Exploration Uppers Stages
- Supports launch of military, civil and commercial satellites, including spacecraft to every planet in the Solar System
- Highest-performance rocket engine in production in the world

## Atlas V/Delta IV Heavy (United Launch Alliance)

- Launch NASA, NOAA, national security and commercial payloads
- Launched more than 130 missions with 100 percent success
- Atlas V is the launch vehicle for crew missions to the International Space Station aboard Boeing's CST-100 Starliner
- Developing the Vulcan Centaur to provide the highest value launch service with optimal performance to meet the full range of mission requirements
- Only company that can launch any payload, to any orbit, at any time

## Falcon 9 (SpaceX)

- More than 60 successful launches with Falcon 9 for the U.S. government and commercial providers since 2010
- Successful demonstration launch of Falcon Heavy in Feb. 2018, the world's most powerful operational rocket
- Set record launch rates in 2017 and 2018, conducting a majority of U.S. launches
- Routinely conducting uncrewed Space Station resupply missions on Dragon and launching NASA astronauts on Crew Dragon in 2019
- Operating the world's only reusable launch systems

## CST-100 Starliner (Boeing)

- Boeing's 21st century spacecraft, launching atop a powerful and reliable United Launch Alliance Atlas V rocket
- Providing safe, reliable and cost-effective rides to low-Earth orbit with NASA as the flagship customer and the ISS as the first destination
- ISS flight configuration is five seats – four for NASA astronauts and a fifth available for a paying passenger or additional cargo
- Also will fly powered, pressurized cargo to increase NASA's research on board the ISS

## Omega Rocket (Northrop Grumman)

- The Omega rocket is one of Northrop Grumman's largest strategic investments
- A new, American intermediate- and large-class space launch vehicle
- Northrop Grumman's Omega rocket will launch from NASA's Kennedy Space Center
- Capable of launching the full range of national security missions required by the U.S. Air Force, as well as science and commercial payloads for other customers

## New Shepard (Blue Origin)

- A fully reusable vertical takeoff, vertical landing space vehicle
- Consists of a pressurized crew capsule atop a booster
- Designed to quickly propel a crew 100 km above the Earth
- Capsule and engine return to Earth after spaceflight experience





Florikan



Scientific Instruments



Scientific Lighting Solutions



Zero Gravity Solutions



BIOS Lighting



### International Space Station (NASA)

- Launched in 1998 as a science research platform in space
- Involves the U.S., Russia, Canada, Japan and European Space Agency
- Largest space station ever constructed — size of a football field
- Supports long-term U.S. human space exploration objectives

### Space Launches in 2018

- 20 Rocket Launches
- Multiple Launch Vehicles
  - » Falcon 9
  - » Atlas V
  - » Falcon Heavy
  - » Delta IV Heavy
- Diverse Mission Payloads
  - » National Security
  - » Space Science
  - » Exploration
  - » Commercial
  - » International

## Examples of Florida-based Technology Spinoffs

**Florikan, in Sarasota**, has partnered with NASA multiple times to create a more robust polymer coating for its controlled-release fertilizer and to develop fertilizer to meet the needs of plants growing in space.

**Scientific Instruments, in West Palm Beach**, supplies Kennedy Space Center, as well as other space and medical companies, with silicon diode sensors capable of tracking temperatures hundreds of degrees below zero.

**Scientific Lightning Solutions, in Titusville**, builds high-speed camera systems to detect and map lightning strikes before launches. The technology also has applications in protecting wind farms and investigating insurance claims.

**Zero Gravity Solutions, in Boca Raton**, has developed a micronutrient formula, BAM-FX, that increases the nutritional value and yield of crops. Nutrient-rich foods like these will be necessary for future long-term space missions.

**BIOS Lighting, in Melbourne**, is using NASA LED technology to create lighting systems for unique applications, such as maximizing plant photosynthesis and inducing wakefulness in humans by outputting only certain wavelengths of light.

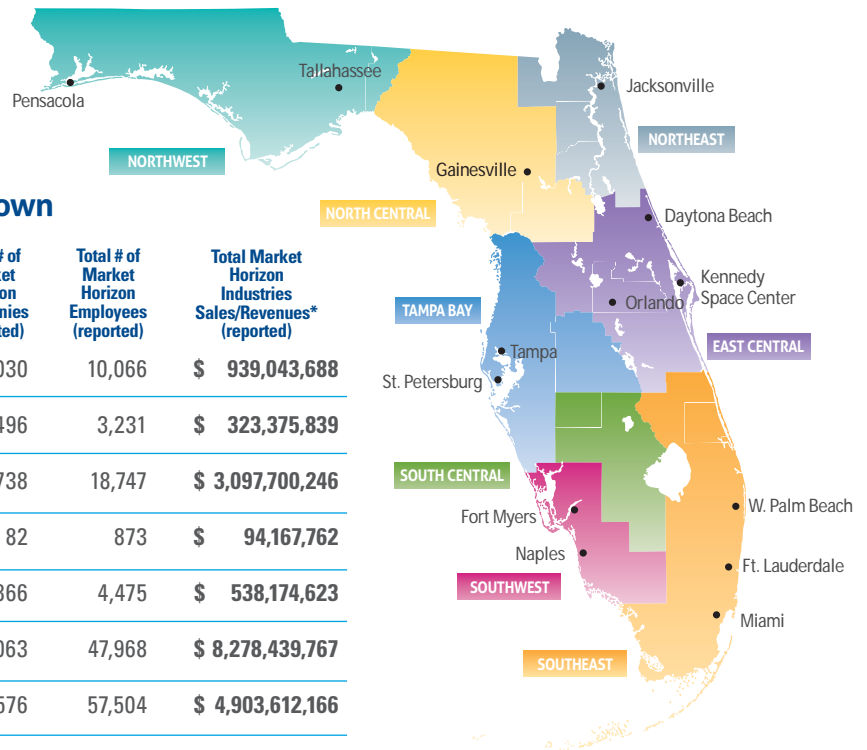
**Fusion Media Group, in Doral**, has developed a virtual reality game in partnership with NASA that lets players take the role of an astronaut exploring 40 square kilometers of accurately mapped terrain using data collected by the Mars Reconnaissance Orbiter.

## Economic Analysis of Space Florida's "Market Horizons" In Florida

### Regional Breakdown

	Total # of Market Horizon Companies (reported)	Total # of Market Horizon Employees (reported)	Total Market Horizon Industries Sales/Revenues* (reported)
Northwest	1,030	10,066	\$ 939,043,688
North Central	496	3,231	\$ 323,375,839
Tampa Bay	2,738	18,747	\$ 3,097,700,246
South Central	82	873	\$ 94,167,762
Southwest	866	4,475	\$ 538,174,623
Northeast	7,063	47,968	\$ 8,278,439,767
East Central	2,576	57,504	\$ 4,903,612,166
Southeast	1,168	8,595	\$ 1,012,651,648
<b>Report Totals</b>	<b>16,019</b>	<b>151,459</b>	<b>\$ 19,187,165,739</b>

\*The total aerospace industries sales for Florida counties are displayed in \$2015.  
Chart source FSU CEFA



Credits  
Map: Space Florida  
Spinoffs: NASA Spinoffs

info@floridaspaceday.com  
floridaspaceday.com