
Description: A comprehensive resource of basic principles and practical algorithms

Remote sensing of land surfaces has entered a new era. A series of operating satellites from the NASA Earth Observing System (EOS) program, other international programs, and commercial programs are producing tremendous volumes of data at significantly higher levels of measurement precision. In order to effectively interpret the data and estimate Earth surface variables, scientists require ever more sophisticated and targeted quantitative algorithms. Quantitative Remote Sensing of Land Surfaces fills this reference need, connecting theoretical, physically based modeling to specific applications.

Shunlin Liang divides his much-needed resource into two parts. The first presents the current understanding of optical remote sensing with an emphasis on radiative transfer modeling of the atmosphere, canopy, soil, and snow. The second, greater part of the text, discusses a variety of practical algorithms for estimating land surface variables quantitatively. It includes state-of-the-art quantitative algorithms for:

- Sensor calibration
- Atmospheric and topographic correction
- Estimation of a variety of biophysical and geophysical variables
- Four-dimensional data assimilation

The book cites more than 1,300 references, and the companion CD-ROM includes useful computer program codes and valuable data sets. The author assumes no special mathematical background beyond a good working knowledge of statistics, calculus, and linear algebra on an undergraduate level.

Graduate students as well as practitioners of interdisciplinary research on the Earth’s land surface environment will find Quantitative Remote Sensing of Land Surfaces to be a peerless addition to the professional literature.

Contents: Preface.

Acronyms.

Chapter 1. Introduction.

1.1 Quantitative Models in Optical remote Sensing.

1.2 Basic Concepts.

1.3 Remote Sensing Modeling System.

1.4 Summary.

1.5 References.

Chapter 2. Atmospheric Shortwave Radiative Transfer Modeling.

2.1 Radiative Transfer Equation.

2.2 Surface Statistical BRDF Models.

2.3 Atmospheric Optical Properties.

2.4 Solving Radiative Transfer Equations.
Chapter 7. Topographic Correction Methods.

7.1 Introduction.

7.2 Cosine Correction Algorithms.

7.3 IPW Method.

7.4 Shadowing Function Algorithms.

7.5 DEM Data and Generation.

7.6 Summary.

7.7 References.


8.1 Statistical Methods.

8.2 Optimization Inversion Method.

8.3 Generic Algorithm (GA).

8.4 Table Look-up Methods.

8.5 Hybrid Inversion Methods.

8.6 Comparisons of Different Inversion Methods.

8.7 Summary.

8.8 References.


9.1 Introduction.

9.2 Broadband Albedo Characteristics.

9.3 Narrowband to Broadband Conversion.

9.4 Direct Estimation of Surface Broadband Albedos.

9.5 Diurnal Cycle Modeling.

9.6 Summary.

9.7 References.


10.1 Introduction.

10.2 Monochromatic Radiative Transfer Formulation and Solutions.

10.3 Line-by-line Methods.

10.4 Band Models.

10.5 Correlated k-Distribution Methods.
Data Directory

Software Directory.

Index.

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