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Nota di contenuto	1. Why forest monitoring matters for people and the planet / Ruth DeFries -- 2. Role of forests and impact of deforestation in the global carbon cycle / Richard A. Houghton -- 3. Use of earth observation technology to monitor forests across the globe / Frederic Achard and Matthew C. Hansen -- 4. Global data availability from U.S. satellites : Landsat and MODIS / Thomas R. Loveland and Matthew C. Hansen -- 5. Sampling strategies for forest monitoring from global to national levels / Stephen V. Stehman -- 6. Use of coarse-resolution imagery to identify hot spots of forest loss at the global scale / Matthew C. Hansen, Peter Potapov, and Svetlana Turubanova -- 7. Use of a systematic statistical sample with moderate-resolution imagery to assess forest cover changes at tropical to global scale / Frederic Achard. [et al.] -- 8. Monitoring forest loss and degradation at national to global scales using Landsat data / Peter Potapov. [et al.] -- 9. The Brazilian Amazon monitoring program : PRODES and DETER projects / Yosio Edemir Shimabukuro. [et al.] -- 10. Monitoring of forest degradation : a review of methods in the Amazon Basin / Carlos Souza, Jr. -- 11. Use of wall-to-wall moderate- and high-resolution satellite imagery to monitor forest cover across Europe / Jesus San-Miguel-

Ayanz. [et al.] -- 12. Monitoring U.S. forest dynamics with Landsat / Jeffrey G. Masek and Sean P. Healey -- 13. Long-term monitoring of Australian land cover change using Landsat data : development, implementation, and operation / Peter Caccetta. [et al.] -- 14. Assessment of burned forest areas over the Russian Federation from MODIS and Landsat-TM/ETM+ imagery / Sergey Bartalev. [et al.] -- 15. Global forest monitoring with synthetic aperture radar (SAR) data / Richard Lucas. [et al.] -- 16. Future perspectives (way forward) / Alan Belward. [et al.].

Sommario/riassunto

Forests provide a large range of beneficial services, including tangible ones such as timber and recreation, and intangible services such as climate regulation, biodiversity, and watershed protection. On the other hand, forests can also be considered roadblocks to progress that occupy space more productively used for agriculture, making consideration of their regulating services crucial for balancing land use and forest loss. Monitoring forest cover and loss is critical for obtaining the data necessary to help define what is needed to maintain the varying forest service requirements in different parts of the world. There is an increasing need for timely and accurate forest change information, and consequently a greater interest in monitoring those changes. Global Forest Monitoring from Earth Observation covers the very recent developments undertaken for monitoring forest areas from global to national levels using Earth observation satellite data. It describes operational tools and systems for monitoring forest ecosystems, discussing why and how researchers currently use remotely sensed data to study forest cover and loss over large areas. The book introduces the role of forests in providing ecosystem services and the need for monitoring their change over time, followed by an overview of the use of earth observation data to support forest monitoring. It discusses general methodological differences, including wall-to-wall mapping and sampling approaches, as well as data availability. This book provides excellent coverage of the research and applications of forest monitoring, indicator mapping at coarse spatial resolution, sample-based assessments, and wall-to-wall mapping at medium spatial resolution using optical remote sensing datasets, such as MODIS and Landsat. It examines the use of radar imagery in forest monitoring and presents a number of
operational systems, from Brazil's PRODES and DETER products to Australia's NCAS system. Written by leading global experts in the field, this book offers a launch point for future advances in satellite-based monitoring of global forest resources. It gives readers a deeper understanding of global forest monitoring methods and shows how state-of-the-art technologies may soon provide key data for creating more balanced policies.