
SPACE DIPLOMACY

China's 2007 anti-satellite (ASAT) test exploited a gray area in international space law. The Outer Space Treaty calls for prior notification of other countries in the case of activities that might cause "harmful interference" with the space programs of other countries.¹ Despite the ASAT test's release of thousands of pieces of dangerous debris, no such consultations took place. Chinese officials likely assumed that since the Soviet Union had conducted some two dozen such tests from 1968 to 1982 and the United States had carried out one in 1985—also with no consultations—that China's test would be able to slide under the literal and figurative radar screens. Oddly, the United States, which had observed two prior Chinese ASAT tests that had, intentionally or not, missed orbiting satellites, decided not to request a consultation with China in advance of the third test. Instead, it was amateur astronomers

who noticed the disappearance of an aging Chinese weather satellite and brought international attention to this anomalous event, causing the U.S. military to confirm China's destructive action about which both Washington and Beijing had earlier remained silent. With space increasingly crowded by 2007, international condemnation then came loudly from many corners: other governments, scientists around the world, and even private satellite companies.

A year later, in February 2008, the United States decided to destroy its unresponsive *U.S. 193* intelligence satellite, stating that the action was being taken to prevent it from reentering the atmosphere fully loaded with toxic hydrazine (although critics suggested the shootdown was actually a signal to China).² Whatever the true reason, Washington conducted the world's first advance consultation under Article IX of the Outer Space Treaty, sending a senior NASA debris expert (Nicholas Johnson) to Vienna to explain the planned U.S. activity and its consequences before member states of the UN Committee on the Peaceful Uses of Outer Space (COPUOS). Thus, despite its prior practice in 1985, the United States decided that evolving conditions in space now made enhanced international transparency the appropriate behavior in order to avoid condemnation. Given the satellite's very low altitude, the debris from the U.S. destructive action deorbited from space within months and posed little danger.

The recent spread of space capabilities to many more nations brings with it a new imperative for making sure all actors behave responsibly. It took the United States and the Soviet Union several decades to work out formal and informal rules for managing the risks of space conflict. This process will now have to take place faster if problems are to be avoided. But it may be difficult for emerging spacefaring nations to grasp or accept policies of transparency and restraint, especially when they are preoccupied with political and military rivalries and bent on achieving advantages over their adversaries.

To date, space is the only environment of human activity (except the Antarctic) that has not witnessed direct international conflict. In legal terms, space has been a realm of shared ownership since the passage of the 1967 Outer Space Treaty. Some scholars have likened space

to a "commons," an English institution represented by the shared land historically attached to villages where animals could graze freely.³ Over time, however, as more and more people brought increasing numbers of animals into these spaces and fodder became scarce, many of these areas became unsustainable. The village commons had to be broken up, usually ending up in private hands. Questions about whether space will be carved up as a result of emerging conflicts over finite orbital and celestial resources continue to concern academics,⁴ as well as government officials.⁵

One factor is the increasing military use of space. As discussed in chapter 5, until recently, only the United States and Russia had serious military space programs. In the past decade China has joined them, and a growing number of other countries have begun such efforts. This changing situation raises the possibility of conflict, whether planned or inadvertent, as national military space objectives collide. Civil and commercial crowding of space also means more spacecraft to track, more orbital debris, and more political problems. Governance mechanisms will have to evolve to manage the growth of actors and the spread of space technology.

Space diplomacy has moved in fits and starts to address commonly identified problems. But the treaties and other accords reached by countries in the 1960s and 1970s did not ban military activity altogether. They also left intentional and unintentional loopholes for certain types of weapons, which countries either decided they could not verify via a negotiated ban or wished to leave open for their own possible development. As the leaders, the United States and the Soviet Union kept close track of each other's military test programs and tended to behave cautiously in the knowledge that their adversary would likely respond actively to any attempt to obtain a unilateral weapons advantage. By the 1990s, the United States and Russia shared a strong norm against testing kinetic weapons against satellites, but they did not sign a new treaty attempting to cement this practice into an international legal rule or to extend it to other actors. China eventually exploited this ambiguity. Today, significant gaps remain in international treaties regarding space activity. There are no treaties that prohibit the testing of non-nuclear

weapons in space (including kinetic munitions, lasers, electronic jammers, and microwave systems), no restrictions against orbiting such non-nuclear weapons, and nothing but voluntary guidelines to prevent countries from releasing harmful orbital debris. Prior notification is the only emerging norm.

China's rise as a significant military space power challenges the old bilateral (U.S.-Russian) leadership of space security affairs. In Asia, strong nationalism has characterized an evolving regional competition among China, India, Japan, and the two Koreas, among others. Many of these countries harbor deep-seated historical animosities and have no tradition of arms control or security cooperation. In the Middle East, Iran has joined Israel as a spacefaring nation, but Tehran has violated international commercial norms by jamming the signals of certain foreign satellites broadcasting over its territory. In South Asia, Pakistan aims to counter India's recent venture into military space activity through cooperation with China. The weakness of enforcement mechanisms in current international space law and the holes in the space security framework raise serious questions about the adequacy of existing governance tools.

But military tensions alone do not account for the full extent of today's space governance problem. The UN Conference on Disarmament (CD) in Geneva, which is responsible for negotiating international arms control treaties, has been stalemated since the late 1990s by conflicting national priorities and a crippling consensus rule that prevents formal discussions unless all countries agree to go forward. No space negotiations have been held at the CD since the mid-1990s. In fact, no new international arms control mechanisms for space have emerged since 1975.

In order to explain how we got into this situation and how we might move beyond the current impasse, it is worthwhile to review the major directions of late-twentieth-century space diplomacy, identify emerging twenty-first-century trends, and discuss the challenges countries face today in trying to manage space collectively and avoid conflict. These dilemmas are compounded by vast differences in capabilities among the actors, the relatively large role of military activities

(some secret) among the top three spacefaring nations (China, Russia, and the United States), and enduring patterns of mistrust in international relations more generally, which make it difficult to reach binding agreements and to enforce them. Nevertheless, unilateral military approaches to space security can go only so far. Relying mainly on weapons to provide security is costly, risky, and escalatory, as these systems often stimulate rivals to develop systems to counteract them, leading to potential arms competitions and the heightening of tensions. These points highlight the important role of diplomacy in any successful space future. The trouble is that to move in this direction, countries have to identify areas of common interest, craft agreements, and rally the political leadership needed to implement the agreements.

BACKGROUND TO TODAY'S DEADLOCK

From 1963 to 1975, the United States and the Soviet Union led efforts to create a basic framework for space security. As described in chapter 2, these agreements included the 1963 Partial Test Ban Treaty, the 1967 Outer Space Treaty, the 1972 Liability Convention, the 1972 Anti-Ballistic Missile Treaty, and the 1975 Registration Convention. But with the breakdown of U.S.-Soviet détente in the late 1970s, the political environment for new agreements evaporated. A series of talks aimed at halting further development and testing of ASAT weapons nearly reached fruition in 1979, but complications in the bilateral relationship introduced by the Iranian revolution and the Soviet invasion of Afghanistan caused this tentative accord to be pulled from consideration.

With bilateral nuclear and space tensions rising, a group of Western countries (led by Italy) that were concerned about the possible extension of the arms race into space joined in an unusual coalition with the Soviet Union in support of a UN resolution in 1981 on the Prevention of an Arms Race in Outer Space (PAROS).⁶ With continued Soviet ASAT tests and the ramp-up of the U.S. Strategic Defense Initiative (SDI), which planned to deploy thousands of space-based interceptors for missile defense purposes, these concerns only increased. Given its SDI plans, the Reagan administration resisted international

efforts to negotiate a new space treaty. The Soviet Union countered with a surprising proposal in 1983 to halt all ASAT testing and agreed to dismantle its existing ASAT system. But the Reagan administration doubted it would ever be able to determine whether Moscow was complying with its claims, if the agreement were to go forward. After a series of deaths of elderly Soviet leaders, a new Soviet leadership emerged in 1985 under the relatively young reformist Mikhail Gorbachev, who made an even more radical suggestion: the formation of an International Space Authority to ensure the peaceful uses of space and to help verify a new treaty against the weaponization of space. In the end, the United Nations turned these proposed space negotiations over to the CD, where the Ad Hoc Committee on PAROS held discussions (albeit inconclusive ones) from 1985 to 1994 on mechanisms to strengthen space security. The Reagan administration participated with skepticism in these talks and in bilateral space and defense discussions with Moscow linked to the nuclear arms control process. The U.S. government viewed these international space negotiations as an effort to block the SDI program and other missile defense efforts, a policy that largely continued under President George H. W. Bush and President Bill Clinton. After the Soviet breakup in 1991, most countries no longer viewed space conflict as imminent. As a result, the negotiating mandate on space security at the CD finally expired in 1995.

But by the late 1990s, with the U.S. test program for missile defenses beginning to move toward interceptors whose operational altitudes and speeds might put Russia's and China's nuclear deterrents at risk, Moscow joined with Beijing in an effort to renew the CD's negotiating mandate on space arms control. Moscow also sought to limit U.S. missile defenses through insistence on maintenance of the ABM Treaty, although allowing some systems via so-called demarcation agreements, so long as their speed and range did not allow creation of a nationwide missile defense. Such limits met with strong opposition within the Republican-controlled U.S. Senate, many of whose members wanted a U.S. withdrawal from the ABM Treaty altogether to allow progress toward a national (vs. a site-defense) system. The Clinton administration decided to side with Republicans in blocking space talks at the

CD, insisting instead on negotiations for a fissile material cut-off treaty (or FMCT), intended to halt the global production of fissile material for weapons purposes. Absent a consensus on the agenda, the CD talks could not resume, and no talks were held throughout the subsequent George W. Bush administration as well.

Only in June 2009, with mutual Chinese and U.S. compromises to address space security, the FMCT, and other issues, did CD delegations finally agree to a mandate for talks. A few months later, however, Pakistan blocked this new consensus by objecting to the fissile material cut-off talks, thus throwing the CD back into deadlock.

Since the mid-1970s, significant international progress toward enhanced space governance has taken place in only one area: orbital debris control. After the 1985 U.S. ASAT test, the Department of Defense and NASA became increasingly concerned about the threat of orbital debris and began bilateral discussions with allies and eventually the Soviet Union on the need for debris control. These efforts resulted in the formation by the United States, Japan, ESA, and the Russian Federation of the Inter-Agency Space Debris Coordination Committee (IADC) in 1993. This body later expanded considerably and began drafting a set of guidelines for best practices in debris mitigation,⁷ including cessation of the use of hazardous devices such as the exploding bolts that used to be released and put into orbit when rocket stages separated. The IADC called upon states to refrain from the creation of long-lasting debris (longer than twenty-five years) and to deorbit low-Earth orbit (LEO) satellites at the end of their service lives and boost geostationary orbit (GEO) satellites to higher, super-synchronous orbits to prevent collisions. The IADC eventually worked with COPUOS to craft a voluntary set of best practices for consideration at the United Nations, which approved the Space Debris Mitigation Guidelines in December 2007 by unanimous consent.

THE NEED FOR BETTER SPACE GOVERNANCE

Given the slow pace of progress toward expanded space governance since the mid-1970s, a question that must be considered is, "What

'demand' is there for enhanced international cooperation in this field?" After all, strongly nationalistic space programs dominated the Cold War and have operated effectively in a number of countries since then. But space is becoming more crowded and accident prone, thus putting a higher priority on international management than ever before. In the commercial sector, companies need reliability and legal enforcement mechanisms if they are going to operate profitably in a shared environment. If not for the International Telecommunications Union, for example, the world might well have seen countries seeking to seize and occupy slots in GEO, creating incentives for offensive and defensive weapons in that area of space and the likelihood of considerable environmental degradation from hazardous orbital debris. Such a situation would benefit no one. But rules are hard to create and enforce in a transnational realm like space, meaning that effective governance is a tall order.

Under the Bush administration, the United States asserted in its 2006 National Space Policy that Washington would resist any effort to restrict its "freedom of action" in space. Such language had never been used in a U.S. space policy and seemed to have been inserted by neo-conservatives in the Bush Pentagon, along with another unprecedented phrase stating a U.S. policy to "oppose" any new treaties for space. The Obama administration dropped these elements from its 2010 National Space Policy. While attractive in theory, the notion of total independence in space activity is impossible in the twenty-first century. In fact, if all countries asserted their rights to freedom of action without restraint, space would certainly be ruined by orbital debris and other collective dangers. Instead, conditions of *interdependence* in Earth orbit suggest that there is a collective self-interest in the formation of clearer rules against harmful behavior, the promotion of incentives to bolster these rules, and the implementation of effective monitoring to enhance their enforcement. This means that all countries must give up some degree of freedom. In return, however, they stand to receive the benefits of restraint by other actors as well. Had the United States and the Soviet Union each not given up the right to test nuclear weapons in space in 1963, there is no doubt that both they and other countries—

such as France, China, Israel, and India—would have conducted additional space tests by now. Thus, in this case, a self-restraint treaty that included the two leading space powers worked, and it later stimulated positive, “follow-the-leaders” behavior by others. How might this lesson be applied to the problems in orbit today?

The most serious problems today have to do with destructive actions in heavily traveled regions of space (such as LEO and GEO), the risks posed by unrestricted proximity operations (when two satellites come into close quarters),⁸ and the development and testing of new weapons systems (lasers, space-based jammers, and microwave systems). Countries are considering various space weapons in almost all cases not because of inherently offensive intentions, but because of fear of the activities of others. In this context, a range of possible new space security mechanisms seem to be worth investigating.

At one end of the spectrum is the simplest approach: one country declaring what it will do unilaterally to improve stability and security in space. This could take the form of a declaration rejecting the orbiting or testing of space weapons writ large, or at least specific types of weapons—such as kinetic debris-producing systems in highly trafficked regions of space. Such a declaration by a leading space power, while initially somewhat risky, could stimulate copycat behavior by others. (It could also be withdrawn if others don’t follow.) If it succeeded, successive pledges by others might gradually create an international norm that only a country willing to be branded a “rogue state” would consider violating the pledge, particularly given the hazards posed by long-lasting orbital debris.

Another, slightly more complicated diplomatic mechanism for improving space security is bilateral agreements. Such pacts worked particularly well in the U.S.-Soviet context during the Cold War. Today, in a space environment with multiple actors, they are likely to have somewhat less impact. Nevertheless, countries are not uniformly equal in space, and agreements between or among leading powers (such as the United States, Russia, China, the European Space Agency, India, Israel, or Japan) would likely have significant spillover effects on other actors. For example, an effort by the United States and Russia to

extend their legal restriction against interference with national technical means to other major space actors (assuming mutual acceptance of non-interference) could go a long way toward extending this norm and reducing current military space tensions.

At the far end of the options spectrum is the possibility of new international agreements involving larger numbers of actors. These include codes of conduct, conventions (such as the 2007 UN Space Debris Mitigation Guidelines), and formal treaties. Depending on the nature of the agreements, the level of domestic approval required, and the intrusiveness of verification and/or enforcement mechanisms, negotiating these arrangements can be more (or less) difficult. But formal agreements do offer real advantages in terms of reliability, stability, clarity of rules, effectiveness of implementation, and longevity. U.S.-Russian nuclear arms control efforts would have been ineffective without treaties and effective verification. Similarly, worldwide efforts to prohibit and destroy chemical weapons would not have been as successful as they have been without the 1993 Chemical Weapons Convention, its timeline for dismantlement, and its verification mechanisms. Space may have specific threatening activities that could be most effectively addressed by treaties as well. To support such efforts, it may also be beneficial to create an international space monitoring organization to supplement or work alongside existing U.S. military systems. The U.S. Air Force is already working in this direction through its cooperation with allies and even, on a more limited basis, with China, to provide warning of potential collisions involving their spacecraft. But the United States cannot be expected to pay for such an international mechanism. If countries want the benefits of enhanced transparency and the stability it could bring, they are going to have to devote adequate resources to the task, just as the United States has done out of its own national security interests in developing its Joint Space Operations Center. Private companies have also begun to pool resources in the Space Data Association (mentioned in chapter 4). It remains to be seen if the countries that are worried about space weapons tests, orbital debris, and various types of harmful interference will be able to cooperate both politically and financially to support the creation of such a system.

CURRENT SPACE GOVERNANCE PROPOSALS AND DEBATES

International debates about enhancing space security over the past decade have ranged from proposals by experts for the formation of a broad international space organization, to more specific new space treaties, to less ambitious codes of conduct, to ongoing discussions within the United Nations and the UN COPUOS, to purely voluntary measures of self-restraint. For interested parties and many observers, the progress of these efforts has seemed glacial. This point only highlights the difficulty of reaching consensus in a field where there is a great deal of dual-use technology, enduring military distrust among leading actors, and questions about the viability of future agreements in terms of compliance and verification. Nevertheless, several of the current initiatives are worth discussing in greater detail.

The most well-known and long-standing effort is that associated with an annual UN resolution on the Prevention of an Arms Race in Outer Space (PAROS). Its aim since the early 1980s has been to restart negotiations at the CD in Geneva toward a strengthened arms control treaty for space to supplement the Outer Space Treaty. Due to the lack of U.S. support (and outright U.S. opposition during the Bush administration), the resolution's effect has been mostly political. The Obama administration has thus far abstained (usually alone among the UN nations) to register its opposition to the resolution's mention of a Russo-Chinese treaty proposal it does not support on banning space-based weapons (in part because of gaps in verification). This stance has won Washington few fans on the international level. The United Nations overwhelmingly approves the PAROS resolution every year. However, it has had little effect because of the CD's failure to agree on an agenda to actually initiate the discussions on space security that the resolution demands.

Beyond PAROS, three main initiatives have received the bulk of attention in recent years. First, there is the above-mentioned initiative by China and Russia to go beyond PAROS in proposing a new treaty to ban space-based weapons, called the Treaty on the Prevention of the Placement of Weapons in Outer Space. The United States

and other countries have opposed this treaty, citing a variety of specific weaknesses in the draft. Second, there is a Russian-led initiative to promote transparency and confidence-building measures in space. This effort succeeded in creating a UN-endorsed Group of Governmental Experts (GGE) that investigated the status of space security and issued a report proposing new mechanisms for improving international cooperation. Finally, there is a proposal, originally developed by the European Union, for a non-binding space code of conduct. After a 2012 endorsement from the United States, the development of this code is now under discussion as a truly international document. In addition, there are also some still incipient efforts ongoing at various levels; those will be mentioned at the end of this chapter.

Treaty on the Prevention of the Placement of Weapons in Outer Space

The first major initiative is a joint Sino-Russian proposal that emerged from a 2002 joint working paper at the CD on possible elements of a treaty on the prevention of deploying weapons in space and threatening the use of force against space objects. The motivation for this initiative stemmed from frustration with U.S. insistence on the fissile material cut-off treaty (which China initially opposed) and an effort to rally international support against the Bush administration's 2002 withdrawal from the Anti-Ballistic Missile Treaty. Both sides opposed possible U.S. deployment of space-based interceptors, viewing this development as destabilizing to space and possibly threatening their nuclear deterrents. Beijing and Moscow worked on the language and issued a formal draft "Treaty on the Prevention of the Placement of Weapons in Outer Space, [and] the Threat or Use of Force Against Outer Space Objects" (PPWT) in February 2008. Many international observers, frustrated by the Bush administration's refusal to discuss space arms control, saw the initiative as a positive effort to break the deadlock at the international level, although questions about the intentions of China's 2007 ASAT test clouded this assessment. The draft treaty

defined a space weapon as "any device placed in outer space, based on any physical principle, specially produced or converted to eliminate, damage or disrupt normal functions of objects in outer space."⁹ It sought to prohibit their deployment in space and required countries to agree "not to resort to the threat or use of force against outer space objects." But questions immediately arose about what the ban included. The U.S. Department of State released a set of comments and questions in August 2008 calling attention to what it identified as a number of inconsistencies and vague language requiring clarification, such as whether the testing or deployment of ground-based ASATs would be banned by the treaty. To the surprise of many international observers, the cosponsoring countries issued a formal reply in 2009 indicating that the treaty sought only to ban *space-based* weapons and would allow continued development or testing of ground-, sea-, or air-based systems (kinetic, laser, or electromagnetic), saying that such tests were not easily verifiable.¹⁰ Critics doubted the sincerity of this rationale, given the highly transparent nature of at least kinetic tests, which release orbital debris that is easily detectable by ground-based radars. Instead, it appeared to many observers that China was attempting to retain its right to continue developing, testing, and deploying its ground-based ASAT missile interceptors, as well as lasers and jammers. Notably, neither the draft treaty nor the Sino-Russian clarification letter made any mention of international goals of debris mitigation efforts, as approved in the 2007 UN debris guidelines. The treaty also offered no specific methods for verification of space-based objects that might be carrying weapons. Prospects for international support of the agreement quickly plummeted.

Transparency and Confidence-Building Measures

While the CD process festered, Russia (joined by a number of other countries) introduced a new resolution at the United Nations in the fall of 2005, "Transparency and Confidence-Building Measures in Outer Space." The proposal's general nature and informational focus garnered widespread international support (although the United

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States opposed it under the Bush administration and has abstained under President Obama). After inviting other states to provide concrete suggestions in subsequent resolutions, the 2010 version of the transparency proposal included the suggestion for the convening of a representative Group of Governmental Experts beginning in 2012 to study the issue of space transparency and come up with recommendations for the United Nations. The proposal passed in the United Nations, establishing a process that led to a formal study of space security issues on the themes of improved transparency and mutual confidence-building by a group of fifteen countries whose membership included the five permanent members of the Security Council (China, France, Russia, the United Kingdom, and the United States, or P-5), as well as ten additional states. Despite its official abstention in the UN vote on the resolution, the United States endorsed the GGE concept and participated in its sequence of meetings in July 2012, April 2012, and July 2013. In the absence of official meetings at the CD, the work of the GGE represented one of the few forums where official discussions of space security on topics beyond orbital debris had taken place since 1994. The GGE's report was issued at the United Nations in the fall of 2013. It endorsed enhanced international cooperation in such areas as disaster warning, space debris mitigation, space wealth monitoring, and the long-term sustainability of commercial space development.

Code of Conduct

In the face of the CD stalemate and the Bush administration's categorical opposition to new space treaties, the countries of the European Union (EU) sought to provide a possible path forward for international space security efforts by developing a Code of Conduct for Outer Space Activities. One of the sources for this initiative could be traced back to the United States and a nongovernmental organization called the Stimson Center. Its founding director, Michael Krepon, had earlier put together a draft code of conduct for space and had spent years pursuing this concept as an alternative to the time-

consuming route of negotiating and ratifying a new treaty. The EU made amendments to the Stimson Center draft and issued its own version through the Council of the European Union in December 2008, with a revised version following in September 2010. The European-led Code of Conduct proposed that countries voluntarily pledge adherence to a set of principles aimed at promoting safe conduct in space and fostering conditions for improved space security through the adoption of a set of consensual norms—much like members of a club agreeing to behave according to certain rules. These guidelines included: non-interference with one another's spacecraft; actions to minimize chances of collision or debris release; the contribution of data on spacecraft maneuvers and any problems into a shared electronic database; willingness to consult with others in case of anticipated harmful actions; and participation in consultative meetings on implementation of the code every two years. While a number of these principles repeated or reinforced elements of the Outer Space Treaty and other prior agreements, their collection in a single document with an emphasis on taking all "adequate measures to prevent outer space from becoming an area of conflict"¹¹ represented a serious effort to dissuade hostile trends of the past decade.

National opinions on the code initially varied greatly. Early comments from Russia, China, and India indicated a generally negative view on two scores: (1) the code detracted attention from new treaty proposals for space, such as the PPWT; and (2) the code had been written without input from a number of space powers, particularly Russia and China, as well as developing countries. Through the end of the Bush administration and the first three years of the Obama administration, the United States remained diffident regarding the code. Washington issued periodic statements indicating general support for the "process" of forming a code, but not for the document itself. One concern for the Obama administration was opposition to the code from some Republicans in the U.S. Senate and former Bush administration officials, who argued that the "voluntary" code would restrict U.S. military options in space and should therefore be submitted for approval by the U.S. Senate (as if it were a formal treaty). Code supporter

Krepon sought to rebut this claim by pointing out that former Republican presidents have routinely signed on to such informal agreements.¹² Other critics, from both the far right and the far left, criticized the code for its non-binding character, arguing that it either would do nothing to restrict an adversary's military space programs or could easily be reversed after elections by changes in government policy. As Jeff Kueter of the conservative George C. Marshall Institute wrote, "This uncertainty may generate more, rather than less, tension in space."¹³

Nevertheless, the code represents perhaps the only path forward currently in a highly polarized international space environment. In February 2012, the Obama administration endorsed the formation of what it called an "international" code of conduct, suggesting that the European draft was a solid first step but further input was needed from both the United States and other key international actors. Since then, Russia, China, and India have all softened their stances and voiced support for the code as a means of making progress toward more formal agreements. As Russian ambassador Alexey Borodavkin stated at the Conference on Disarmament in June 2012, "We appreciate positively the draft Code of Conduct in Space proposed by the EU and are ready to participate in its finalization on a multilateral basis."¹⁴ Two such meetings have been held (Kyiu in 2012 and Bangkok in 2013), bringing in new ideas and helping strengthen consensus in the revised document.

Other Initiatives

The one other international organization in which significant new efforts at space governance are under way is the UN COPUOS in Vienna. For the past two decades, its mandate has focused on international cooperation in peaceful space activities, since the CD is supposed to deal with arms control and security. Success in fostering agreement on debris mitigation has stimulated greater support for and participation in its annual meetings. Recent topics have included space applications, natural disaster warnings, orbital debris monitoring, and long-term sustainability. COPUOS represents one of the few

active and regular forums for official space discussions, and its meetings tend to be considerably more congenial than those of the UN General Assembly or the CD, which often feature hostile and divided politics. Some observers have suggested moving space security discussions to COPUOS from the CD, but countries have resisted this idea both to protect the civil space discussions, which have worked relatively successfully in COPUOS, and to prevent the divestiture of the CD from its previously successful mission as an arms control forum.

Within broader academic debates on space governance, experts periodically renew past calls for an empowered international space organization. Detlev Wolter's exhaustive 2006 study on space law and governance for the UN Institute for Disarmament Research, for example, proposed the idea of a more comprehensive international treaty for space and its establishment of an Organization for Common Security in Outer Space (OCSO), similar to the International Atomic Energy Agency or the Comprehensive Nuclear-Test-Ban Treaty Organization.¹⁵ Wolter's proposed treaty would limit military space activities to non-offensive, support purposes, and thus ban active defenses and destructive activities of any sort, as well as the basing of weapons in space. It would also require the destruction of existing ASAT weapons. Regarding the question of how this treaty would handle dual-use systems such as ground- or sea-based missile defenses, Wolter proposed an international system of on-site verification. In addition, the new OCSO would supervise space activities and provide early-warning information on missile launches. Finally, it would work to develop and implement rules for space conduct and develop governance mechanisms through the United Nations to implement them, possibly assimilating existing bodies like COPUOS. Despite the comprehensive nature of this proposal—or perhaps because of it—the recommended treaty and organization have yet to gain much official support from spacefaring countries.

CURRENT PROBLEMS AND POSSIBLE OPTIONS

As we have seen, the United States actively led and promoted space diplomacy in the period from 1963 to 1975. But it has resisted new space

treaty efforts since the late 1990s. Given emerging problems in space, however, Washington has recently outlined a path toward a possibly more active role in space diplomacy in the future. In this regard, the 2011 U.S. National Security Space Strategy noted that "U.S. diplomatic engagements will enhance our ability to cooperate with our allies and partners and seek common ground among all space-faring nations."¹⁶ Moreover, the 2010 U.S. National Space Policy stated that the United States will consider new treaties and legal controls if they are verifiable and serve U.S. national interests. Can the United States use its influence and its current space leadership role to "shape" the future space security environment, as it did in the 1960s when it negotiated agreements covering peaceful uses, no WMD in space, and no national appropriation of territory? If so, what is the best option in an increasingly globalized world and in a context where other spacefaring powers must be consulted and their view included?

Clear policy differences exist among the major space powers today on the aims of space diplomacy. But there is widespread agreement on the fact that the status of space governance is problematic. As Indian ambassador Sujata Mehta explained his country's viewpoint in mid-2012,

As this global common gets more populated and crowded, and as technology develops rapidly it becomes natural to ask if the current international legal framework on outer spaces [*sic*] devised at the dawn of the space age more than three decades ago is adequate to address space security challenges both contemporary and future.¹⁷

But India does not want to see the creation of an agreement like the 1970 Treaty on the Non-Proliferation of Nuclear Weapons, which gave a special status to those countries that (unlike India) had already tested nuclear weapons before it was signed. India fears, for example, that if ASAT weapons tests are banned in space, it will be forever placed in a "second class" status in space. It therefore speaks of the need for what Ambassador Mehta called legally binding "non-discriminatory"

measures. But, then, what are the consequences if all countries insist on their right to conduct harmful kinetic ASAT tests in low-Earth orbit? These are some of the dilemmas facing diplomats as they consider a new space treaty.

The current U.S. perspective on space negotiations agrees with the Indian view on the nature of the problems in space. As U.S. ambassador Laura Kennedy stated in an address before the CD in 2012, "The world is increasingly interconnected through, and increasingly dependent on space systems, but space is increasingly at risk."¹⁸ Yet the United States, unlike in the 1960s and 1970s, now seems to shun treaties. Quoting the National Space Policy, Ambassador Kennedy noted that the United States would require that any new legal mechanisms for space must be "equitable, effectively verifiable, and enhance the national security of the United States," but added, "We have not yet seen a proposal that meets these criteria."¹⁹ For many governments, the fact that the United States has been unwilling to offer any ideas of its own has been a source of frustration over the last decade. The Obama administration has sought to deflect opposition at home and speed progress internationally by emphasizing "the need to develop near-term, voluntary, and pragmatic transparency and confidence-building measures (TCBMs)."²⁰ But there are limits to such voluntary measures. Chinese ambassador Wang Qun stated his government's position in 2012 by explaining, "As voluntary measures in nature, TCBMs are not legally-binding, and they can't substitute for the negotiation of a new legally-binding instrument on outer space."²¹ In an effort to bring the United States closer to their position on the PPWT, Russia and China have begun to show more willingness to compromise. As Russian ambassador Borodavkin explains this new policy, "We have already drawn . . . attention . . . to the fact that nothing in the Russian-Chinese draft is 'set in stone.' This is rather an invitation to a dialogue and joint creativity [*sic*] work than something static."²² Whether this opening will eventually lead to productive talks, perhaps through the code discussions or follow-on meetings based on the findings of the UN GGE, remains to be seen.

A common point in the various national perspectives is a shared desire to make a currently less-than-comprehensive governance system

in space more effective, thus promoting the ability of all actors to develop space and use it to further their national interests (whether in security, commerce, science, or exploration). In theory, such shared interests might eventually support the international "policing" of space, with a joint monitoring system for identifying wrongdoing and an institution possessing the tools and the decision-making capacity to enforce common space rules. But we are far from attaining such an objective, due to current mistrust and policy differences. Still, this could be kept in mind as a possible long-term goal, if international cooperation emerges in other realms and steps are taken toward greater collective security measures in space. In considering the challenges facing the maritime domain, Admiral Michael Mullin, the then chief of U.S. naval operations (and later chairman of the Joint Chiefs of Staff), enunciated a vision in 2006 of a multinational thousand-ship navy that could work cooperatively to police the seas against smuggling, piracy, and other shared threats to international security, as well as share duties in humanitarian assistance, disaster relief, and other emergencies.²³ Is this idea possible for space in the future, perhaps through the cooperation of scientists, the commercial sector, and amateur astronomers? If not, what are the alternatives? Military space dominance by one country, space anarchy, or something else? The dilemma of national enforcement in an international realm poses certain inherent problems in the absence of a dominant power. But if a leading power is unwilling or unable to carry this burden—or if the actions to achieve such a situation might actually worsen international security—perhaps the messy process of learning to cooperate for humankind's common interests is the most promising option.

CONCLUSION

The current system of space governance has emerged sporadically since 1957. Its foundations took shape particularly in the period from 1967 to 1975, when the leading spacefaring nations realized the risks of an ungoverned environment to their own future security and their ability to maintain safe access to this valuable new realm. Today, gaps in

the Cold War space framework have emerged as a range of new state and non-state actors have gained access to space through the spread of technology. Conditions of increased crowding in LEO and GEO, the spread of space debris, and the finiteness of the radio frequency spectrum for satellite broadcasting have all heightened the requirement of international cooperation for the continued use and development of space. Military tensions have emerged as well to threaten stability and raise the prospects of both conflict and warfare.

These points should not cause either observers or space participants to throw up their hands and despair that nothing can be done to avoid a collision course. Efforts like the UN Space Debris Mitigation Guidelines and the newly rechristened International Code of Conduct for Outer Space Activities are steps toward greater collaboration, albeit short of clear and binding rules and procedures for future peace and stability. But the risks of failure provide a sobering incentive to work harder toward self-restraint and cooperation in this shared environment. Diplomatic tools need to be retrieved from the traditional toolbox of international space relations and new ones created to tackle emerging challenges and promote sustainability.

In light of the tasks ahead to prevent international space conflict and manage the peaceful development of space, specifically how should we go about doing this? Chapter 7 surveys the most salient problems facing the space domain across the civil, commercial, and military realms and then considers three alternative routes toward creating an improved foundation for space security.