Section III:
Remote Sensing Applications to International Problems

The usefulness of commercial observation satellites depends in large part on how well the imagery data they produce can be translated into information products that address pressing human needs. Section III presents several chapters that demonstrate the challenges and benefits of applying commercial and civilian imagery to a broad range of international problems. These case studies are good examples of how openly available imagery collected from space can be used to help settle territorial disputes, enhance regional transparency among rival states, monitor nuclear proliferation, and support humanitarian relief operations. Some chapters illustrate how governments can make use of commercial and civilian satellite imagery, while others focus on the growing interest of nongovernmental organizations and multinational agencies in taking advantage of these data to address specific international problems. Thus, Section III presents practical applications of commercial observation satellite imagery in an era of growing global transparency as both governments and nonstate actors use these data to produce the geospatial information required for dealing with human conflicts and natural disasters.

Although the scientific and military utility of satellite imagery is well known, commercial and civilian observation satellites also offer an unanticipated instrument for supporting peace negotiations

aimed at resolving territorial disputes. In Chapter 14, Richard Johnson assesses the role that satellite imagery and three-dimensional visualization technologies played in helping U.S. negotiators at the 1995 Dayton peace talks to overcome complicated territorial disputes that were obstructing the final peace settlement for Bosnia. Chapter 15 by John Gates and John Weikel offers a case study on the U.S. contribution of civilian satellite imagery and mapping support in securing a peace agreement between Ecuador and Peru in 1998. This ended a long-standing territorial conflict that had periodically erupted into border fighting. Both cases demonstrate how highly accurate geospatial information and advanced visualization technologies were used to help the negotiations reach a successful diplomatic outcome.

The case study by Vipin Gupta and Adam Bernstein, presented in Chapter 16, explores the opportunities for using commercial satellite imagery to help mitigate the armed conflict arising over geographical flashpoints, such as the disputes over the Spratly Islands in the South China Sea. The authors assess the potential utility of commercial satellite imagery at both moderate and high resolutions for detecting and identifying politically provocative activities, such as constructing or significantly expanding military outposts, among the disputed islands and reefs in the South China Sea.

The final three case studies highlight the potential for nonstate actors to take advantage of high-resolution commercial and civilian satellite imagery in addressing international political concerns. David Albright and Corey Hinderstein investigate in Chapter 17 how satellite imagery data could be used in conjunction with other open sources to help understand what transpired at the nuclear test sites at which India and Pakistan conducted a series of nuclear detonations in 1998. In Chapter 18, Albright and Hinderstein demonstrate how nongovernmental experts on nuclear facilities can use commercial satellite imagery to detect and identify, despite highly restricted external access, suspicious facilities that could be part of a nuclear weapon program.

Finally, many nongovernmental organizations and multinational agencies are in the early stages of developing the capability and expertise to take advantage of commercial satellite imagery to support their international activities. In Chapter 19, Einar Bjorgo examines how civilian and commercial satellite imagery can be used to help aid organizations deal with humanitarian emergencies occurring around the world. His analysis reveals that high-resolution imagery is not always necessary or desirable for producing the type of information needed to support humanitarian relief operations.