

## Introduction

The Henry L. Stimson Center convened a series of workshops from April 2002 to February 2003 to explore issues relating to the weaponization of space. We engaged individuals with diverse backgrounds who shared three essential traits: intellectual curiosity, a creative as well as conceptual approach toward problem-solving, and a keen interest in public policy issues relating to space. The following individuals participated in one or more of our workshop discussions: Victor Alessi, Bruce DeBlois, William Durch, Steven Fetter, Charles Ferguson, Peter Hays, Theresa Hitchens, Richard Kessler, Ellen Laipson, Michael Levi, Edward Levine, John Logsdon, Matthew McKinzie, David Mosher, Karl Mueller, Douglas Necessary, Janne Nolan, Michael O'Hanlon, Alan Shaw, Paul Stares, Sherri Stephan, and Peter Zimmerman. These experts participated in an individual capacity, not as representatives of their home institutions or work places. While this effort was underway, the Council on Foreign Relations convened the Study Group on Space Posture for the 21<sup>st</sup> Century. These deliberations were chaired by Daniel Goldin and guided by Richard Garwin and Bruce DeBlois. The author participated in these discussions and benefited greatly from them.

This monograph draws heavily from and synthesizes working group discussions. Working group participants were not asked to endorse the analysis and conclusions of this monograph, which was written by Michael Krepon, with substantial research and drafting help from Christopher Clary.

Significant inputs to this monograph were provided by Theresa Hitchens, Michael O'Hanlon, Alan Shaw, and Peter Zimmerman. Bruce DeBlois, Rebecca Johnson, Peter Hays, Michael Levi, Jeffrey Lewis, Janne Nolan, and Brad Roberts each reviewed parts of the manuscript and provided helpful comments. Dean Wilkening reviewed the entire manuscript. Because this monograph synthesizes working group deliberations, the views presented here should not be construed as reflecting those of every participant in every respect. Workshop participants might differ on matters of emphasis, and might hold contrary views on some specific points of analysis and recommendations. Any errors that remain in the text are the sole responsibility of the author.

Our workshop deliberations began by comparing current and prospective issues relating to military space policy with the Cold War era. How have these issues changed with the demise of the Soviet Union? Are there still common

elements of analysis? What did we mean by space “weaponization” back then, and what do we mean by weaponization today? Is there less or more of a need to weaponize space in an era marked by concerns over asymmetric warfare and terrorism? We then asked whether the weaponization of space was inevitable and, if not, whether it was advisable. These discussions are reflected in Chapters 1 and 2.

We then moved to a discussion of the military-related measures required to increase satellite survivability and to reduce U.S. vulnerabilities in space. There was widespread agreement on measures of a defensive nature, which are described in Chapter 3. Chapter 4 discusses cooperative measures that might well be pursued to reduce threats to satellites and to provide greater assurance to those who currently depend on space assets.

This monograph reaches the following conclusions: First, the weaponization of space is not inevitable. Second, it would not be in the national security or economic interest of the United States to initiate the flight-testing or deployment of space weaponry, since the United States has far more to lose than to gain in the event that space becomes weaponized. Third, far weaker states would also be penalized by the weaponization of space, as the complications to U.S. war-fighting capabilities that would result from space weaponization would not change the outcome, nor lessen the severity, of combat with the United States. Fourth, the initiation of space warfare could trigger dangerous escalatory steps. Fifth, compelling reasons have not yet been advanced for the flight-testing and deployment of space weaponry, especially when the enhancement of terrestrial U.S. war-fighting capabilities by other means are more cost-effective and are more readily available, while posing far fewer downside risks.

The only compelling reason envisioned in this monograph for the United States to flight-test and deploy space weaponry in the foreseeable future is if another state were to cross these key thresholds first. In order to avoid being disadvantaged by the flight-testing and deployment of space weaponry by another country and to enhance deterrence against these unwelcome developments, this monograph proposes a hedging strategy. The U.S. ability to compete in this realm, and to compete effectively, could help persuade weaker states not to initiate the flight-testing and deployment of space weaponry. Further reinforcement of these thresholds could be provided by agreements to avoid dangerous military practices in space and other “rules of the road,” as well as by formal treaty instruments. The reasoning behind, and the elaboration of, these recommendations can be found in Chapters 3 and 4.

Space is already “militarized,” in the sense that satellites provide military support to the armed forces of several countries. Many military and civilian capabilities that have been designed for other purposes could also be applied to

space warfare. These “residual” or latent capabilities have long existed. They have not prompted an “arms race” in space during the Cold War. Indeed, these latent capabilities to damage satellites might have attributed to diminished pressures to flight-test and deploy more advanced, “dedicated” means of space combat.

The distinction between the militarization and the weaponization of space has held for four perilous decades. It remains in the national security interest of the United States to reinforce this distinction in far different, but no less dangerous, times. This is because the United States utilizes space for military and commercial purposes far more than any other country and because weaker nations can readily master the techniques of space weaponry. The United States has unparalleled leverage to shape the choices of other states with regard to space warfare. If the United States leads the way in flight-testing and deploying space weaponry, other states will surely follow. Alternatively, U.S. restraint could reinforce prudence by others, given the ability of the United States to compete effectively in this realm.

The elements of the space policy advocated here for the United States might be called a “space assurance” posture, terminology borrowed from workshop participant Douglas Necessary. Space assurance, unlike space dominance, holds the promise that the weaponization of space can be avoided. Space dominance leads inevitably to weaponization, with all its attendant risks. Space weaponization is not a virtual certainty. If it were, this would have already occurred during the Cold War. At the same time, a space assurance regime is anything but a virtual certainty. The creation of a space assurance regime depends heavily, but not solely, on U.S. choices.

Space assurance, unlike space dominance, provides an environment better suited for commercial gain and scientific discovery. Space assurance increases the probability of the continued, unencumbered utilization of space to assist terrestrial U.S. military operations. In contrast, efforts to dominate space will likely elevate into the heavens the hair-trigger environment that plagued the superpowers during the Cold War. Space assurance requires steps to improve “situational awareness” in space, so that troubling developments or anomalous events can be discovered quickly. A space assurance posture requires new initiatives to lessen U.S. vulnerabilities in space or at ground stations servicing space assets. A good defense in space does not require going on the offense.

To help persuade other states not to cross flight-testing and deployment thresholds first, a hedging strategy against space warfare capabilities or unpleasant surprises is advisable. Laboratory research and development programs on space warfare are consistent with a space assurance posture and a hedging strategy. These activities are presumably being carried out elsewhere,

and are not likely to be subjected to intrusive monitoring. The well-grounded presumption that these activities are underway in the United States could help reinforce caution by other states against moving these activities outside the laboratory and into flight-testing.

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