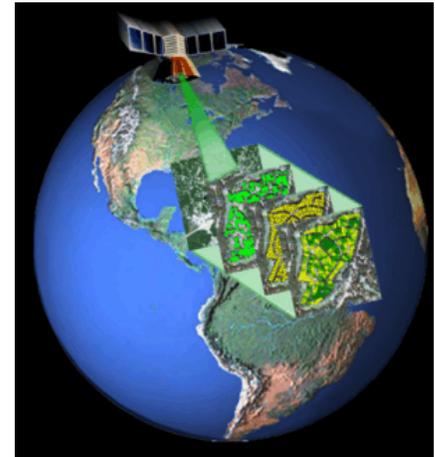


Sustainable Cooperation: Advancing Global and Commercial Partnerships in a New Space Era

Global society has caught onto the benefits of space: 62 nation-states are flying space hardware, 11 are equipped with private or government launch capabilities, universities and high school students now have the ability to innovate in ways never before imagined. This is the new space era: it is complex and evolving, with shifting influences from private, commercial, civil, and national security sectors, each with its spectrum of interests.

While the United States remains the leader in satellite applications and space exploration, the global appetite for space benefits is growing, ripe for cooperation and partnerships. Working cooperatively with other nations and international partners can accelerate a country or region's introduction to space, while encouraging standards and norms of behavior. Harvesting technology and lessons learned can help new space actors effectively and efficiently become active and responsible members of the spacefaring international community, while serving peaceful national interests.



U.S.-Led Space Diplomacy

The United States has the imperative, as the world's leading spacefaring nation, to advance global and commercial partnerships in a new space era. It is beneficial to these emerging nations to create a foundation of cooperation so that all may operate safely in space. Cooperation will also temper space-based challenges such as space debris and frequency management, two major impediments to the peaceful use of space. Moreover, as governments worldwide face constrained budgets, cooperation and sharing of resources can make space more affordable. Former NASA Administrator Michael Griffin noted that:

...it is important for the United States to be a leader among the nations of the world, and that such leadership has many dimensions. Economic, cultural, diplomatic, moral and educational leadership are certainly major components of world leadership... But true leadership also involves defining, and then pursuing, the frontiers that expand mankind's reach. It means occupying the cutting edge of science and technology... It also means having the ability and determination to take the lead in building coalitions and partnerships to do those things that fulfill the dreams of mankind.¹

Sharing Earth Observation Data to Meet the Earth's Critical Challenges

In response to global climate and natural resource challenges, Vaeros, through its parent company The Aerospace Corporation, can leverage its understanding of space systems and national space assets to foster international collaboration of space- and ground-based assets. Specifically, these assets generate earth observation data and information which support the Global Earth Observation System of Systems (GEOSS). Earth-observation data are categorized into nine societal benefit areas² and are subsequently integrated and used to support decisionmaking in an increasingly complex and environmentally stressed world. Aerospace's familiarity and experience with the global satellite community, national

¹ <http://www.spaceref.com/news/viewsr.html?pid=18901>; California Space Authority; December 2, 2005.

² These nine areas include: sustainable agriculture; biodiversity conservation; climate change; natural and manmade disasters; ecosystem management; energy management; environmental health hazards; water resources; and weather forecasting.

security space, and major space agencies can be applied to help stakeholders reach solutions for common benefit and resource sharing. Moreover, Aerospace's understanding and approach to enterprise architecture can be applied to complex analytical, decisionmaking, and investment tools. In fact, NASA's observation systems can be readily mapped into the GEOSS structure. Aerospace can offer systems engineering techniques to get the most benefit out of the data, including science models, predictions, and decision-support tools to bring different communities together to solve a variety of problems facing the planet.

Remote Sensing – Sensors, Image Processing and Interpretation

Increasingly sophisticated imagery and analysis techniques are being applied to an array of needs, such as agriculture, resource exploration, urban planning, natural disaster response, and climate-change mitigation and adaptation. Smaller and emerging nations will be among those most affected by climate change, and the least able to cope. The Aerospace Corporation has extensive experience in remote sensing, from sensor design to satellite operations to image processing and interpretation.

Connectivity from Space

Today's satellite communications applications go beyond telephone calls and television. A variety of data services provide vital connections that enable governments and economies to achieve more and improve efficiencies. Important services, such as telemedicine, can reach into rural areas and difficult terrain. Aerospace has helped U.S. military and commercial satellite communications capabilities dramatically improve and expand during the past five decades. Systems have evolved from single-channel to today's high-capacity, flexible communications with increased bandwidth and power, improved waveforms for protected communications, and flexibility for mobile users to use across a wide variety of user terminals.

Precise Positioning

Satellite navigation can do more than just help you get where you want to go on the road. Orbiting GPS constellations are used in surveying, mapping, construction, agriculture, and in numerous scientific applications (such as earthquake monitoring and atmospheric research). The Aerospace Corporation helped to develop the GPS system and continues to be involved in its technological and operational evolution.

About Aerospace

As a nonprofit corporation that operates in the public interest, Aerospace possesses a large staff of some of the space industry's top scientists and engineers, representing every conceivable discipline in space systems engineering. Aerospace has also amassed comprehensive databases of space system design data, and employs unique facilities and tools designed and developed based on five decades' experience working with space and space-based systems. These tools, and the experts who utilize them, allows The Aerospace Corporation to innovate and present an array of options that encompass the full tradespace of practical solutions, identify the risks of each, and estimate their likely cost.

Vaeros, a division of The Aerospace Corporation, serves the public interest by utilizing our world-class scientific and engineering expertise to solve complex systems problems and bring new technology to bear in order to:

- Improve the quality of life by repurposing space technology to nonspace endeavors
- Advance the state of the art in the fields of health, energy, transportation, and the environment
- Inspire future generations of engineers and scientists
- Foster innovation in military, civil, and commercial systems and technologies

For additional information on The Aerospace Corporation's work in the areas of space policy, strategy, concepts of operations, requirements development, satellite system architecture and design, systems engineering and other areas,

please visit our website www.aero.org or contact Karen Jones from Aerospace's Civil and Commercial Operations Group at Karen.l.jones@aero.org.