

Photo courtesy of NASA Johnson

# CIVIL SYSTEMS GROUP

## SE&I Support to Civil and Commercial Space

The Aerospace Corporation (Aerospace) is a nonprofit systems engineering and integration (SE&I) partner working in the national interest. As the operator of the only federally funded research and development center (FFRDC) dedicated to the entire space enterprise, Aerospace does not compete with industry, instead establishing strategic partnerships with civil, commercial, and international customers through its Civil Systems Group (CSG). In this integrative role, Aerospace can improve the flow of information, help programs mature more quickly, and enable the rapid delivery of new capabilities to space.

## Civil Space Programs Operations

Aerospace applies the entire breadth of program experience, SE&I expertise, and internal research and development for civil spacefaring agencies with operational programs that serve the nation in providing data and services to protect life, health, property, and natural resources, including science and operational missions. Support to civil space includes space asset protection and resiliency; systems architecture and engineering; ground systems engineering and integration; operational satellite support and anomaly resolution; and space-based environmental monitoring.

## Human Exploration and Spaceflight

By providing independent, objective expertise to government customers and spacefaring entities operating in low Earth orbit, deep space, and planetary exploration, Aerospace is helping shape the future of human spaceflight. Specific services include program development; mission planning, operations, assurance, science, and technology integration; Analysis of Alternatives; launch vehicle and spacecraft processing, surveillance, and day-of-launch support; and extravehicular activities, including spacewalking and surface exploration.

## Strategic Assessments, Studies, and Projects

Aerospace provides a wide variety of independent programmatic and technical assessments and advice to inform top-level decisionmakers at U.S. federal agencies and the National Academies of Science, Engineering, and Medicine (NASEM). This work includes program technical risk, schedule, and cost evaluations; architecture analyses; technology roadmapping; assessments of large, complex facilities; technical capabilities assessments; special studies and strategy development; and Analysis of Alternatives.

## Aerospace CSG Locations:

### The Aerospace Corporation

- › El Segundo, CA, Headquarters
- › Chantilly, VA
- › Crystal City, VA

### NASA

- › Washington, D.C., Headquarters
- › Ames Research Center
- › Armstrong Flight Research Center
- › Glenn Research Center
- › Goddard Space Flight Center
- › Johnson Space Center
- › Kennedy Space Center
- › Langley Research Center
- › Marshall Space Flight Center

### NASA Jet Propulsion Laboratory

### NNSA

- › Barksdale AFB, LA
- › Kirtland AFB, NM
- › Hill AFB, UT
- › Offutt AFB, NE
- › Kansas City National Security Campus
- › Lawrence Livermore National Laboratory
- › Los Alamos National Laboratory
- › NNSA Albuquerque Complex
- › Sandia National Laboratory

### NOAA Space Operations Facility (Suitland, MD)

### NSF/UCAR National Center for Atmospheric Research (Boulder, CO)

### USGS (Sioux Falls, SD)

## Direct Commercial Programs

Aerospace brings SE&I capabilities to the private sector to advance U.S. commercial space innovation, capabilities, and safety. Aerospace's Direct Commercial Programs office helps reduce risk and uncertainty across capability development lifecycles to accelerate the readiness of commercial solutions in the national interest.

## Federal Programs

Aerospace delivers independent, objective subject-matter and technical expertise to the federal civil space operations including space traffic management/coordination, homeland security enterprise, and science community as a trusted partner, providing holistic, enterprise capabilities for emerging critical challenges.

## National Nuclear Security Administration (NNSA) Programs

Aerospace's work is key to supporting the NNSA's deterrence mission to protect our national security from adversarial threats and advancing our national nuclear enterprise capabilities. For the past 60 years, Aerospace's technical expertise has included threat deterrence, satellites, lasers, launch vehicles, cruise missiles, reentry vehicles, program and mission assurance, systems engineering, digital engineering, and other specialties, including the use of cyberspace tools, to ensure protection against all adversaries.

## International

Drawing on our independent technical expertise and insight, Aerospace advances the global space community and fosters deeper partnerships with U.S. allies. Our SE&I support to international space customers includes acquisition support, needs and gap analysis, architecture analysis, cost and schedule analysis, and in-plant monitoring.

## The Role of Federally Funded Research and Development Centers

FFRDCs were created to provide technical expertise for science and technology efforts critical to national leadership. As trusted advisors to government, FFRDCs provide objective, unbiased analysis and recommendations without conflicts of interest. FFRDCs do not compete with industry and do not manufacture products, operating as strategic partners with sponsoring government agencies to ensure the highest levels of objectivity and technical excellence. Aerospace works across government, civil, and commercial space to provide disciplinary continuity, unique capabilities, and foundational knowledge to shape the future of space.

## Partner with Aerospace

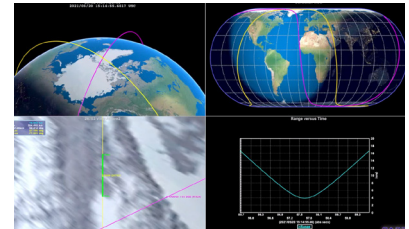
The Aerospace Corporation's vision is to serve as the nation's trusted partner by solving the hardest problems in space. Collaboration is critical to our pursuit of that vision. For more information, please contact Ron Birk (Ronald.J.Birk@aero.org).

## The Aerospace Corporation

The Aerospace Corporation is a national nonprofit corporation that operates a federally funded research and development center and has more than 4,500 employees. With major locations in El Segundo, California; Albuquerque, New Mexico; Colorado Springs, Colorado; and the Washington, D.C. region, Aerospace addresses complex problems across the space enterprise and other areas of national and international significance through agility, innovation, and objective technical leadership. For more information, visit [www.aerospace.org](http://www.aerospace.org).



Aerospace supported multiple essential components of NASA's Artemis I mission, from avionics to programmatic assessments, with more work planned to ensure future Artemis milestones.



Aerospace contributed to a cloud-based prototype system, to improve space traffic coordination, in support to the Office of Space Commerce (OSC) within the National Oceanographic and Atmospheric Administration (NOAA).