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Nota di contenuto	Fluvial Remote Sensing for Science and Management; Contents; Series Foreword; Foreword; List of Contributors; Chapter 1 Introduction: The Growing Use of Imagery in Fundamental and Applied River Sciences; 1.1 Introduction; 1.2 Remote sensing, river sciences and management; 1.2.1 Key concepts in remote sensing; 1.2.2 A short introduction to `river friendly' sensors and platforms; 1.2.3 Cost considerations; 1.3 Evolution of published work in Fluvial Remote Sensing; 1.3.1 Authorships and Journals; 1.3.2 Platforms and Sensors; 1.3.3 Topical Areas; 1.3.4 Spatial and Temporal Resolutions 1.3.5 Summary1.4 Brief outline of the volume; References; Chapter 2 Management Applications of Optical Remote Sensing in the Active River Channel; 2.1 Introduction; 2.2 What can be mapped with optical imagery?; 2.3 Flood extent and discharge; 2.4 Water depth; 2.5 Channel change; 2.6 Turbidity and suspended sediment; 2.7 Bed sediment; 2.8 Biotypes (in-stream habitat units); 2.9 Wood; 2.10 Submerged aquatic vegetation (SAV) and algae; 2.11 Evolving applications; 2.12 Management considerations common to river applications; 2.13 Accuracy; 2.14 Ethical considerations

2.15 Why use optical remote sensing?References; Chapter 3 An Introduction to the Physical Basis for Deriving River Information by Optical Remote Sensing; 3.1 Introduction; 3.2 An overview of radiative transfer in shallow stream channels; 3.2.1 Quantifying the light field; 3.2.2 Radiative transfer processes along the image chain; 3.3 Optical characteristics of river channels; 3.3.1 Reflectance from the water surface; 3.3.2 Optically significant constituents of the water column; 3.3.3 Reflectance properties of the streambed and banks
3.4 Inferring river channel attributes from remotely sensed data3.4.1 Spectrally-based bathymetric mapping via band ratios; 3.4.2 Relative magnitudes of the components of the at-sensor radiance signal; 3.4.3 The role of sensor characteristics; 3.5 Conclusion; 3.6 Notation; References; Chapter 4 Hyperspectral Imagery in Fluvial Environments; 4.1 Introduction; 4.2 The nature of hyperspectral data; 4.3 Advantages of hyperspectral imagery; 4.4 Logistical and optical limitations of hyperspectral imagery; 4.5 Image processing techniques; 4.6 Conclusions; Acknowledgments; References
Chapter 5 Thermal Infrared Remote Sensing of Water Temperature in Riverine Landscapes5.1 Introduction; 5.2 State of the art: TIR remote sensing of streams and rivers; 5.3 Technical background to the TIR remote sensing of water; 5.3.1 Remote sensing in the TIR spectrum; 5.3.2 The relationship between emissivity and kinetic and radiant temperature; 5.3.3 Using Planck's Law to determine temperature from TIR observations; 5.3.4 Processing of TIR image data; 5.3.5 Atmospheric correction; 5.3.6 Key points; 5.4 Extracting useful information from TIR images
5.4.1 Calculating a representative water temperature

Sommario/riassunto

This book offers a comprehensive overview of progress in the general area of fluvial remote sensing with a specific focus on its potential contribution to river management. The book highlights a range of challenging issues by considering a range of spatial and temporal scales with perspectives from a variety of disciplines. The book starts with an overview of the technical progress leading to new management applications for a range of field contexts and spatial scales. Topics include colour imagery, multi-spectral and hyper-spectral imagery, video, photogrammetry and LiDAR. The book then discu