

Preface

Overhead observation of human activities and natural developments on the Earth's surface long ago captured human imagination. These early hopes became reality in the mid-nineteenth century as the first aerial photographs were taken from a captive balloon. The rapid growth of aviation in the early twentieth century spurred the development of aerial photography and photo-interpretation for military, scientific, and commercial purposes. The space age subsequently ushered in another new era in remote sensing as satellites and manned spacecraft provided a unique vantage point for Earth observation for both military and civilian purposes. We believe that the advent of commercial observation satellites at the start of the new millennium is the next major step in a rapidly evolving ability to acquire timely information on what is occurring at almost any location on the Earth's surface—what we view as growing global transparency.

This book focuses on the nexus of technology and politics in seeking to understand the broader political, security, and market implications of commercial observation satellites. It offers a policy-oriented focus that is relevant to those in government, industry, nongovernmental organizations, and academia who are concerned with the potential benefits and possible risks of this emerging information technology. The book explores the policy tensions both in the United States and abroad that arise from the dual-purpose nature of high-resolution satellite imagery data, which can be applied to both civilian

and military uses. Several chapters highlight the distinctive approaches that many countries take to the commercial use of remote sensing satellites, as well as their disparate views on the security implications of growing global transparency. Finally, special attention is given to assessing the implications of the unprecedented access to the high-quality satellite imagery increasingly available to governments, businesses, news media, international and nongovernmental organizations, and even individuals.

Many chapters in this book build on and extend the work of other scholars and analysts who have laid much of the intellectual foundation in this area. We would be remiss not to recognize the seminal historical contribution of our RAND colleagues and others in developing satellite photoreconnaissance for security purposes.¹ And two more recent efforts also deserve special recognition. One is the groundbreaking work of the Carnegie Endowment's Commercial Observation Satellite Project in the late 1980s, which anticipated many of the fundamental policy issues arising today.² The other work is the public revelation of the formerly classified CORONA imaging satellite program, which is ably recounted in the volume published by the American Society for Photogrammetry and Remote Sensing.³ These works provide a strong conceptual basis and historical context for many of the chapters in this book.

The book's themes and observations also benefit from a series of workshops and informal discussions that have provided intellectual stimulus for the co-editors and book authors in thinking through the complex issues posed by the advent of high-resolution commercial and civilian observation satellites. The first workshop, in May 1998, was cosponsored by the George Washington University's Space Policy Institute and the National Air and Space Museum. The Institute's study of Dual-Purpose Satellite Technologies was critical in supplying important insights regarding these issues.

A larger conference addressing similar issues was hosted by Carnegie Endowment's Project on Transparency in May 1999. Finally, RAND held a workshop that brought together most of the book's authors, along with several experts from industry and government, in October 1999 to define key issues and to consider alternative perspectives. Throughout this period, our thinking benefited greatly from the informal discussions and luncheon debates of the "Eye Street Group" over the implications of imaging satellites for global transparency.

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- 1 For a historical review of RAND's role in early U.S. planning for space operations, including Earth observation, see Merton E. Davies and William R. Harris, *RAND's Role in the Evolution of Balloon and Satellite Observation Systems and Related U.S. Space Technology* (Santa Monica, Calif.: RAND, R-3692-RC, 1988).
- 2 Michael Krepon, Peter D. Zimmerman, Leonard S. Spector, and Mary Umberger, eds., *Commercial Observation Satellites and International Security* (New York: St. Martin's Press, 1990).
- 3 Robert A. McDonald, ed., *CORONA Between the Sun and the Earth: The First NRO Reconnaissance Eye in Space* (Bethesda, Md.: American Society for Photogrammetry and Remote Sensing, 1997).