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Space Security and International Law

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December 1, 2007, marked the forty-eighth anniversary of the signing of the first arms control agreement of the modern era, the Antarctic Treaty, which preserved the continent as a nonmilitarized nuclear-weapon-free area. The debate that preceded the negotiation of that treaty is remarkably similar to contemporary discussion on the future of outer space. In the early to mid-1950s, there were approximately a dozen countries vying for scientific, economic and military interests in Antarctica—an uninhabited, borderless, and lawless land. In time, and after much debate, twelve states (with others joining afterward) decided that the greater interests of all the affected parties would best be served if the continent could be preserved for peaceful uses, and that these interests could best be protected through a legal regime rather than through the use or deployment of military forces. Thus, the Antarctic Treaty was signed on December 1, 1959.

The international community is now faced with protecting the opportunities and assets associated with the use of outer space. Here again we have a borderless realm, rich in commercial, scientific, and military potential and questions about how best to preserve these critical assets. Will military deployments and the weaponization of space be required? Is (as some have suggested) the weaponization of space an inevitable evolution of current and historical realities? Or is it possible, or even desirable, to instead craft a legal arrangement preserving space as a peaceful realm?

A great deal rides on the answers to these questions. Scientifically, the stakes are quite high—everything from the International Space Station to the exploration of Mars would potentially be affected by instability and unpredictability in outer space. The commercial implications are even greater. By 2010, the cumulative U.S. investment in space is expected to roughly equal the U.S. investment in Europe. Even with somewhat slower economic conditions, as are predicted for next year, the commercial stakes are very high.

But perhaps the security implications are the greatest of all. Both the United States and Russia rely on space-based systems to provide early warning of a nuclear missile attack. Nothing should be done in any way to diminish the reliability of the space-based components of U.S. and Russian ballistic missile early-warning systems. A decline in confidence in such systems caused by the deployment of weapons in space could enhance the risk of an accidental or mistaken launch of nuclear weapons toward targets in the other country. And this danger is not imaginary. In 1995, well after the end of the Cold War, the Yeltsin government in Russia came within two minutes of launching a retaliatory attack on the United States with their strategic nuclear forces because their early warning system misread the launch of a scientific rocket in Norway as an attack on Moscow.

Moreover, a space arms competition could hinder the flow of satellite imagery that can be used to track activities that might reveal programs to develop weapons of mass destruction in countries of concern. And activities detected through space-based collection systems can be used to trigger requests for inspections pursuant to important arms limitations treaties, such as the Nuclear Non-proliferation Treaty and the Chemical Weapons Convention. Further, the United States has benefited from the revolution in national intelligence that began with, and is based on, photographic reconnaissance satellites and related systems, which has helped bring to

an end the worst case analysis and related close calls with nuclear war that existed during the Cold War. If a truly peaceful and stable world order is ever achieved, the advent of this technology, beginning in the late 1950s, will be regarded by future generations as a major historical turning point.

These are crucial programs, interests, and efforts which we must never allow to be disrupted. Pursuant to the initiative of President Dwight Eisenhower, who at the time of his establishment of NASA made it clear that it was U.S. policy to keep space weapons free, space remains free of weapons of all kinds. Space has long been militarized—early-warning systems are military systems—but it has never been weaponized. This policy has served us all well for decades, and there is a strong burden of persuasion on any who argue that it should be changed.

Nevertheless, there are serious issues that must be debated with respect to security in space and the protection of space assets. For many years much of this debate has been carried on in the U.S. Congress, international organizations, and national legislatures by public figures who have held strong views but for whom the facts behind the issues were not readily available. Obviously it is of extreme importance that this debate over the future of space be conducted on as informed a basis as possible. To address this issue, Canadian governmental officials initiated what became known as the Space Security Index process. It is managed by a prominent Canadian non-governmental organization, Ploughshares of Canada, and also involves experts, civil society, and academic figures from both Canada and the United States. The principal objective of the process is to produce each year a book on the status of security in space based on an analysis of eight indicative subjects: the space environment; space laws and policies; civil space programs; commercial space activities; space support for terrestrial military activities; the

protection of space systems; capabilities to negate space systems, such as by anti-satellite systems; and capabilities to develop systems to strike targets from space.

Space Security, 2007, is now available. This is the fourth annual report on trends and developments in space from January to December, 2006. The definition of space security, adopted several years ago by the Space Security Survey process, is: “the secure and sustainable access to, and use of, space and freedom from space-based threats.” This definition, while of course not perfect, was worked out by experts over many months and represents our best efforts to concisely describe the subject that the SSI process is addressing. The primary consideration here is not the interests or the security of specific countries or space assets, but rather the security of space as an environment that can be used by all.

This year’s report notes that Space is a special environment which presents unique challenges to the international community. The growing use of space, as well as the diversity of those using it, demonstrates the vital importance of space, but this intensifying use presents challenges in managing space traffic, limiting the potential destructiveness of orbital debris, and managing scarce resources such as orbital slots and radio frequencies. Also some technologies that better enable the use of space for some have the inherent potential to deny the secure use of space for others. And without question technological developments are outstripping the existing governance framework for outer space. Something does need to be done. Special note should be taken here of the test of an anti-satellite system by China in early 2007. It was the first openly conducted anti-satellite test since 1985—more than 20 years—and is considered to be one of the worst manmade space debris-creating events in history. This event, which we hope is an isolated one, had a direct bearing on all who desire to operate securely in the Space environment.

The SSI annual report strives to teach and document changes in long-term trends affecting the security of outer space, so that the international community might better assess the impact of the use and regulation of the space environment. And the SSI annual report aims to present the facts behind the debate over the future of space, so that public figures and policy makers can discuss these important issues on the most informed basis possible. We hope to make the SSI the indispensable tool; a presentation of the facts in the most policy-neutral way possible, putting aside entirely what the policy views of anyone may be. As General Lance Lord, the former Commander of U.S. Space Command, said after a briefing on SSI that was presented to him in late 2005, if we do this properly we can become “the IISS [the International Institute of Strategic Studies which publishes the Military Balance every year] of space.” That is our objective.

But, once in possession of the facts and after consideration of the momentous issues involved, what policy outcome should one recommend? It has been suggested that a legal regime to prevent the weaponization of space could be developed by the negotiation of a free-standing protocol to the Outer Space Treaty. In my view there may be some merit to this notion, considering that the Treaty has more than 90 states parties. However, the subject is complicated and it would be important not to reopen any of the provisions of the Outer Space Treaty which were painstakingly negotiated and concluded 40 years ago this year.

An expanded Outer Space Treaty, as modified, by such a free-standing protocol—if the world community, including the United States, should at some point consider this course—would include first and foremost a prohibition on all weapons in space, both offensive and defensive, as they are not distinguishable. “Weapon” would have to be defined for the purposes of this Treaty so as to exclude space objects with a peaceful purpose and items that are not relevant to the

objective of preventing space weaponization. Also, space objects designed to support terrestrial military operations such as the Global Positioning System maintained by the U.S. Air Force—and utilized for navigation by the world community—should be explicitly permitted. Some kind of inspection of payloads of space launches would be necessary, perhaps modified by the principle of “managed access” as found in the Chemical Weapons Convention. Provisions on transparency of space activities and on information sharing would be required.

Some have argued that it is premature to consider additional legal obligations in Space, that informal “rules of the road”—in itself a laudable objective—would get far more support. Others argue that the United States must resist the call for any new international legal obligations inhibiting the deployment of weapons in Space. It is asserted by some that any new such agreement or arrangement would be unenforceable and unverifiable and as they put it “the ignominious record of enforcing and verifying treaties prohibiting activities on Earth is proof enough to give pause to any conversation about a treaty governing activities in Space.”

Yet, where would we be without the Nuclear Non-proliferation Treaty? Likely in the neighborhood of some 40 states today armed with nuclear weapons, meaning that every conflict would run the risk of going nuclear and nuclear weapons would be so widespread that it would be impossible to keep them out of the hands of terrorist organizations. Where would we be without the strategic arms limitation and reduction agreements of the 1970s, 1980s, and 1990s? Likely, the United States and Russia would have so many nuclear weapons and long-range ballistic missiles, they could never be controlled. And where would we be without the Outer Space Treaty itself? Nuclear weapons could be orbiting the Earth with the capability to strike anywhere, anytime without warning.

The history of the past 50 years teaches us that, if dangerous weapons and technologies are to be controlled for the safety and security of us all, it must be done early before the programs become entrenched. That time may well be now with respect to weapons in space.