RED HORIZONS: THE U.S. RESPONSE TO SOVIET MILITARY GAINS IN SPACE

By Robin Ranger

The continuing shortfall in U.S. military space capabilities was accurately summarized by Vice President George Bush in his introduction to the recent Global Strategy Council study, *Space Support of U.S. National Security*:

> As I discovered first hand during my time as the Director of Central Intelligence, the Soviets have been active for years in seeking the military dominance of space. It would be a fatal mistake for Americans to be naive about this serious threat.
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> We must improve our heavy-lift launch capability. We must get our Space Shuttle program back on schedule. We need the flexibility these programs can afford us. It is also important that we improve the survivability of our satellites against Soviet ASATs. And we must have a manned presence in space.
>
> Most importantly, we must sustain the pace of the critical research on the Strategic Defense Initiative that our Administration has launched....
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> Our national security depends upon keeping our space-orientated programs strong. We cannot afford to be second in space.[1]

Unfortunately, Moscow's slow but steady gains in military space activities mean that the U.S. is now, and will be for some time to come, second in military space terms. This shortfall is particularly serious in the area of space launch capabilities for military, as well as for commercial and scientific, purposes. Since the tragic January 28, 1986, loss of the space shuttle *Challenger* and its crew, the U.S. has not had the space launch capabilities to meet its military objectives in space.

This adverse situation will further deteriorate, sharply, if the U.S. loses another manned space shuttle. Such a loss is, for reasons which I will explain below, all too likely.

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1 Vice President George Bush, Introductory Letter, November 23, 1987, to U.S. Global Strategy Council, *Space Support of U.S. National Security*, Washington, D.C., 1988.

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This lecture thus outlines a U.S. military space policy that would reverse these dangerous, destabilizing Soviet gains and provide the U.S. with a coherent, affordable, and politically supportable space program meeting its legitimate national security objectives.

U.S. MILITARY SPACE POLICY: THREE OBJECTIVES

The U.S. needs such a policy because it must no longer confront Moscow only on land, at sea, and in the air. Space too is now a military front, and here the U.S. has no coherent or consistent policy.

Yet the U.S. has become increasingly dependent on space-based systems, mainly satellites, to support its military operations in the areas of command, control and communications (C^3), early warning of a Soviet ballistic missile attack, electronic warfare, navigation, reconnaissance, and targeting. For example, all four U.S. military services rely on satellite navigation systems to locate the positions of their units.

Redesigning for Wartime. The U.S. relies on such space-based systems to support the operations of both its conventional military forces, on which it spends some 80 percent of its defense budget, and its nuclear forces. If the Soviets disabled some, or all, of the satellites on which the U.S. military relies they could render the U.S. military blind, deaf, and speechless — unable to see or hear what the Soviet military machine is doing and unable to communicate with U.S. forces. The U.S. thus needs to redesign its military satellite systems for wartime survivability and functioning.

The U.S. also depends much more heavily than does Moscow on reconnaissance satellites for arms control verification because, despite claims of *glasnost'*, the Soviet Union remains a tightly closed, secretive society regarding military activities. Indeed, U.S. dependence on space-based systems is such that Moscow might well be tempted to start an attack on the U.S. in space, to gain a potentially decisive advantage.

The U.S. must thus establish a military space policy with three objectives:

1) Development and deployment of space-based systems adequate to support conventional and nuclear force operations, gather intelligence, and verify Soviet compliance with arms control agreements in peacetime;

2) Development and deployment of space-based systems that can, in major crises or conflicts, provide the necessary additional support to U.S. military operations while deterring or defeating Soviet attempts, including use of Soviet anti-satellite (ASAT) systems, to deny such support;

3) Deployment of space-based subsystems of a strategic defense system, such as space-based interceptors to destroy ballistic missiles launched by the Soviets, or by other countries.

To secure these objectives, the U.S. has to have a capability to launch military space systems into orbit and to replace space systems lost to Soviet ASAT attacks.

These U.S. military objectives in space are, in principle, similar to U.S. naval objectives at sea: to use a particular environment (space, the sea) to protect and advance its national security interests. In major crises or conflicts the U.S. also has to be able to deny the use of space (and the sea) to hostile powers, most important to the Soviet Union. This similarity was summarized by the Commander-in-Chief of the North American Aerospace Defense Command and the United States Space Command, General John L. Piotrowski:

> Space control is analogous to sea control. Included are those actions that ensure we can operate freely in space, and actions that counter or negate hostile space systems, forces or operations.[2]

Space Launch Capabilities

The greatest obstacle to the U.S. achieving its military space objectives is the absence of adequate space launch capabilities. Without such capabilities the U.S. cannot launch the military space systems it needs and it cannot replace systems lost to Soviet anti-satellite (ASAT) systems.

In sharp contrast, Moscow can launch all the military space systems it needs to launch in peacetime or in major crises and does not risk losing any of these systems to U.S. ASAT systems, because none currently exist.

Indeed, congressional limitations on testing of the only U.S. ASAT program near operational capability, the F-15 fighter-launched Miniature Homing Vehicle, almost forced the termination of this program early in 1988. It was saved by the Reagan Administration's persuasive explanation of the need for a U.S. ASAT system to deter Soviet ASAT attacks on those space-based systems on which the U.S. military depend so heavily.

U.S. Behind Soviets. The best indication of how far behind the Soviets the U.S. has fallen is given by a comparison of their current and projected medium and heavy space launch systems. The U.S. has only two medium systems and no heavy ones. One U.S. medium space launch system is the manned space shuttle which, with modifications made after the *Challenger* loss, can place into low earth orbit (200-1,000 miles from earth) payloads of just under 40,000 pounds. The other U.S. system is the Titan series (Titan 2, 3, 34D, and 4) of medium Expendable Launch Vehicles, which can place into this orbit payloads of about 30,000 pounds. Expendable Launch Vehicles (ELVs) are unmanned rocket boosters which, after launching their payloads into space, are destroyed when they reenter the earth's atmosphere.

The relatively small extra payload which the manned space shuttle can place into orbit, as compared with the unmanned Titan Expendable Launch Vehicles, reflects the heavy penalties imposed by the requirement that the shuttle system be man-rated – approved for

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2 General John L. Piotrowski, "VI. Current U.S. Military Space Operations," in *Space Support of U.S. National Security, op.cit.*, p. 25.

operation by human crew members. These penalties led the noted physicist and author Freeman Dyson to cite the shuttle as an example of what one reviewer called:

> ...our cultural obsession with large-scale overly complex solutions to problems that require cheap and simple things.... the *Challenger* explosion need never have occurred since the payload required a simple booster rocket, not a manned shuttle.[3]

And, as Dyson wrote "The insistence that Shuttle be the sole [U.S. space] launch system was directly responsible for the disaster...."[4]

What, then, are the chances for another shuttle disaster?

Manned Shuttle Reliability Problems

The widespread misperception that the manned space shuttle could be the U.S. space truck – safe, cheap, and reliable – is a false image created by the NASA public relations campaign that sold the executive and legislative branches, and the public, on the shuttle.

This misperception was restated recently in a *Washington Post* editorial that rightly stressed that the U.S. space infrastructure required "... a dependable transportation system into space and back" and then wrongly claimed that this system should be the shuttle. To compound this error, the *Post* added that "There may be extra strain on the space transportation system, which will have to do more with less."[5]

Inherent Unreliability. Unfortunately, the technical facts about the shuttle do not support such facile optimism. The clearest and most chilling explanation of the inherent unreliability of the complex shuttle system was given by another physicist, the late Richard P. Feynman, a Nobel laureate and a member of the commission set up to investigate the cause of the *Challenger* loss. The root cause of the loss was that:

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3 Curt Suplee, "Reflecting on the Universe," a review of Freeman Dyson, *Infinite in All Directions* (New York: Harper and Row, 1988), *The Washington Post Book World*, April 17, 1988, p. 5.

4 Dyson, as quoted in Suplee, *op.cit.*

5 "The Space Budget," *The Washington Post*, May 19, 1988, p. A24.

> ...after going to the Moon, NASA had all these people together, all these institutions and so on [and, I would add, budgets]. You don't want to fire people [or cut budgets]....So the problem is what to do.
>
> You have to convince Congress that there exists a project this organization [NASA] can do. In order to do so, it is necessary...to exaggerate – to exaggerate how economical the shuttle was going to be....So NASA exaggerated how little the shuttle would cost, they exaggerated how often it could fly, to such a pitch that it was *obviously incorrect*....
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> ...although the engineers down in the works knew NASA's claims were impossible, and the guys at the top knew that somehow they had exaggerated, the guys at the top didn't want to *hear* that they had exaggerated. . . . It's better if they *don't* hear it, so they can be much more "honest" when they're trying to get Congress to OK their [shuttle] project.[6]

More specifically, Professor Feynman suggested some realistic estimates by NASA engineers of the chances of a catastrophic failure – that is, a failure involving the loss of the shuttle and possibly its crew. These engineers estimated that the probability of a catastrophic failure caused solely by a failure in the shuttle's liquid-fuelled rocket motors was "1 in about 200." Other NASA technicians estimated the probability of a total failure as "about 1 in 100."[7]

Chances of Catastrophe. A representative failure rate on the order of 1 in 100 would mean that there is a 10 percent chance of *at least* one loss of a shuttle for each 10 launches and a 26 percent chance of *at least* one shuttle loss for each 30 launches. In addition, the shuttle loss could occur at any time, starting with the first launch, and more than one shuttle could be lost. And the U.S. will have only three shuttles (*Atlantis, Columbia,* and *Discovery*) until the replacement for *Challenger* is completed.

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6 Richard P. Feynman, "An Outsider's Inside View of the Challenger Inquiry," *Physics Today*, February 1988, p. 37, author's emphasis. As one obituary put it "Before your eyes Feynman chilled a small neoprene O ring [of *Challenger*'s solid fuel booster rocket] in ice water to turn it hard and inflexible; thus one of the proximate causes of the disaster became a homely experience sifted out of the engineering complexities." "An old friend," *Scientific American*, June 1988, pp. 41-2. Feynman's comment (p. 31) on the O ring failure is damning:"Although it was known from the beginning that the joint was not working as it was designed to, [Morton] Thiokol [its makers] kept struggling with the device. . . . Of course, it wasn't enough. The joint still leaked, and they were thinking how to fix it, and the shuttle kept flying. That is one of the things you have to understand: The program kept going, no matter what."

7 Feynman, *op. cit.*, p.32.

These probabilities of failure are not significantly different from those associated with comparable systems. For example, the failure rate of solid-fuelled Expendable Launch Vehicles (ELVs) similar to the shuttle's booster rockets (whose failure destroyed *Challenger*) has been between 1 in 25 and 1 in 35.[8] Such failures are expensive but not disastrous, because the ELVs and their payload can be replaced and no human lives would be lost. The loss of another manned space shuttle would be a disaster for the U.S. military space program and a double disaster if the crew also were lost.

THE REAL SPACE TRUCKS: EXPENDABLE LAUNCH VEHICLES

The shuttle is thus the reverse of the U.S. space truck. It is a dangerous, expensive, and unreliable space launch system that should be used only for absolutely vital military missions and the few scientific missions that warrant risking the lives of the shuttle crew.

The true U.S. space trucks are its Expendable Launch Vehicles. The most important of these will be the projected heavy ELVs, the Advanced Launch System family of ELVs, which should put into low earth orbit payloads of about 150,000 pounds (75 tons) and do so at only 10 percent of the costs of current ELVs. The snag is that this heavy ELV system is not scheduled to be operational until 1998.

But twenty years ago the U.S. had a heavy launch system, the Saturn V, the space truck of the Apollo moon landing program, which operated reliably from 1967 to 1975 and was then dumped by NASA. If the Saturn V had been kept in service it would now be able, with evolutionary improvements, to put 250,000 pounds into orbit. Hence the bitter but accurate comment by the respected U.S. space expert, Dr. Robert Jastrow, that it will take the U.S. ten years to get back to where it was in space launch capabilities twenty years ago.[9] Meanwhile, the Soviets have now caught up to where the U.S. was in military space launch capabilities.

SOVIET SPACE LAUNCH AND ASAT CAPABILITIES

Moscow's space launch program is basically a military one which also launches non-military payloads as and when military needs permit. Because Soviet satellites are less sophisticated than U.S. ones the Soviets have to conduct more frequent launches and so have developed a large family of space launch vehicles. As the latest edition of the authoritative Department of Defense publication *Soviet Military Power* puts it:

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8 *Ibid.*, and additional information provided by Milton Copulos. An excellent, informed account of the inevitable risks associated with the use of manned and unmanned rocket launch vehicles is given by former astronaut Michael Collins in his new book *Liftoff: The Story of America's Adventure in Space* (New York: Grove Press, 1988).

9 This point is developed in Professor Jastrow's account of the U.S. manned space program, *The Search* (New York, New York: Bantam Books, forthcoming).

> The Soviet space program's success is due largely to its versatile and reliable inventory of space launch vehicles (SLVs) and its space launch and support facilities. The Soviets send a satellite aloft every three or four days, using one of eight types of operational SLVs. The USSR's impressive ability to launch various spacecraft quickly gives the Soviets a distinct operational advantage in any crisis. Most malfunctioning satellites could be rapidly replaced, and additional satellites could be launched to cover new or expanding areas in a crisis. In fact, if all Soviet satellites were destroyed, the Soviets have sufficient standby capability to replace them within two to three months. . . .[10]

The Soviets have two medium and one heavy Expendable Launch Vehicles, the proven SL-13 and the new SL-16 medium ELVs, plus the new SL-X-17 *Energiya* heavy-lift ELV. To quote *Soviet Military Power* again:

> The deployment of the medium-lift Titan IIIC-Class SL-16 and the heavy-lift Saturn V-Class SL-X-17 will increase the payload weight of satellites the Soviets will be able to orbit.
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> . . . The SL-X-17 [*Energiya*]. . . will be able to place payloads of over 100,000 kilograms into low-earth orbit, a figure comparable to that carried by the discontinued US Saturn V rocket. Potential payloads for the SL-X-17 include. . . directed-energy ASAT [anti-satellite] and ballistic-missile defense weapons and other space-based components of the Soviet strategic defense program.[11]

The Soviets are also about to conduct the first test flight of their manned space shuttle, built with the help of illegally acquired U.S. designs, materials, and technology.[12]

In addition, Moscow has the world's only operational ASAT, a co-orbital, kinetic-kill vehicle, direct ascent ASAT. This vehicle is launched into the same orbit as the satellite it is attacking by a modified Soviet SS-9 Intercontinental Ballistic Missile and destroys its target by exploding close to it, destroying it by the impact (kinetic energy) of the resulting cloud of fragments.

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10 U.S. Department of Defense, *Soviet Military Power: An Assessment of the Threat* (Washington, D.C.: U.S. Government Printing Office, 1988), p. 65.

11 *Ibid.*

12 *Ibid.*, p. 66.

Threatening U.S. Satellites. The Soviets could also use as ASAT systems their *Galosh* Anti-Ballistic Missile and other modified ballistic missiles besides the SS-9. These missiles could carry conventional or nuclear warheads. Moscow is also developing ground-based lasers, such as the massive Soviet laser facility under construction at Dushanbe, and space-based ASAT systems, including lasers. All of these systems could threaten U.S. satellites.

These ASAT systems are part of the massive Soviet Red Shield strategic defense program which, as Mikhail Gorbachev has admitted, is being energetically pursued. This Red Shield program is significantly larger than the congressionally constrained U.S. SDI program and includes deployed systems such as ASATs, while SDI remains a research program.[13]

A DESTABILIZING IMBALANCE IN SPACE

The net effect of the imbalance between the U.S. and Soviet ability to use space for military purposes, and to deny its use to the opposing superpower, is now so great as to be a serious threat to stability.

During a major crisis or conflict Moscow would have an overwhelming incentive to initiate an attack on U.S. satellites to render Washington militarily blind, deaf, and speechless. Such an attack would not put Moscow's space-based systems at risk because the U.S. has no ASAT system with which to threaten them. In addition, the Soviets could replace such systems rapidly unless the U.S. could mount the kind of large scale ASAT attack that Moscow has positioned itself to launch.

To reduce this threat to crisis stability the U.S.needs to formulate and implement an effective military space policy.

A U.S. MILITARY SPACE POLICY

This policy should be based on the principle underlying the Reagan Administration's 1988 National Space Policy: the Department of Defense should be given the primary responsibility for implementing military space policy. Building on this principle and on the Administration's Space Recovery Program, the next administration should take the following four steps:

1) Establish a cabinet-level National Space Council, chaired by the President;

2) Make the U.S. Air Force responsible for all U.S. government space launches;

3) Accelerate procurement of the Titan series of Expendable Launch Vehicles (ELVs), of the Advanced Launch System family of ELVs, and of the National Aerospace Plane;

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13 A useful recent summary was *The Wall Street Journal* editorial "'Red Shield' Rising" (March 15, 1988, p. 34) which noted President Reagan's comment that "This Soviet defense effort, which some call 'Red Shield,' is now over 15 years old and they've spent over $200 billion on it." This means, the President added, that Moscow has spent about 15 times what the U.S. has spent on strategic defenses.

4) Use the Manned Space Station project to build support for the acquisition of the space systems it needs for military, commercial, and scientific purposes;

None of these four steps is likely to require significant funding increases, especially not since the House and Senate appear likely to approve a substantial increase in NASA's budget, largely to begin funding the Manned Space Station.[14] Each of these four steps can now be considered in more detail.

1) Establish a National Space Council. Existing budgetary levels and organizational and technical bases are generally adequate to support an effective, affordable U.S. military space policy. But coordinating these resources to implement this policy will require the next President to establish a cabinet-level National Space Council under his chairmanship. Its members should include, at a minimum, the President, his National Security and Science Advisors, the Secretaries of Defense and Transportation, the Director of the Central Intelligence Agency, and the Administrator of NASA. Other members could include the Secretaries of Commerce and the Treasury, and the Chairman of the Joint Chiefs of Staff. Compliance with National Space Council Directives would be monitored by the President's National Security and Science Advisor's staffs.

The Council should prepare options for a presidential directive establishing a comprehensive U.S. space strategy to include military and civilian as well as offensive and defensive uses of space. The Council should direct the Office of the Secretary of Defense to develop the doctrine – the specific goals and the technical means of achieving them – to implement this strategy, including implementation of the Strategic Defense Initiative (SDI).

2) Give the U.S. Air Force control over all U.S. government space launches. NASA's control over manned and scientific space launches is the biggest single obstacle to an effective U.S. military space policy. Yet the majority of future government space launches will be military as a result of the *Challenger* loss and the Reagan Administration's privatization of commercial space launches. Military space launches have special requirements, including strict security and the ability to conduct launches under threat of attack or under attack.

Thus, the National Space Council should direct that the U.S. Air Force Space Command become the sole agency for conducting government space launches. Space Command would acquire control over the necessary NASA assets, including personnel, and employ them on

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14 Since this lecture was delivered the Senate has engaged in a complex series of legislative actions on funding for the Manned Space Station. At present, it seems likely to fund this program by transferring $600 million from the Department of Defense appropriations Bill to the HUD-Independent Agencies bill, to provide total funding for the station of $800 million in fiscal 1989. The reasons for this action were set out by the Chairman of the Senate Committee on Commerce, Science and Technology, Senator Ernest F. Hollings, in a letter to the editor, *The Washington Times*, July 25, 1988, p. D2. In it, Senator Hollings stresses the need for the U.S. ". . . to maintain its leadership in space by approving the space station program. . . . " If the Department of Defense is to fund three-quarters of the space station's costs, this would powerfully reinforce the arguments made in this lecture for giving the Department much greater responsibility for U.S. military, and militarily related, space programs.

a contractual basis. Other government agencies, like NASA, could purchase launch facilities from the cheapest source, the private sector or the Air Force. Government agencies and private companies needing to purchase heavy space launch capabilities available only from the Air Force, initially the manned shuttle, would be able to do so only after priority military payloads, essential to national security, had been launched.

3) Accelerate procurement of Expendable Launch Vehicles (ELVs). The next Secretary of Defense should place a senior special assistant in charge of an accelerated ELV program under the control of the U.S. Air Force Space Command. This Special Assistant for ELV Programs must have the regular access to the Secretary needed to assure these programs sufficient budgetary and bureaucratic support.

The National Space Council should direct the Office of the Secretary of Defense, the Central Intelligence Agency, and the U.S. Air Force Space Command to review the planned procurement of ELV systems to ensure it is sufficient to meet U.S. military and arms control verification needs; needs include the replacement of satellites lost in crises or conflicts to attacks by Soviet ASAT systems.

Assessing NASA's Role. The National Space Council should direct the U.S. Air Force, the primary manager of the Advanced Launch System heavy ELV program, to accelerate deployment. The Council should also require the Air Force to assess whether it is appropriate for NASA to be the deputy manager of the Advanced Launch System. In the past, NASA has strongly opposed the building of ELVs, seeing them as competing with its manned space shuttle.

The National Aerospace Plane (NASP) would bridge the gap between aircraft and space orbital systems: it would take off and land at airfields but would fly outside the atmosphere at speeds up to Mach 25 – twenty-five times the speed of sound. For this reason development of the NASP recently has been endorsed by a lengthy report from Congress's General Accounting Office.[15]

The NASP, also known as the *Orient Express* in its civilian version, would have many military applications: launching satellites into orbit, repairing damaged satellites, and retrieving payloads from space. A modified NASP could fly into a low earth orbit with a very heavy surveillance payload for arms control verification or crisis management purposes. The NASP's ability to take off and land from ordinary airfields would give the U.S. multiple satellite launching bases. Today, only the Kennedy Space Center in Florida and Vandenberg Air Force Base in California can be used to launch satellites using ELVs, while only Kennedy can launch the shuttle. Reliance on only these two bases invites a Soviet attack, including by clandestine means such as *Spetznaz* Special Forces.

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15 See U.S. General Accounting Office, Report to Congressional Committees, *National Aero-Space Plane: A Technology Development and Demonstration Program to Build the X-30* (Washington, D.C.: U.S. Government Printing Office, April 1988.)

Furthermore, the NASP program involves basic technology developments that are applicable in other vital military systems.

The next Secretary of Defense thus should devise a plan to keep the NASP program on schedule to make its first flight no later than 1995. To achieve this goal will require that existing funding be maintained at its projected total cost of roughly $3 billion and that the U.S. avoid such occurrences as the recent 20 percent cut in NASP funding.[16]

4) Accelerate and safeguard the Manned Space Station program. The Manned Space Station that NASA has been authorized to build has been estimated by the independent National Research Council to cost (in 1984 dollars) $14 billion, plus $7 billion for deployment costs, for a total of $21 billion, and is to be operational by 1997.[17] This space station will enable the Department of Defense to carry out a wide range of activities, including experiments in space surveillance.

But the costs and complexity of this project, plus its dependence on the space shuttle, make the Manned Space Station vulnerable to delays and congressional cuts in funding that could terminate it. Because manned space projects have always attracted popular and political support, the National Space Council should use the Manned Space Station to symbolize the American determination once again to be first in space, the new frontier. In addition, the Council should stress that the station and its supporting systems are all part of the infrastructure the U.S. will need to exploit space for all purposes, including military ones.

The National Space Council should thus direct NASA and the Pentagon to review ways of accelerating and safeguarding the Manned Space Station program. In particular, heavy lift ELV systems would permit accelerated construction of the Manned Space Station at much lower costs.

CONCLUSION

Unless the U.S. quickly develops an effective military space policy it will not only remain second to the Soviets in space but fall increasingly far behind in its ability to use space for military and other purposes. The U.S. also will find itself increasingly unable to verify Soviet compliance with existing arms control agreement, including the recently ratified Intermediate-Range Nuclear Forces Treaty. The U.S. will not be able to verify Soviet compliance with the more far-reaching arms control agreements it is currently negotiating, such as the Strategic Arms Reduction Treaty (START) which is intended to reduce U.S. and Soviet strategic nuclear forces by 50 percent.

Yet there are no alternatives open to the U.S. except to have an effective military space policy. The Soviet lead in the militarization of space means that the already dangerous crisis

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16 See "X-30 Technology advancing Despite Management Rift," *Aviation Week and Space Technology*, March 7, 1988, pp. 36-43.

17 See The National Research Council, Committee on Space Station, June 30, 1987 *Report... on Space Station* and accompanying letter of transmittal, Washington, D.C.

instability caused by Moscow's potential advantage from striking first in space is increasing. So is the potential for major crises or conflicts involving the U.S. and the Soviets to escalate and expand.

The euphoria generated by the Moscow summit should not obscure the dangers of such crises emerging in surprising ways. As Sir Winston Churchill reminded his readers, the outbreak of World War I in July and August 1914 was preceded by an Anglo-German detente:

> The spring and summer of 1914 were marked in Europe by an exceptional tranquility. . . . The personalities who expressed the foreign policy of Germany seemed for the first time to be men to whom we could talk and with whom common action was possible.[18]

Reversing Reality. To argue, as does Soviet disarmament diplomacy, that the U.S. is "militarizing" space with "space-strike weapons" and that stability should be achieved by banning such U.S. weapons is, of course, to reverse reality. Space has been irreversibly militarized by the U.S. and by the Soviets, but it is Moscow that leads in space-strike weapons.

To argue, as did the Carter Administration, and as some U.S. arms controllers still do, that U.S. security could be protected by an agreement "banning" anti-satellite (ASAT) systems is to argue for a non-existent alternative.[19] Such an agreement would ban only U.S. ASAT systems, since the Soviets already have an operational ASAT system. As Richard Haass noted:

> . . . The failure of the anti-satellite (ASAT) negotiations during the Carter Administration is in large part attributable to a fundamental discrepancy: the USSR possessed a demonstrable if limited capacity to intercept and destroy some low-orbit US satellites, while the United States did not possess a capacity to do the same to corresponding Soviet systems. US officials were largely uninterested in an accord that would preserve the Soviet advantage: Soviet officials were uninterested in an accord that would eliminate their advantage.[20]

Such an accord would also fail to prevent Soviet development of improved versions of this system and of new types of ASAT systems, such as lasers, because Moscow could evade

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18 Winston S. Churchill, *The World Crisis: Vol I* (London, Odhams Press: 1938), p. 143.

19 Nonetheless, this non-existent alternative remains an appealing one. See, for example, Paul B. Stares *Space and National Security* (Washington, D.C.: The Brookings Institution, 1987). A clear statement of the reasons why an ASAT ban is not an available alternative is Colin S. Gray "Space Warfare:The need for Doctrine" and "Principles, Weapons and Tactics," *National Defense*, January and February 1988, pp. 25-28 and pp. 39-43.

20 Richard N. Haass "Ripeness and the settlement of international disputes," *Survival* (London: International Institute for Strategic Studies), Vol. 30, No.3, May/June, 1988, p. 234.

any limits on their development. The idea of an ASAT ban thus is not only a nonsense, but a dangerous nonsense.

Thus, the only option available to protect legitimate U.S. national security interests in space is a coherent military space policy plus the systems to implement it. The most important of these systems are the Expendable Launch Vehicles on which the U.S. has to rely to launch its military (and commercial and scientific) payloads into space.

Moscow Mars Ploy. Finally, since Mikhail Gorbachev pushed at the Moscow summit for a joint U.S.-Soviet mission to explore Mars, the dangers of such joint missions should be stressed. Moscow uses them to explore and acquire, without payment, advanced U.S. technology. The U.S. should thus continue to reject Soviet proposals for such joint "scientific" missions.

But it should also recognize that the favorable response to these proposals in the U.S. and Western Europe reflect the political appeal of visionary space projects that can be understood at a popular level. A U.S. project to explore Mars could thus be a way of building support for the rebuilding of the U.S. space program. The U.S. still has the right stuff to be first in space, but it needs a military space policy to use the right stuff effectively.

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