

Gulf Coast Reporters' League

Louisiana

Mississippi

Alabama

Florida



In brief

Vol. IV, Issue VI

Gulf Coast Aerospace Corridor's bimonthly update of aviation activities in the I-10 region

June 2017



Support provided by



Gulf Power



From the editor

Not everybody consumes information the same way. Some lean towards reading headlines, others just can't get enough.

So to reach as many readers as possible and provide them with infor-

(Continued on page 8)

Copyright 2017, Tcp/GCRL

Chapter I: Jetliners add to production mix

It was big news when Airbus' first U.S.-built A321 passenger jet took off for its maiden flight in March and when it was delivered to JetBlue in April. But it was just the most high-profile aerospace product. Drones, engines large and small, satellites, aerial weapons and more are assembled, tested or managed in the region.



Chapter II: The dawning space economy

Governments and private companies are going all-out in what amounts to a new space race, and this region has a big foot in the door. Stennis Space Center, Miss., and Michoud Assembly Facility, La., are involved in NASA and commercial space activities. And in Northwest Florida, the Air Force has a key space radar system.



Chapter III: A bastion of military aviation

Military aviation is deeply embedded in the fabric of the Gulf Coast, and the footprint could grow. Military pilots get their initial training in the region, and experienced pilots learn how to fly the F-35 and F-22. It's a vast schoolhouse for the military in a range of fields, including cyber, and it's where aerial weapons are developed.



Chapter IV: Innovation centers on the rise

The Institute for Human and Machine Cognition is well-known for its research with robotics, but it's not the only center of innovation in the region. Both the Air Force and NASA have operations in the region that actively seek out partners to develop technology that can be developed into products for the broader public.



Chapter V: Filling the aviation pipeline

Better education has long been urged for the region, and the growth of the high-tech aviation industry is getting a response from across the board. All four states have initiated programs designed to provide a steady stream of workers to the field that has been a big part of the region's economy going back to the days before WWII.



Chapter VI: When birds of a feather...

Aviation and technology parks are talent magnets for the region, providing the infrastructure for multiple technology clusters. Combined they offer thousands of acres of land for expansions as well as to lure newcomers. And while there are plenty that cater to aviation, there are enough that any high-tech can find a home.



Jetliners add to production mix

Jetliners, drones, engines large and small, satellites, aerial weapons and more are assembled, tested or managed in the region

When a U.S.-built A321 jetliner was delivered in 2016 to JetBlue in Mobile, Ala., it was a milestone for aviation: the first Airbus passenger jet assembled in the United States.

While it attracted international attention, the jetliner is just one of the aviation products made, developed, tested or managed in the Gulf Coast Interstate 10 region.

The area between New Orleans and Northwest Florida produces, in addition to jetliners, drones, satellite propulsion systems, rocket engines, spacecraft, a small helicopter, displays and high-tech sensors that are the eyes and ears of machines big and small. It also develops, tests and manages the most advanced and powerful aerial weapon systems in the world.

Three aircraft types are built in the region. The Airbus A320 series jetliners produced at the Mobile Aeroplex in Alabama is one of four centers worldwide that produce the company's most popular passenger jet. In Mobile, that includes the A319, A320 and A321.

Some 35 miles away in Moss Point, Miss., Northrop Grumman, builds portions of two unmanned aircraft systems, the Fire Scout rotary wing and all variants of the Global Hawk fixed-wing surveillance aircraft.



First U.S.-built A321 had its maiden flight in March 2016.

GCRL photo

In Marianna, Fla., Safari Helicopter produces the two-seat Safari 400 and Safari 500 helicopters, which can be bought in either a kit version or already assembled.

Four type of spacecraft are also built in part in the region. At Michoud Assembly Facility, New Orleans, Lockheed Martin does initial work on NASA's Orion spacecraft and the composite portions of Sierra Nevada's reusable spaceship, Dream Chaser. It's also where Boeing is building the core stage of the Space Launch System.

At Stennis Space Center, Miss., Lockheed Martin builds satellite propulsion cores and multi-layer blankets for the A2100 family of satellites. To the east in Mobile, Continental Motors has been building small engines for private aircraft since 1929.

Testing is a major focus of aerospace in this region. At Stennis Space Center, the RS-68 and RS-25 rocket engines are assembled and tested. Blue Origin tested the thrust chamber assembly for its BE-3 rocket engines at SSC for the first time in the fall of 2012, and SpaceX is testing its Raptor next-generation rocket engine there. Rolls-Royce North America also tests jetliner engines at its Outdoor Jet Engine Test Facility.

Sensors, including airborne mine-detection equipment, avionics systems, displays and aerospace parts, weapons systems parts and more are also built in the Gulf Coast region by companies providing jobs for many workers.

For details, see [Chapter I](#)

The dawning space economy

Governments and private companies are going all-out in what amounts to a new space race, and this region has a foot in both worlds

Sometime next year at a site in South Mississippi, four RS-25 engines of NASA's Space Launch System will roar to life in a teeth-rattling spectacle during a static test at the historic B-2 test stand.

With a combined 2 million pounds of thrust, the engine core test at Stennis Space Center (SSC) will be loud, signifying the power being held in place at the stand and the blast coming out of the trench.

But the event also will underscore the importance of the I-10 region's space-related activities. The RS-25 engines all were tested at SSC, and the core stage was built at Michoud Assembly Facility (MAF), some 40 miles away in Louisiana.

The test is just one event in dynamic new 21st century space age, where government and commercial players are all vying for a piece of the action. For established space companies there's money to be made, and for start-ups there are opportunities to find a niche activity that could start something big.

Goldman Sachs, in its *Profiles in Innovation* series, highlighted the state of the industry, calling space the "next investment frontier."

What is clear to anyone following the space industry is that it's in a state of transition with more players worldwide coming aboard. The industry requires a highly-skilled,



The Gulf Coast helping to develop the Space Launch System. *NASA illustration*

workforce to build, launch, and utilize space assets. And this region has a foot in the door.

The Gulf Coast is in the exclusive club of locations with NASA centers. SSC is where NASA has tested large rocket engines since the 1960s, and MAF in New Orleans is where huge aerostructures have been built just as long.

Both SSC and MAF have roles in the current NASA deep-space program, the Space Launch System (SLS), designed to send astronauts farther into space than ever before. SSC is where the SLS launch vehicle engines are tested. MAF is where the four-engine launch vehicle core stages and Orion crew capsule are being built.

In addition, both facilities are involved in commercial space ventures. SSC tests multiple commer-

cial rocket engines, and MAF is where the composite structure for a commercial space vehicle is built.

Having a stake in both the federal and commercial sides of the multi-billion-dollar space enterprise bodes well for the region. While NASA's programs rely on federal funding, the commercial field is more open-ended and can venture into activities not on NASA's agenda, including space tourism. Both SSC and MAF are actively courting commercial ventures to take advantage of under-utilized NASA facilities.

The other space activity in the region is at Eglin Air Force Base, Fla., where the phased array radar has been keeping its eyes on space more than 40 years.

For details see [Chapter II](#)

A bastion of military aviation

Military aviation is deeply embedded in the fabric of the Gulf Coast, and there's good reason to believe the footprint will grow

No matter how you look at it, whether it's through the value of their infrastructure, their depth of talent, the businesses awarded contracts or their critical missions, the Gulf Coast's military bases are a huge, multibillion-dollar ongoing asset for the region.

The Gulf Coast is one of the most military friendly regions in the nation, a place where the roar of a jet fighter or a distant rumble from exploded munitions are considered the sounds of freedom.

The numbers tell the story.

According to the *Department of Defense Base Structure Report FY 2015*, a summary of the military's real property inventory, there are 45 DoD properties in the corridor between New Orleans and Panama City, Fla. That includes bases and annexes with a combined replacement value of nearly \$22 billion.

Of that, the aviation-focused military bases had a combined replacement value of more than \$17.6 billion - include outlying fields and other aviation-related annexes and it goes up another \$1 billion-plus.

The bases account for incoming dollars through active and retiree payrolls, as well the contracts awarded to local companies for work here and elsewhere. Between 2000 and 2015, 4,939 companies in 19 I-10 counties/parishes were



F-35 training is just one of the military activities in the region.

Air Force photo

awarded 88,130 DoD contracts valued at more than \$84.7 billion.

The range of military activities in the region is also staggering. The legendary Navy Blue Angels flight demonstration team is headquartered at Naval Air Station Pensacola, and the Air Force trains pilots to fly the F-35 and F-22 at Eglin Air Force Base and Tyndall Air Force Base, respectively.

It's also home to the Air Force Special Operations Command at Hurlburt Field, and the busiest naval air station in the nation at Naval Air Station Whiting Field. It has one of the largest bases in the nation, Eglin Air Force Base, which boasts a huge R&D program that

develops aerial-deployed weapons.

Every military branch is represented in activities ranging from training to logistics. Military appreciation events are common

Communities from New Orleans to Panama City, Fla., have come to rely on military spending as pillars of their economies.

While there is almost no place on the Gulf Coast between New Orleans and Northwest Florida where the presence of the military or Coast Guard isn't felt, bases are clustered in Northwest Florida and South Mississippi.

For details, see [Chapter III](#)

Innovation centers on the rise

A new research center for the Mobile Aeroplex is the latest innovation magnet for a region with more than some might think

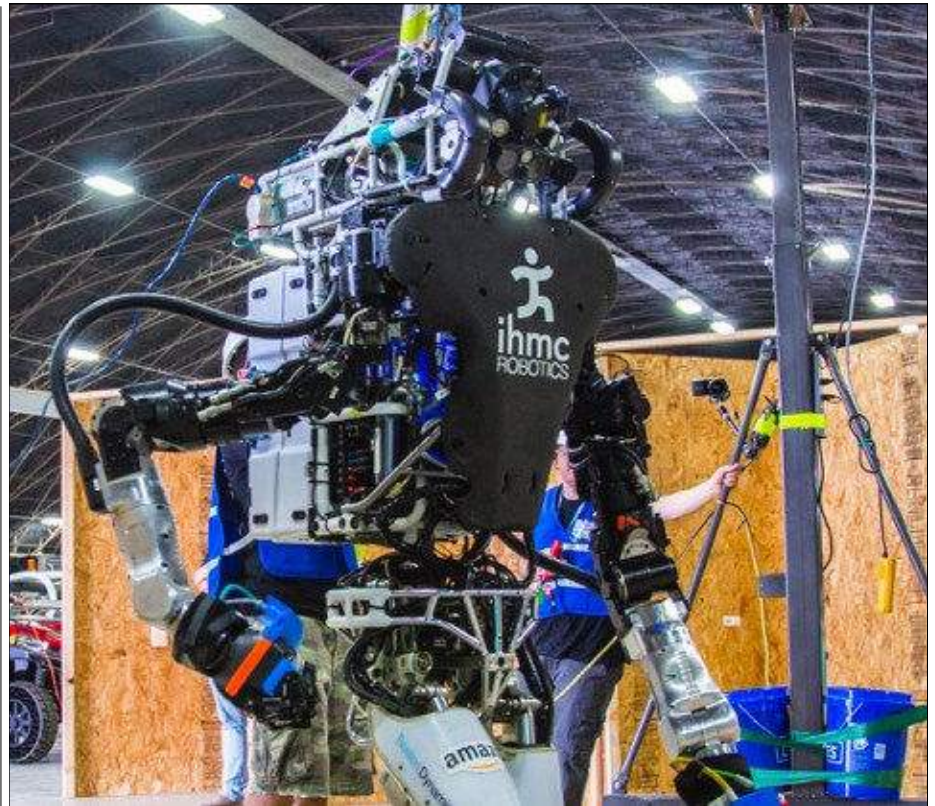
When it comes to robotics, the Florida Institute for Human and Machine Cognition continues to prove it's one of the world's premiere research centers in the field.

The latest innovation? The world's first bi-pedal robot, known as the Planar Elliptical Runner, that IHMC unveiled in May. The size of a small dog, the robot's mechanical design created by the institute's engineers makes it stable and able to run up to 12 mph.

It's another breakthrough for the Pensacola, Fla., research center, which has made a name for itself in the use of exoskeletons and robots that can aid in disaster recovery.

IHMC is one of the more high-profile of the research and applied technology operations spread across the Gulf Coast Interstate 10 region. Government, university and businesses are involved in research in a host of fields, including aerospace-related fields that include engineering/design, artificial intelligence, warhead technologies, guidance systems, rocket propulsion, unmanned vehicles, remote sensing and more.

Science and engineering are essential pathways to prosperity, according to the National Science Foundation. Research and development leads to new products and



IHMC's robotics work is one of the high-profile R&D activities here. *IHMC photo*

businesses, and the United States remains the world leader, where R&D spending is a \$527.5 billion enterprise.

Along the Gulf Coast I-10 corridor there are multiple hot spots for federal, university, and corporate research, development, test and evaluation. The two biggest are NASA's Stennis Space Center in Mississippi and military's Eglin Air Force Base in Northwest Florida.

Both federal operations actively seek partnerships with private companies, including start-ups, and have ongoing SBIR/STTR programs for small businesses.

Another large federal operation in the region is the Naval Surface Warfare Center in Panama City,

Fla., which spends millions every year on R&D focusing on maritime activities.

In South Alabama the presence of Airbus is causing the development of commercial aviation R&D at the Mobile Aeroplex.

The region's universities are also heavily involved in R&D and technology transfer. The University of Southern Mississippi has a solid reputation for advanced materials research, much of it of interest to aerospace.

The University of West Florida, University of South Alabama, Tulane University and University of New Orleans all have technology

For details, see [Chapter IV](#)

Filling the aviation pipeline

Better education has long been urged for the region, and growth of the high-tech aviation industry is getting a response

At the National Space Club Florida Committee meeting in Cape Canaveral in May, Space Florida CEO Frank DiBello reiterated the call for a highly-trained workforce across the state to support an influx of aerospace-related companies. He said if Florida is not responsive, it will become the state's "aerospace Achilles heel."

The shortage is not just a Florida issue. That clarion call was heard loud and clear in 2011 during the first Aerospace Alliance Summit in Destin, Fla. During the meeting of the four-state group, aerospace representatives called workforce training the key to the growth of the region's aviation footprint.

Educators are responding.

In Florida, Pensacola State College plans to build a \$26 million STEM Center and quickly ramp up its aerospace and aviation-related courses, certifications and degree programs.

In Alabama, Enterprise State Community College has prepared airframe and powerplant mechanics at the Alabama Aviation Training Center since 1976, and recently developed a composites program.

In Mississippi, the education system turned to NASA employees at the John C. Stennis Space Center to fashion a curriculum to prepare students to meet the expansion in fu-



Educators are responding to the needs of the aerospace industry.

GCRL photo

ture aviation jobs. Recently, a study done for the Hancock County Port and Harbor Commission urged development of an aerospace academy to serve Hancock County and the rest of the state.

A skills gap exists, but workforce specialists are determined to get the pieces in place to make Gulf Coast I-10 Corridor a world-class aerospace training area.

The tools are there. The states tied together by Interstate 10 boast world-class research institutions and university programs, and the I-10 region itself has vocational training centers, public and private schools, museums and education centers dedicated to improving the

knowledge of STEM from elementary-aged to college-aged youth.

Shannon Ogletree, director of the Santa Rosa County Economic Development Office in Milton, Fla., said a well-trained workforce and top-notch educational opportunities is the No. 1 "want" by the businesses he recruits.

Gulf Coast institutions have bought into troubling national statistics showing that if measures are not taken to enhance America's math and science education, the country's ability to compete would continue to diminish.

For details, see [Chapter V](#)

When birds of a feather...

Aviation and technology parks are talent magnets for the region, providing the infrastructure for multiple technology clusters

The Fort Walton Beach Commerce and Technology Park is one of the oldest aerospace parks in the Gulf Coast I-10 region.

Opened in 1964, the technology park today 20 businesses with ties to aerospace and aviation, including Boeing, Lockheed Martin, BAE Systems and more. Their work is tied to nearby Eglin Air Force Base, Hurlburt Field, and other military installations close by. It's an example of a cluster, when businesses, often competitors, collect in the same location.

"Clusters are the Holy Grail of economic development," said Nathan Sparks, executive director of the Economic Development Council in Okaloosa County, Fla.

The Fort Walton Beach park is just one of many aerospace and technology parks that have developed across the region between Northwest Florida to New Orleans.

Three parks each has more than 3,000 acres, but there are others with more than 1,000 acres. Some are long-established pillars of their communities, but others have developed more recently as new opportunities, including those afforded by the opening of an Airbus assembly plant in Mobile, Ala., have arisen.

Alabama, Mississippi and Northwest Florida all have site certifica-



Multiple aviation parks are taking hold in the region.

Bob Sikes Airport photo

tion programs designed to make it easier to companies to set up operations at "shovel-ready" locations across the region.

Two NASA facilities and the region's nearly a dozen major military bases are magnets for companies that want to do business with the federal agencies. Some companies have multiple sites in the region.

A number of parks have developed outside of those federal installations to make it easier for companies to do business with the federal government agencies.

But there are other lures for clusters. Many new aerospace and tech-

nology park developments are close to existing airports. The region's 40 commercial and general aviation airports are by their very nature lures for aviation businesses as well as military operations.

But a sizeable company can also serve as a magnet, notably for bringing in suppliers. Airbus, for example, since the announcement that it would build a final assembly line in Mobile, has drawn some two dozen companies to the Mobile Aeroplex.

For details, see [Chapter VI](#)

mation on the recently released aerospace book, we offer this summary.

On the front we take something of a Twitter approach. You can read the front page and get what you need in brief.

Inside you'll find a newspaper type summation of the six book chapters. Each story can be read while you're sitting with a cup of coffee or eating breakfast.

Then, if you want to learn more, you can click on the link at the end of each page and go to the PDF of the full chapter, along with sidebars, photos and tables.

And for those of you who really love to read and want to take in the whole scope of the book, you can click [here](#), where you can download the whole book and its 100 pages.

The sixth iteration of the book is brought to you free of charge thanks to our underwriters. They support the project because they believe the best way to tell the story about this region's aerospace activities is to let experienced journalists pick the stories and provide the research.

We hope you enjoy it.

David Tortorano
Editor
Gulf Breeze, Fla.

Executive summary

For corridor, the beat goes on

The announcement in May 2017 was important enough that the governor of Mississippi, Phil Bryant, was given the honor.

He told lunch attendees that Northrop Grumman in Moss Point would expand and work not only on the Fire Scout and Global Hawk unmanned systems, but add other work, including for the F-35.

The announcement followed just days after Aerojet Rocketdyne said it would assemble and test at Stennis Space Center, Miss., two AR-22 engines for the reusable DARPA/Boeing XS-1 hypersonic spacecraft.

Those announcements came two months after Continental Motors said it was expanding its operation in Mobile, Ala., and three months after aviation supply company GKN Aerospace said it would open a manufacturing center in Panama City, Fla.

And the beat goes on.

In the two years since the last Gulf Coast Aerospace Corridor book was published, new announcements and expansions have increased the aerospace and aviation footprint along the Gulf Coast Interstate 10 corridor.

Mobile began producing A320 series jetliners and continued to attract suppliers to the Mobile Aeroplex. Other areas, too, saw growth. VTMAE, long-time tenant of the Mobile Aeroplex, started work on an additional MRO hangar in Pensacola, Fla. And Aerojet Rocketdyne, in addition to the AR-22 work, earlier said it would assemble and test the AR1 engine at Stennis Space Center.

Expansions were common. MAAS and Star Aviation in Mobile, Boeing and Fort Walton Machining in Fort Walton Beach, Fla., Torch Technologies in Shalimar, Fla., and UTC in Foley, Ala., all had expansions. And at Northwest

Florida's Eglin Air Force Base, site of the F-35 reprogramming lab, a second reprogramming lab was added for partner nations.

While all that was going on, education leaders across the region put in place the tools necessary to help the growing need for aerospace and aviation workers. It has, indeed, been a busy two years.

Economic development leaders have good reason to target aerospace, a multi-billion-dollar, research intense, innovative enterprise that produces technologically advanced aircraft, space and defense systems. It involves civilian and military activities and uses talent ranging from those who design aircraft and those who assemble them to those who fly and maintain them. Workers are highly skilled and pay is above average.

"The Gulf Coast aerospace corridor has all the right conditions for future growth," said Richard Aboulafia of the Teal Group. "A pro-business environment, strong political support for the industry, and great working conditions all mean good things for the future."

Neal Wade, chairman of the four-state Aerospace Alliance, sees the same thing throughout Alabama, Florida, Louisiana and Mississippi.

But the I-10 region between Southeast Louisiana and Northwest Florida is where the aerospace interests of all four states intersect, and it's a showcase for all four, where growth in one area of the corridor can benefit all of them.

If clear from this year's research that the region must continue to focus on attracting aerospace while the interest is high, and that it needs to continue to develop a highly skilled workforce.

For details, see [Executive summary](#)