Space Transportation and Technologies Support Systems

SPACE FLORIDA

Florida is geographically situated as a near perfect launch location for space missions requiring access to either equatorial or inclined orbits up to 60 degrees (North or South). In addition, several billion dollars worth of launch infrastructure make the state a current leader in military and civil launch operations and afford us entry into a burgeoning commercial market.

The Market Horizon

Every sector of the launch operations market, whether military, civil (non-DoD governmental missions) or commercial, is expected to be at least stable during the next decade. Selected segments of the domestic and international market are forecast to grow as more countries seek recognition as space faring nations and as the benefits of commercial space become more widely realized.

Past domestic military and civil markets have largely been the purview of the United States Federal Government; however, there are strong indications that both NASA and DoD are beginning to consider the use of more entrepreneurial /commercial services.

For example, the 2009 Augustine Commission studying "Human Space Flight" crafted several options which rely on commercial operators to carry cargo (and ultimately crew) to and from Low Earth Orbit (LEO) and indeed a notion growing in favor would essentially turn over all civil LEO operations to private industry.

As more countries seek to become space faring nations, they typically focus their efforts on developing appropriate satellites/payloads and look to purchase a ride on a launch vehicle. A premium is placed on low cost, reliable launch services. Today the majority of international customers are buying launch vehicles and launch services from China, ESA and Russia. Countries such as Japan and India are rapidly becoming viable providers of launch services while several other countries (Brazil, Israel and South Korea) are nearing the time when they can offer similar services.

Overlapping the traditional space launch markets are the fledgling personal spaceflight operators. More than a dozen of these "start up" ventures are in place representing a myriad of launch and recovery concepts involving vertical and horizontal land-launched systems to aircraft-launched vehicles with winged land recovery. All of these concepts must be accommodated within the infrastructure and command control aspects of the current space and airspace systems.

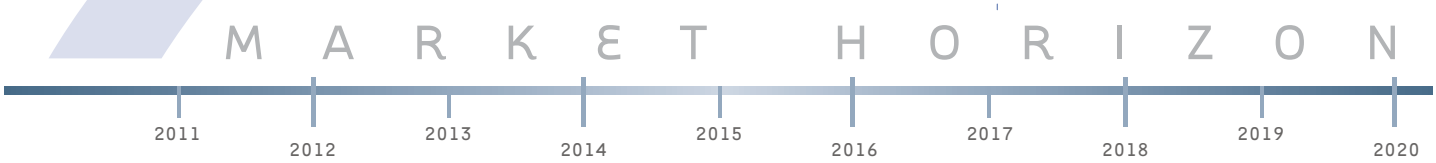
Timing

- Immediate and continuous
- While the nature of the hardware to be launched may vary with mission suitability, the need is both present and certain to continue in multiple forms for the foreseeable future

Florida's Edge

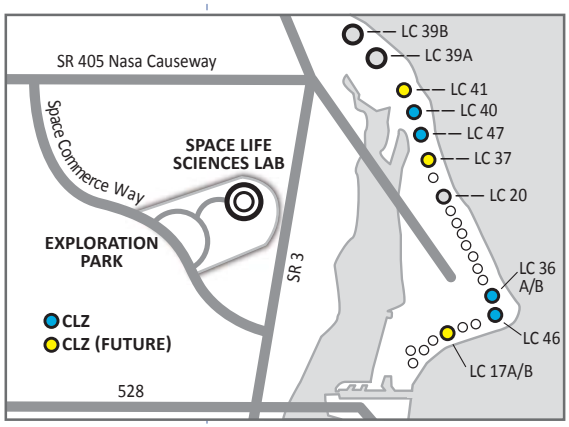
- *Location, location, location—near perfect for equatorial launch or for launch to inclined orbits up to 60 degrees*
- *Extensive launch infrastructure*
- *Record of launch achievement*
- *Superlative workforce*
- *Legacy culture of quality and safety*
- *Strong relationships between military, civil and commercial launch partners and launch services providers*

The SpaceX Falcon 9 rocket stands vertical on its launch pad at Cape Canaveral. The SpaceX team completed vehicle integration in December 2008. Part of NASA's COTS program, Falcon 9 will be used to resupply ISS in addition to private commercial launches. Image credit: SpaceX



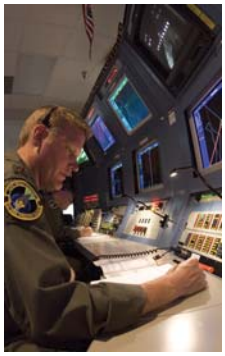
In Sight and Achievable

- Suborbital operations for academic and commercial researchers
- Commercial supply/resupply services to LEO as well as the placement of commercial satellites into all but polar orbits



Tactical Development Strategies

- Actively support commercial space launch providers with responsive infrastructure projects and targeted incentives to multiply effectiveness, increase competition and lower costs
- Develop a Commercial Launch Zone (CLZ) starting with launch complexes 47, 46 and 36; add more capability as the markets demand; and ensure operations at complexes 17, 37, 40 and 41 as part of the CLZ and eligible for incentives
- Market Florida's superb workforce, extensive infrastructure, outstanding safety culture and successful launch history
- Practice continuous improvement to further ease access to launch and processing services and reduce attendant costs



A senior mission flight controller follows launch procedures at Cape Canaveral Air Force Station during an integrated crew exercise, the final step in preparation for a launch that carried a commercial satellite into orbit using an Atlas launch vehicle. Image credit: U.S. Air Force, Master Sgt. Jack Braden

A United Launch Alliance Delta II rocket carrying the U.S. Air Force's GPS IIR-20 satellite lifts off from Space Launch Complex-17A, Cape Canaveral Air Force Station. This was the 47th successful GPS satellite launched by a Delta II, each of which were launched from Florida. Image credit: United Launch Alliance

The target for Florida is a wide range of launches, from the ability to support launch operations with sounding rockets (such as Super Lokis, shown above) through medium weight (less than 1 million pounds of lift off thrust) solid and liquid propellant rockets (those using both liquid engines and solid motors), with provisions for growth potential up to approximately 2M pounds of lift off thrust. Image credit: Space Florida

Center Director Bob Cabana (center left) watches the successful launch of Space Shuttle Endeavour on the STS-126 mission in the Firing Room of the Launch Control Center at NASA's Kennedy Space Center in Florida. STS-126 is the 124th space shuttle flight and the 27th flight to the International Space Station. The mission featured four spacewalks and preparations for a six-member crew. Image credit: NASA/Kim Shiflett

***Space Florida** was created to strengthen Florida's position as the global leader in aerospace research, investment, exploration and commerce. As Florida's aerospace development organization, Space Florida is dedicated to attracting and expanding the next generation of space industry businesses. Created by the State of Florida as a special district in May 2006, Space Florida serves space-related functions in all three aerospace sectors: civil, military and commercial. Florida's attributes include its superlative workforce, proven infrastructure and unparalleled record of achievement.*