

Introduction

Space is an environment in transition.¹ At the hands of a growing number of civil, commercial and military actors it is being transformed into a new political, economic, and military centre-of-gravity. It is home to unprecedented achievements of international scientific cooperation, and it generates tens of billions in revenues for the private sector. It also provides an unrivalled panoramic observation of and communication with any location on earth at any time in any weather—capabilities becoming increasingly essential to modern societies. Space-based assets are rapidly becoming part of our critical national and international infrastructure.

As our dependency upon space-based assets has grown, so too have legitimate concerns about the security of these assets—stimulating an important debate about the nature of space security. How can we assure the security of our space assets? How do the unique physical parameters of the space environment affect space security considerations? How are the intentions and capabilities of various space security actors affecting trends in space security? How can we most effectively balance civil, commercial and military space interests against the need to ensure that our activities in space today will not threaten our secure use of space for tomorrow? How can we be assured that space is maintained for peaceful purposes as defined by our collective obligations under the Outer Space Treaty?

The following discussion paper is motivated by these concerns, and is the product of a research partnership between the Eisenhower Institute and International Security Research and Outreach Programme (ISROP) maintained by the Department of Foreign Affairs.² Since December 2002, through a jointly established Space Security Working Group, ISROP and the Eisenhower Institute have undertaken a detailed examination of the concept of space security. This discussion paper provides an overview of this work, describing the two phases of this project that have been completed thus far:

Phase One: Defining Space Security - The development of a working definition of space security and a set of 12 indicators of space security (December 2002-August 2003).

Phase Two: Evaluating Space Security for 2003 - An evaluation of the status of space security in 2003 using this definition and indicators to assess the utility of this research approach to inform debate on space security issues (September 2003-November 2003).

The third phase of this project, extending to June 2004, will bring the results of this research effort to the attention of a broader community of experts as a contribution to the emerging debate on space security issues, and will seek their views on ways to address space security challenges identified by this research.

Defining Space Security

The objective of the first phase of this research project (December 2002-August 2003) was the development of a working definition of space security and a set of indicators capable of providing a comprehensive vision of the key influences on space security. This work was undertaken by a Space Security Working Group (SSWG) convened by ISROP and the Eisenhower Institute.³ Between December 2002 and March 2003, the SSWG used a Delphi research methodology⁴ to develop a working definition of

¹ 'Space' has no agreed definition in international law. For the purposes of this research, it is understood to begin at an altitude of 100km above the surface of the Earth and to mean primarily orbital space, ie the region of near-earth space above 100km that includes low earth orbit (100-1,500km) and extends to medium earth orbit (5,000-10,000km) and geo-stationary earth orbit (36,000km).

² The International Security Research and Outreach Programme, Global Security Bureau, Department of Foreign Affairs, Canada, and The Eisenhower Institute, Washington, DC, USA.

³ This 18 member SSWG included individuals with a broad range of expertise on space issues: legal (4), scientific/technological (2), political/policy (7), civil/commercial (2), and military (3) dimensions of space security relevant issues. Participants in the SSWG meeting in March 2003 are listed within Annex A.

⁴ The Delphi technique is a group process which employs a mix of iterative quantitative and qualitative questionnaires designed to assess expert views in fields where no clear answers exist. In this case the technique was used in an attempt to provide greater focus of expert views on space security issues. Participants completed two sets of questionnaires, the first following the review of a discussion