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# COMMENTARY

## Preserving the Orbital Environment

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With the help of a few brilliant pioneers and the support of many nations, Intelsat more than 40 years ago invented the commercial satellite industry. Over the years we have played an active role in developing new technology, helping to set standards and working collaboratively with other satellite operators, both commercial and governmental. We are committed to pushing the bounds of the industry to ensure that it remains a critical link in the global communications infrastructure.

Throughout the years, we have never taken for granted the remarkable environment in which we work. We have invested heavily in technology and sought out the best and brightest minds to allow us to fully exploit the space environment. We have done so without creating negative effects — such as debris — that might deny the advantages of space to future generations.

We are not alone in this undertaking. All the major commercial satellite operators routinely share information and resources with each other and with the governments that have objects in space, with the common goal of protecting the unique and irreplaceable space environment. For this reason, it was especially disappointing to read of the recent Chinese anti-satellite (A-Sat) test, which resulted in a cloud of space debris.

Although the debris cloud posed no threat to Intelsat's business (the Chinese test was conducted in an orbit approximately 865 kilometers from Earth, while Intelsat's satellites operate at 36,000 kilometers), it took place in a region of space that is heavily used for a variety of commercial, scientific and government activities. It is likely that it will take several decades for all of the debris resulting from this test to safely deorbit.

As Intelsat's chief executive officer, my primary concerns are focused on driving our continued strong growth — not on politics. However, I can't help

but notice that much of the political debate since the Chinese test seems to have devolved into the usual arguments about the value of arms control. By focusing on an issue around which there is disagreement, we have lost sight of the objective about which most agree — the need to maintain the viability of the space environment.

In the late 1970s and early to mid 1980s, both Russia and the United States engaged in testing of A-Sat weapon systems. Both countries abandoned these efforts, in part, because the creation of space debris was inconsistent with their plans for the full exploration and exploitation of the space environment. Similarly, the future preservation of the space environment will rely on every nation's appreciation that its own self-interest lies in preserving this precious common good.

Intelsat operates a fleet of more than 51 satellites, the largest geostationary commercial fleet ever assembled. In response to business opportunities and changing market needs, we routinely replace satellites and relocate satellites in orbit. Consider what it means to move a satellite: we must delicately move a minibus-sized, multi-ton object, traveling thousands of kilometers per hour, through the crowded geostationary arc, avoiding the potential for collisions with, or for disturbing the radio communications of, any of the more than 250 other commercial communications satellites in that orbit.

With the exception of the initial grant of approval by a national regulator, this entire process is managed without governmental regulation or oversight, using rules developed through experience and implemented by consensus among the commercial operators themselves. This process has been used effectively and without incident since the commercial satellite communications era began in the 1960s. This remarkable example of international and inter-company cooperation and self-reliance is premised on a simple re-

alization that the results of a collision could be catastrophic.

In low Earth orbits, objects and debris will slowly, throughout a decade or so, re-enter the Earth's atmosphere. In the narrow geostationary orbit (in which a satellite's orbit precisely matches the rotation of the Earth, thereby keeping the craft fixed over a single geographic location), the debris from a collision would endure for tens of thousands of years, effectively rendering a portion of the geo arc useless.

To be sure, the motivations behind the military space activities of nations are far more complex than those of the commercial satellite industry. However, I believe the central goal of preserving the operational space environment binds all space participants with a common purpose. Governments of the world, starting with the one that has always been a leader in space, the U.S. government, must lead the preservation effort. Specifically, the U.S. government can take three important steps that would strengthen the bonds among all of those operating in space:

■ **Provide adequate funding for Space Situational Awareness** — Air Force Space Command's Joint Space Operations Center (JSPOC) is responsible for tracking all man-made objects in orbit. The JSPOC receives on-orbit positional data from the Space Surveillance Network, which is composed of both optical and radar sensors throughout the world. This allows the JSPOC to attempt to maintain accurate data on every man-made object currently in orbit. Today the JSPOC is tracking more than 10,000 objects in space. Like all parts of the Pentagon budget, funding for expansion to the Space Surveillance Network is under pressure. In light of recent events, the Air Force needs to provide higher priority for this funding.

■ **Fully implement the Commercial and Foreign Entities (CFE) program** — Established by Congress as a pilot program, CFE now provides a limited but

essential set of U.S. government data on existing space objects for release to certain commercial and foreign entities. However, the accuracy of the data currently provided is not sufficient for precise collision detection/assessments, support of launch operations, end of life/re-entry analyses, or anomaly resolution. The current CFE pilot program is set to expire in 2009. Congress should formalize and expand the current CFE program.

■ **Begin an international dialogue on 'Rules of the Road' for space** — Although there may be disagreement as to the value of additional laws or space treaties, there seems to be general acceptance that certain guidelines or norms developed by consensus may play a useful role in ordering our activities in space. A good example is the space debris guidelines developed by the Inter-Agency Space Debris Coordinating Committee, an intergovernmental body created to exchange information on space debris research and mitigation measures. The development of other non-binding guidelines — such as protocols for informing other operators when a spacecraft under your control could potentially cause damage to other space objects — should be investigated.

Within the next decade many more countries will gain the ability to exploit space for commercial, scientific and governmental purposes. It is essential that the United States and its allies provide leadership on space management issues today in order to protect the space activities of tomorrow. Bad decisions and short-term thinking will create problems that will last for generations. Wise decisions and the careful nurturing of our precious space resource will ensure that the tremendous benefits from the peaceful use and exploration of outer space are enjoyed by those who follow in our footsteps in the decades to come.

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