The Aerospace Corporation

• Created in 1960 as a California nonprofit corporation
  – Attract and retain high quality engineers, scientists, and managers
  – Governed by Board of Trustees
• Operates a Federally Funded Research and Development Center (FFRDC) sponsored by the U.S. Air Force

• Work for DOD, NASA, other national and international civil and commercial clients
• A company of 3500 that provides advanced scientific and engineering services for space and related high-technology systems
What is an FFRDC?

Federally Funded Research and Development Centers:

• Are sponsored by government agencies (DOD, DOE, IRS, others)
• Provide objective advice and perform research and development activities in highly complex technological disciplines
• Work in the national interest
• Are administered independently to ensure objectivity
• Are dedicated to the success of their sponsors
Aerospace Attributes

- Absolutely no organizational conflicts
  - Go to any company
  - Serve on any source selection
  - Delve into any technical problem
- Evaluate innovative space technologies
  - The nation’s corporate memory for space systems
- Sole interest is the mission success of our customer
  - Motive is not for profit or business growth
The Aerospace Corporation applies rigorous systems engineering processes at all levels of support.
Aerospace Technical Organization

### Program Offices

- Systems Planning and Engineering
- Space Programs
- Space Support
- Space Launch
- Electronic Programs
- Imagery Programs
- Advanced Technology
- Planning and Communications
- Civil and Commercial

### Engineering and Technology Group

#### Electronics and Sensors
- Micro-electronics
- Power systems
- Sensor engineering and exploitation
- Optical sensors
- Radar systems

#### Communications and Networking
- Communication architectures
- Network systems
- Communication systems engineering
- Spectrum management
- Digital communication implementation
- Communication electronics
- Antenna systems

#### Computers and Software
- Computer technology
- Information science
- Software engineering
- Software verification
- Software acquisition
- Ground systems
- Operations engineering

#### Vehicle Systems
- Propulsion/vehicle performance
- Guidance/control
- Real-time simulation
- Flight/fluid mechanics
- Thermal control
- Structural/dynamics analysis
- Test and evaluation
- Risk management
- Reliability and failure analysis

#### Systems Engineering
- System architecture
- Modeling simulation
- Mission performance
- Concept design
- Cost engineering
- Resource allocation
- Operability assessment
- Remote sensing signatures

#### Physical Sciences Laboratories
- Electronics and photonics
- Mechanics
- Materials
- Space environment
- Mission oriented research
- Special sensor fabrication
- Remote sensing signatures

*Electronics and Sensors*

- Micro-electronics
- Power systems
- Sensor engineering and exploitation
- Optical sensors
- Radar systems

*Communications and Networking*

- Communication architectures
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*Computers and Software*

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- Information science
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*Vehicle Systems*

- Propulsion/vehicle performance
- Guidance/control
- Real-time simulation
- Flight/fluid mechanics
- Thermal control
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*Systems Engineering*

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- Modeling simulation
- Mission performance
- Concept design
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*Physical Sciences Laboratories*

- Electronics and photonics
- Mechanics
- Materials
- Space environment
- Mission oriented research
- Special sensor fabrication
- Remote sensing signatures

Aerospace expertise spans all areas of space engineering & technologies
Aerospace Launch Mission Assurance

Launch Readiness Verification Process

- Post Flight Review
- Countdown and Launch
- Launch Readiness Review
- Vehicle Readiness Review
- Contractor Readiness Reviews
- Mission Readiness Review
- Launch Site Processing & Vehicle Test
- Component Pedigree Review
- FCA/PCA
- Hardware Acceptance Review (HAR)
- Dev Qual, Accept Test
- Engineering Analyses

Launch Process

Launch

Aerospace Verification Letter to SMC (L-5 Days)

Flight Readiness Review to SMC (L-8 days)

Aerospace President’s Review (L-2 wks)

Aerospace Readiness Reviews

Aerospace Launch Programs Participation

Requirements Development

Photo reprinted courtesy of NASA
Employees ~3500 people, ~2500 Technical Staff, ~28% Ph.D. ~43% MS

- Roughly 73% have prior government, military or industry experience
- Average 25 years of experience (Industry average 18 years)
- Stable workforce, < 2% annual attrition (Industry average 15% attrition)
Discipline of Technical Staff*

- No Degree: 1%
- Civil, Chemical and General Engineering: 24%
- Mechanical and Aeronautical Engineering: 23%
- Electrical Engineering: 16%
- Chemistry: 8%
- Physics: 3%
- Computer Science: 10%
- Other Engineering/Science Degrees: 5%
- Math: 6%
- Other Non-Technical Degrees: 4%

* as of December 2012
The Aerospace Corporation Locations*
Co-located with major customers

* as of December 2012