



Innovation You Can Count On

Antares™

America's Newest Medium-Class Launcher

Antares, Orbital's newest space launch vehicle, has completed its four-year development program and is now moving into its flight test and operational phase. Formerly known as Taurus II, Antares is designed to boost medium-class satellites and other space payloads weighing up to 13,500 lbs. to low Earth orbit, and currently has 10 launches on its manifest for test flights and operational cargo delivery launches to the International Space Station for NASA through 2015. In addition to its NASA missions, Antares is available for dedicated launch services for civil government, military and intelligence, and commercial satellites.

For more information on Antares and all of Orbital's innovative and reliable space systems, visit www.orbital.com.



Orbital Achieves Near-Record New Business Results in 2011

Coyote SSST Program on Target for U.S. Navy

Dawn Begins to Map Vesta at Low Altitude

Orbital Conducts 27 Space Missions in 2011

ORBITAL Quarterly

WINTER 2012 | A Newsletter for Customers, Suppliers and Friends of Orbital Sciences Corporation



Orbital Achieves Near-Record New Business Results in 2011

Missile Defense, Commercial Satellites and National Security Space Systems Led Way in New Contracts

Over \$3.0 billion in new contracts and option exercises were awarded to Orbital in 2011, signaling continued strong customer demand for the company's innovative, reliable and affordable satellites and launchers. Leading the list of new business wins was a contract worth up to \$1.1 billion from the U.S. Missile Defense Agency (MDA) to supply Intermediate-Range Ballistic Missile (IRBM) target vehicles. The seven-year contract includes approximately \$230 million for the production of eight air-launched target vehicles for use in tests of missile defense systems to be delivered by 2015, and up to \$870 million in contract options for additional vehicles, equipment, logistics support and launch services through 2018.



Orbital will also benefit from MDA's follow-on Ground-based Midcourse Defense Development and Sustainment Contract (GMD DSC) awarded to The Boeing Company for continued support of the GMD missile defense system. As a subcontractor to Boeing, Orbital has delivered over 50 interceptor boosters for the GMD system since the original contract was awarded in 2002. The GMD interceptor is designed to intercept and destroy hostile ballistic missiles in their midcourse phase of flight before they re-enter the Earth's atmosphere. Orbital's part of the follow-on contract is worth over \$600 million. The IRBM target and GMD interceptor booster vehicles will be designed and produced at the company's Chandler, Arizona launch vehicle facility.

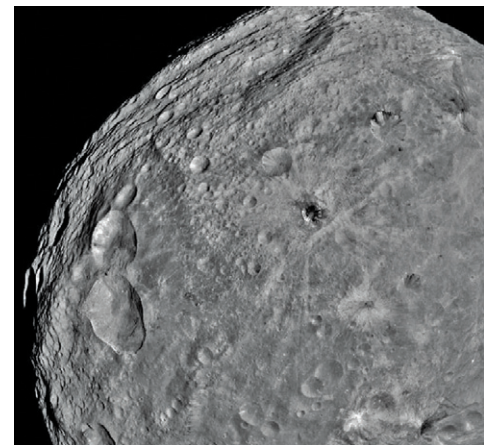
Also in 2011, Orbital was awarded a range of commercial and government satellite contracts worth approximately \$600 million. This included the award of two contracts for the company's GEOStar™-2 class commercial communications satellites (SES-8 and Thaicom-6), an award for a LEOStar™-3 based Earth science satellite (ICESat-2), and a major systems integration and testing contract to produce 81 satellites for the Iridium NEXT satellite constellation. SES-8 and Thaicom-6 will be built at the company's Dulles, Virginia Satellite Manufacturing Facility. The ICESat-2 and Iridium NEXT satellites will be built at Orbital's Gilbert, Arizona Satellite Manufacturing Facility. Additional scientific and classified defense contracts rounded out the year's new business totals.

Coyote SSST Program on Target for U.S. Navy

17 Deliveries, 11 Launches and 7 New Orders Make for Record Year

Orbital delivered 17 and successfully launched 11 additional GQM-163A "Coyote" Supersonic Sea-Skimming Target (SSST) vehicles for the U.S. Navy in 2011, a record year for the program. Capable of achieving speeds of Mach 2.5 at very low altitudes, the Coyote target missile is used by the Navy to test fleet self-defense systems against threat-representative targets. The 2011 launches included three "stream raid" missions, during which multiple target vehicles

[Continued on Page 3](#)



Dawn Begins to Map Asteroid Vesta at Low Altitude

Journey to Ceres to Start in Mid-2012

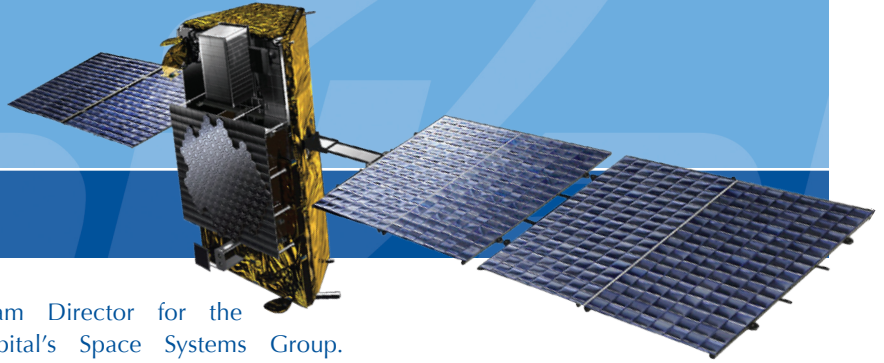
The Dawn interplanetary spacecraft, built by Orbital for NASA's Jet Propulsion Laboratory and launched in September 2007, has begun its final mapping of the asteroid Vesta, the first of two destinations on its interplanetary

[Continued on Page 2](#)

QUARTERLY

Spotlight

Jason Yocum



Jason Yocum is Senior Program Director for the Iridium NEXT program in Orbital's Space Systems Group.

Jason has over 17 years of experience in the aerospace industry spanning a range of space and missile program work, including 12 years of integration and test experience on programs such as the Standard Missile III and the C/NOFS, SWIFT, GLAST and GeoEye 1 satellites. Prior to his current assignment, he acted as Director of Operations at Orbital's Gilbert, Arizona satellite manufacturing facility. Jason is currently based in Cannes, France, working with Thales Alenia Space (TAS) and other Orbital personnel preparing for the commencement of production and integration of 81 Iridium NEXT satellites in the 2014–2017 period.

Why did you choose a career in aerospace?

As a child I was always intrigued with the thought of working in space. The Challenger disaster in 1986 was a decisive moment for me. I recall being completely devastated and decided that I would like to have a career in which I could have a lasting impact and potentially design a product or solution that could prevent further tragedies. As time went on I recognized that I really enjoyed mechanical engineering, space mechanics and mechanical design.

What are your current responsibilities?

In my current role as the Senior Program Director of the Iridium NEXT Assembly, Integration and Test (AI&T) program, I am leading the team developing the plans and processes for the high-rate production of 81 satellites. In addition to being responsible for AI&T, my team is charged with carrying out launch logistics, launch site testing, and the electrical and mechanical ground support equipment necessary to accomplish all phases of the launch campaign. My leadership role extends beyond the typical operations of the position and encompasses both cultural and social aspects that play a vital role in the successful execution of the program. My family and I, along with five other Orbital employees, have moved overseas to France in support of the program.

What are your goals?

My goal for the program is to continue to build our relationship with Thales Alenia Space and to develop a high-rate production capability at the company's Gilbert, Arizona manufacturing facility. This is extremely exciting as it brings possibilities that can span many years in the future.

How do you incorporate previous experiences and lessons learned into your work?

In my former role as the Gilbert Director of Operations it was my goal to anticipate future schedule breakdowns by having weekly meetings covering what occurred on previous programs from a manufacturing and test perspective. This helped us develop capital improvement plans, update processes and procedures, and institute necessary training to keep from making similar mistakes. For Iridium NEXT I am using the same logic. In every step of the building process one must consider all aspects of the project. Keeping those past experiences in mind and listening to what others have learned goes a long way toward successful outcomes.

Who inspires you?

My wife. She summarizes the importance of life and family, but her methods also transcend into business. I take many lessons from how she manages her personal endeavors, family and friends into consideration when making business decisions.

How do you enjoy your personal time?

I enjoy spending time with my family. With the opportunity of living in Europe we are now spending most of our spare time traveling. We have traveled in the past year to France, Germany, Austria, Switzerland, Italy, Spain, Andorra and Costa Rica. We enjoy bike riding, hiking, and golf. I have also taken on a new interest of sailing and have been given the extraordinary opportunity to sail in a regatta with the TAS team.

Dawn...(Cont.)

mission. In mid-December, the spacecraft maneuvered to its closest approach to Vesta in order to conduct low-altitude mapping. Now orbiting approximately 130 miles (210 kilometers) above the surface, the Dawn spacecraft is returning its most detailed images of the giant asteroid yet.

Dawn entered orbit around Vesta in July 2011. Since then, the spacecraft has been taking progressively higher resolution images as it maneuvers closer to Vesta's surface. The Orbital-built spacecraft

is on a dual mission to rendezvous, orbit and study the two largest asteroids in our solar system, Vesta and Ceres, in order to help scientists learn about the creation of the planets.

A critical point in the spacecraft's eight-year mission will occur in July 2012 as Dawn departs from orbit around Vesta and begins its ion-propulsion-powered journey to Ceres. Arrival at Ceres is expected in February 2015, when the spacecraft will begin performing similar mapping missions.

Coyote Target Vehicles...(Cont.)

are launched simultaneously to represent multiple threats.

The Coyote target vehicle integrates a four-inlet, solid-fuel ducted-rocket ramjet propulsion system into a compact missile airframe 18 feet long and 14 inches in diameter. Rail-launched from naval test and training ranges, the system has a range of approximately 50 nautical miles and flies at altitudes of less than 20 feet above the sea surface.

"The Coyote program has matured from an early development program, through low-rate production and test, to now being a fully operational system that provides a critical capability to the Navy for their ship self-defense exercises using a very capable target vehicle," said Ronald Grabe, Orbital's Executive Vice President and General Manager of its Launch Systems Group.

In May 2011, Orbital was awarded a fifth full-rate production contract for seven additional

Coyote vehicles and related equipment by the Navy. Orbital was selected for the initial development contract in 2000 to meet the Navy's requirement for an affordable SSST system to simulate high-speed anti-ship cruise missiles for fleet training and weapon systems research and testing. Since the completion of the development phase of the program in 2005, Orbital has received multiple orders from the Navy under low-rate initial production and full-rate production contracts. Total orders for the program currently stand at 89 units (including the early development and test vehicles), of which 70 have been delivered to the customer. Orbital has also supported 29 consecutive successful launches.

In 2010 Orbital carried out a test-flight of a "high-diver" variant of the Coyote missile. During the test, the vehicle achieved an altitude of 35,000 feet, traveled at Mach 3.3 and approached its target point at a 40-degree downward angle.



Orbital developed and is manufacturing the Coyote vehicles at its launch vehicle engineering and production facility in Chandler, Arizona. The Coyote program is managed by the Naval Air Systems Command (NAVAIR) based at Patuxent River Naval Air Station, Maryland.

COME SEE ORBITAL AT THESE UPCOMING INDUSTRY EVENTS

MARCH 12–15, 2012

Satellite 2012

*Washington Convention Center
Washington, DC*

MARCH 26–28, 2012

AIAA Missile

Defense Conference

*Ronald Reagan World Trade
Center
Washington, DC*

APRIL 16–19, 2012

National Space Symposium

*The Broadmoor
Colorado Springs, CO*

MAY 7–10, 2012

Reinventing Space

*Westin Los Angeles Airport
Los Angeles, CA*

AUGUST 13–16, 2012

Small Satellite Conference

*Utah State University
Logan, UT*



Orbital Conducts 27 Major Space Missions in 2011

**18 Rockets Launched and 9 Satellites and
Space Systems Deployed in Busy Year**

In 2011, Orbital launched a total of 18 rockets and deployed nine satellites and space systems, capping an especially productive year for the company. Rocket launches included four Minotaur space launch missions for the U.S. Air Force, 11 launches of the Coyote Supersonic Sea-Skimming Target vehicle for the U.S. Navy (see related article), and two medium range target vehicles for the Missile Defense Agency. Orbital also delivered four GEO communications satellites to

Intelsat Ltd and SES S.A., which were successfully launched and checked out last year. One of these spacecraft, SES-2, included the CHIRP hosted payload which Orbital integrated onto the satellite for the U.S. Air Force.

In the meantime, Orbital continued working on numerous previously awarded programs, including the development and production of the first several Cygnus™ cargo spacecraft and the company's new Antares™ medium-class space launch vehicles for resupply of the International Space Station. Orbital also continued production work on five commercial communications satellites and five Earth and space science satellites, many of which are due for delivery and launch in 2012.

Looking to the year ahead, Orbital Chairman and CEO David Thompson stated, "2012 should be another busy year for the company with the initial launches of Antares and Cygnus, delivery of up to six commercial communications and scientific satellites, launch of two Pegasus rockets carrying NASA spacecraft, and continued production and launches of defense-related target and interceptor launch vehicles."