

Geoinformatics

Chandra Dip Singh

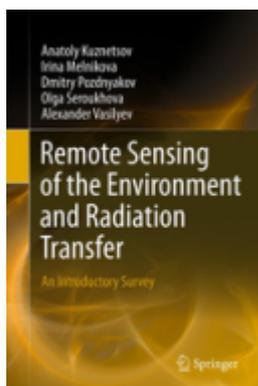
About the Book

Geoinformatics is a rapidly evolving field that brings meaningful insights to solve real world problems by bringing together technologies and tools required for acquisition, exploration, visualization, analysis and integration of various spatial data. Geoinformation can combine different types of data set, from GIS, remote sensing and non-remote sensing, and socio-economic to generated results inform of maps or other forms of reports which allow better interpretation, management and decision making about human activities upon earth's surface. Many fields benefit from geoinformatics, including urban planning and land use management, in-car navigation systems, virtual globes, public health, local and national gazetteer management, environmental modeling and analysis, military, transport network planning and management, agriculture, meteorology and climate change, oceanography and coupled ocean and atmosphere modelling, business location planning, architecture and archeological reconstruction, telecommunications, criminology and crime simulation, aviation, biodiversity conservation and maritime transport. This book will be invaluable for students pursuing various courses on Geoinformatics, environment studies, geology, and geography and will prove useful and handy for professionals pursuing GPS and GIS.

Contents

1. Introduction 2. Techniques and Technologies in Geoinformatics 3. Aerial Photograph and Data Acquisition System 4. Multispectral Remote Sensing 5. Global Positioning System 6. Geoinformatics for Natural Resource Management 7. Geoinformatics for Climate Change Studies 8. Geoinformatics for Marine and Coastal Management.

9789386806284 • 350 (Hb) • 2019 • ₹ 1695.00



Remote Sensing of the Environment and Radiation Transfer

An Introductory Survey

Kuznetsov, A.
Melnikova, I.
Pozdnyakov, D.V.
Seroukhova, O.
Vasilyev, A.

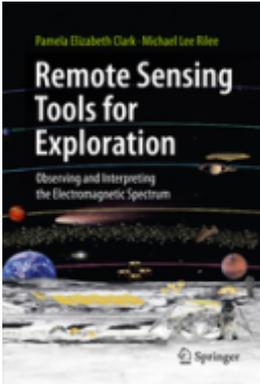
About the Book

The interaction of the solar and heat radiation with the atmosphere and surface is the subject of the book. It is useful also for wide circle scientists involved in environmental studies. The book contains the description of 17 computer studying programs supporting different topics of courses. It includes only the base ground for comprehension of key topics and provides the accomplishment of practical works with using specially elaborated computer programs. Themes of practical works reflect main sections of mentioned courses of lectures. The packet of computer programs is added for solution of direct and inverse problems. It promotes deep and reliable comprehension of corresponding topics by students. All described approaches and computer programs are valuable resources for solving radiative transfer problems and they could be used by students for courses and diploma studies concerned atmospheric optics.

Contents

Radiation in the Earth Atmosphere, Special Features of Self-surface (Heat) Radiation Forming, The Direct Calculation of the Absorption Coefficient of Atmosphere Gases with Using Parameters of Absorption Bands Fine Structure, Calculating Transmission Functions with Modeling Absorption Bands of Atmospheric Gases, Calculation of the Intensity of Self Heat Radiation of the System "Surface-Atmosphere", Construction and Operation of the Automated One-Channel IR-Radiometer, Remote Measurement of the Surface Temperature Field with the Automated One-Channel IR-Radiometer, Study of Depending the Uncertainty of the Remote Surface Temperature Retrieval on the Initial Parameters Exactness, The Thermal Remote Sounding of the Atmosphere, Calculating Optical Characteristics of Atmospheric Aerosol, Calculating Solar Radiative Characteristics in Clouds with Asymptotic Formulas of the Radiative Transfer Theory, Calculating Solar Irradiance with Eddington Method, Monte-Carlo Method for the Solar Irradiance Calculation, Calculating Radiative Characteristics with the Single Scattering Approximation, Analysis of the Reflection Anisotropy. Case Study: The Numerical Simulation of Waving Water Surface, Quantification and Analysis of the Spectral Composition of Subsurface Solar Radiation Diffuse Reflectance in Cases of Deep and Shallow Water Bodies, Simulations and Analyses of Variations in Colorimetric Properties of Natural Waters with Specific Reference to Waters with Significant Spatial Heterogeneity of Optical Properties, Retrieval of CPA Concentrations from the Spectral Composition of Subsurface Water Column Diffuse Reflectance: Application to Environmental Remote Sensing Tasks.

9783642148989 • 210 (Hb) • 2012 • € 59.99



Remote Sensing Tools for Exploration

Observing and Interpreting the
Electromagnetic Spectrum

Clark, Pamela Elizabeth,
Rilee, Michael

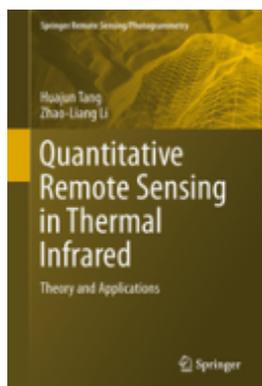
About the Book

This book is intended to cover remote sensing as a process applied to solar system exploration, with emphasis on understanding and utilizing the entire electromagnetic spectrum. The goal is to create a common ground for those individuals and groups involved in every aspect of remote sensing, representing a wide range of science, engineering, and management disciplines. Despite their varying viewpoints and jargons, these scientist, engineers, and mission administrators nevertheless share the common goal of bringing remote sensing instruments, missions, and programs to fruition. The fostering of great understanding and appreciation of essential aspects of remote sensing brought to the table from each discipline will generate improved communication and working relationships to facilitate successful future exploration. Introductory chapters describe preliminary planning and support systems as well as general principles of remote sensing and electromagnetic energy interactions. The body of the book covers energy generation, instrumentation, measurements, and their interpretation for major divisions of the electromagnetic spectrum, including the visible and circumvisible, ray, and long wave regions. Processing and fusion of remote sensing data in its many forms, as well as emerging technologies for data processing and delivery, are discussed in the final chapters.

Contents

An Overview, Principles of Remote Sensing, Visible and Circumvisible Regions and Image Interpretation, Ray Region: X-rays, Alpha Particles, Gamma-rays, Neutrons, UV, Longwave Region: Mid to Thermal Infrared, Microwave, and Radio, Processing Information and Data.

9781493977420 • 360 (Hb) • 2018 • ₹ 2995.00



Quantitative Remote Sensing in Thermal Infrared

Theory and Applications

Tang, Huajun
Li, Zhao-Liang

About the Book

This book provides a comprehensive and advanced overview of the basic theory of thermal remote sensing and its application in hydrology, agriculture, and forestry. Specifically, the book highlights the main theory, assumptions, advantages, drawbacks, and perspectives of these methods for the retrieval and validation of surface temperature/emissivity and evapotranspiration from thermal infrared remote sensing. It will be an especially valuable resource for students, researchers, experts, and decision-makers whose interest focuses on the retrieval and validation of surface temperature/emissivity, the estimation and validation of evapotranspiration at satellite pixel scale, and the application of thermal remote sensing.

Both Prof. Huajun Tang and Prof. Zhao-Liang Li work at the Chinese Academy of Agricultural Sciences (CAAS), China.

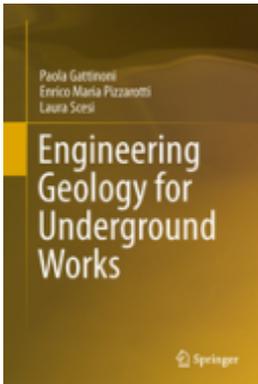
Contents

Introduction, Basic Theory of Quantitative Remote Sensing, Radiometric Calibration in Thermal Infrared, Retrieval of Land Surface Emissivity from Remotely Sensed Data, Land Surface Temperature Retrieval from Thermal Infrared Data, Estimation and Validation of Evapotranspiration from Thermal Infrared Remote Sensing Data, Applications of Thermal Remote Sensing in Agriculture Drought Monitoring and Thermal Anomaly Detection, Future Development and Perspectives.

9783662564288 • 302 (Hb) • 2018 • ₹ 2995.00

Engineering Geology for Underground Works

Gattinoni, Paola
Pizzarotti, Enrico
Scesi, Laura



About the Book

The construction of tunnels involves the resolution of various complex technical problems depending on the geological and geological-environmental context in which the work fits.

Only a careful analysis of all the geological and geological-environmental issues and a correct reconstruction of the conceptual model can lead to optimal design solutions from all points of view (including financial) and ensure the safety of workers during the construction and users in the operation phase.

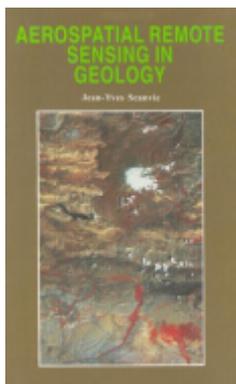
It was therefore felt that there was a need to collect in one volume the state of current knowledge about:

- all the geological and environmental issues related to the construction of underground works
- the different methodologies used for the reconstruction of the conceptual model
- the different risk typologies that it is possible to encounter or that can arise from tunnel construction, and
- the most important risk assessment, management and mitigation methodologies that are used in tunneling studies..

Contents

Geological Problems in Underground Works Design and Construction, Environmental-Geological Problems due to Underground Works, Geological Conceptual Model for Underground Works Design, Underground Excavation Analysis, Geological Risk Management, Risk Mitigation and Control, Ground-Structure Interaction, Monitoring.

9789402412840 • 318 (Hb) • 2018 • 2995.00



Aerospatial Remote Sensing in Geology

Jean-Yves Scarvic

About the Book

Remote Sensing is one of the many tools at the disposal of the geologist for studying the earth from different angles. It has its roots in stereoscopic aerial photography which opened the way to photogrammetry and geological photo-interpretation and its development over the past few decades has come about as a result of the tremendous technological advances made during the conquest of Space.

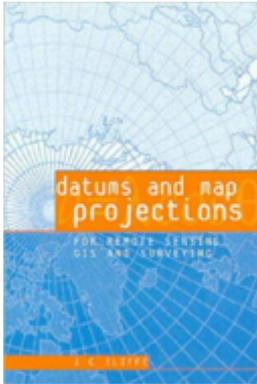
This book, using numerous operational and research-oriented examples combining the technics of digital processing and specialized interpretation, explains how the human eye and brain can extract and use remotely sensed data in the fields of applied geology and mineral exploration. The examples cover varied geological environments and climatic conditions since regional factors have a marked influence on the applicability of available technics, whether they are based on visible, infrared thermal or hyper frequency band of the spectrum on the methodologies used and on the quality of results.

This book is aimed at the practicing geologist who needs to know the possibilities of remote sensing technics when called upon to integrate them in his methodological approach at teachers so that they can enrich their presentation to students with operational examples, and finally at general readers interested in Space and wanting to know the purpose of Earth Observation satellites.

Contents

1. Remote Sensing in Geology
 2. Geological Mapping and Remote Sensing
 3. Image Lineaments
 4. Circular Structures
 5. Spectral Signatures of Minerals Rocks and Alterites : Problems of interpretation of Remotely Sensed Data
 6. Remote Sensing Geobotany and Geological Landscape units
 7. Geology and Digital Image Processing
 8. Conclusions
- Literature Cited
Colour Plates.

9789054107255 • 280 (Hb) • 2005 • ₹ 2500.00



Datums and Map Projections

For Remote Sensing GIS and Surveying

Dr. J.C. Illiffe

About the Book

This book is a practical guide for those working with spatially referenced data and the problems that may be associated with datums and map projections. There has been a vast increase in the use of spatial data in recent years due to the development of geographic information systems for handling and manipulating data in digital form and also the development of techniques such as the global positioning system and satellite (or airborne) remote sensing. Increasingly, this is a subject that many non-specialists find they have to deal with and the book makes the issues clear without assuming any prior knowledge. The book focuses on solving the problems encountered when combining data from different sources, and explores short cuts applicable when incomplete information is available. There are many practical examples and extensive case studies and appendices of essential formulae.

Contents

Introduction
 Two and three dimensional coordinate systems
 Height and the geoid
 Global, regional and local datums
 The global positioning system
 Aspects of datum transformations
 Fundamentals of map projections
 Cylindrical projections
 Azimuthal projections
 Conic projections
 Other projections
 Summary of information required
 Direct transformations
 Case studies
 References and Appendices

9780849308840 • 192 (Pb) • 2006 • ₹ 595.00



Future Trends in Remote Sensing

Preben Gudmandsen

About the Book

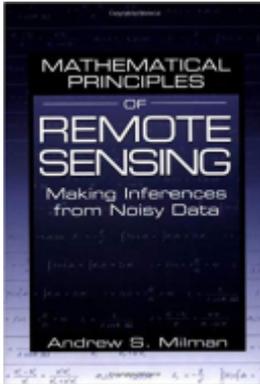
The 17th Annual Symposium of the European Association of Remote Sensing Laboratories was held in June 1997 at the Technical University of Denmark, where the decision was taken to create the Association in 1976 by a small group of leading European scientists who had a vision for the future development of the technique. So this was an anniversary meeting reflected in the overall theme of the Symposium 'Future Trends in Remote Sensing'. This theme was chosen since after 20 years of developing acquisition and analysis techniques, the emphasis is now placed more and more on investigating application for the information derived from remotely sensed data in helping man to ensure his security, material needs and well-being. The future plans of the European Space Agency and of the Centre for Earth Observation established by the European Commission at the Joint Research Centre in Ispra, Italy, are presented in this volume. Other themes covered include: Land Applications, Ice, Water, Ocean and Coastal Management and more technical papers on methods, models and system aspects and a section on data fusion, which is at the leading edge of current research. The whole represents a comprehensive overview of present-day achievements and trends in research aiming to extract the maximum information from the wealth of data now being acquired from Earth observation satellites and to develop innovative applications.

Contents

Preface

1. Future Trends in remote sensing
 2. European Space Agency and Centre for earth observation
 3. Methods, models, system aspects
 4. Active microwaves
 5. Land issues
 6. Forest
 7. Snow and ice
 8. Ocean
 9. Data fusion
 10. Education
- List of participants
 Author index
 Colour plates.

9789054109334 • 508 (Hb) • 2005 • ₹ 2500.00



Mathematical Principles of Remote Sensing

Making Inferences from Noisy Data

Andrew S. Milman

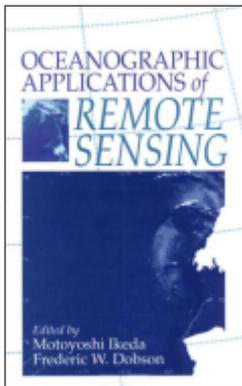
About the Book

Mathematical Principles of Remote Sensing is an informative reference, or working textbook, on the mathematics, and general physical and chemical processes behind remote sensor measurements. The issues and mathematical principles important to remote sensing and data analysis are covered extensively, including measurements and noise, physics of electromagnetic radiation, and radiation transfer. Specific mathematical methods include covariance and probability analysis, regression, linear algebra, Fourier transforms, convolution, and others. This book is an essential reference for remote sensing scientists and engineers concerned with applications in radiation transfer, image processing, atmospheric and noise correction, and modelling.

Contents

Acknowledgements
Preliminary Remarks
1. Introduction
2. Light and Atoms
3. Instruments and Noise
4. Radiative Transfer
5. Covariance Matrices
6. Regression
7. Matrix Solution of Linear Equations
8. Fourier Transforms
9. Autocorrelation Functions and Spectra
10. Integral Equations
11. Iteration
12. Resolution and Noise
13. Convolution and Images
14. Mathematical Appendix
Index.

9781575041353 • 424 (Hb) • 2005 • ₹ 2500.00



Oceanographic Applications of Remote Sensing

Motoyoshi Ikeda
Frederic W Dobson

About the Book

Oceanographic Applications of Remote Sensing describes how remotely sensed data fields can be applied to help solve problems in ocean-related studies. This timely reference, written by and for oceanographers, emphasizes the application of data to particular physical, chemical, and biological processes related to the ocean and the ocean-atmosphere system. The organization of the book reflects this emphasis, with chapters arranged by process rather than by sensor characteristics.

Oceanographic Applications of Remote Sensing contains comprehensive information on the application of such relevant data sets as sea surface temperature and topography, ocean circulation, sea level variability, wind speed and stress, wave height, solar radiation flux at ocean surfaces, and sea-ice characteristics and ice motion. It also discusses the reliability of remotely sensed data and provides information about the applicability of the various data sets to particular process studies.

Its completeness and relevance makes Oceanographic Applications of Remote Sensing an important reference for modern studies of ocean and coupled ocean-atmosphere processes. Its unique coverage of the physics that govern satellite processes and their applications to oceanography ensures that it will remain an important reference as new satellites are introduced.

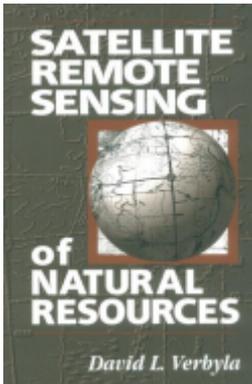
Contents

Part I : Ocean Circulation Dynamics
 Mesoscale Variability
 Tides, Shelf Circulation, and Internal Waves
 Basin-Scale Circulation
 Equatorial Dynamics
 Part II : Water Properties
 Large Scale Ocean Temperature
 Ocean Color
 Part III : Wind, Wind Waves, and the Marine Boundary Layer
 Wind and Wind Stress
 Wind-Generated Waves
 Marine Boundary Layer
 Part IV : Application to Sea Ice
 Ice Surface Condition
 Ice Movement
 Waves in Ice-Covered Oceans
 Part V : Appendices
 Index.

9780849345258 • 512 (Hb) • 2005 • ₹ 2500.00

Satellite Remote Sensing of Natural Resources

David L Verbyla



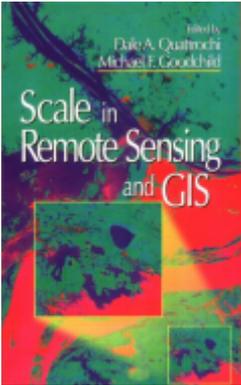
About the Book

Satellite Remote Sensing of Natural Resources offers an introduction to digital remote sensing. This comprehensive text emphasizes the basics, with concepts presented in clear, easy-to-understand language. The main topics covered include satellite images, image processing systems, spectral regions, radiometric and geometric corrections, supervised and unsupervised classification, and accuracy assessment. Each chapter concludes with a section of sample problems and list of additional readings. Consultants and other professionals in environmental science and engineering, scientists, practitioners, and students in agriculture, soils, ecology, fisheries, environmental science, civil engineering, landscape ecology, mapping science, and natural resource management will all want a copy of this book.

Contents

Preface. Satellite Images: Raster Image Data. Remote Sensing Detectors. Scanning Systems. Image Scale and Resolution. Major Satellite Systems Used in Natural Resources Management. Problems. Additional Readings. Image Processing Systems: Computer Fundamentals. Display of Panchromatic Images. Contrast Enhancements. Display of Color Images. Image Magnification and Reduction. Problems. Additional Readings. Spectral Regions: Introduction. Spectral Regions. Vegetation Spectral.

9781566701075 • 224 (Hb) • 2005 • ₹ 2500.00



Scale in Remote Sensing and GIS

Dale A Quattrochi
Michael F Goodchild

About the Book

The recent emergence and widespread use of remote sensing and geographic information systems (GIS) has prompted new interest in scale as a key component of these and other geographic information technologies. With a balanced mixture of concepts, practical examples, techniques, and theory, *Scale in Remote Sensing and GIS* is a guide for students and users of remote sensing and GIS who must deal with the issues raised by multiple temporal and spatial scales. Sixteen pages of full-color photographs help demonstrate key points made in the text.

Contents

Introduction: Scale, Multiscaling, Remote Sensing, and GIS. Multiscale Nature of Spatial Data in Scaling Up Environmental Models. Scale Dependence of NDVI and its Relationship to Mountainous Terrain. Understanding the Scale and Resolution Effects in Remote Sensing and GIS. Multiresolution Covariation among Landsat and AVHRR Vegetation Indices. Multiscaling Analysis in Distributed Modeling and Remote Sensing: An Application Using Soil Moisture. Examining the Effects of Sensor

9781566701044 • 432 (Hb) • 2005 • ₹ 2500.00

Sensors and Environmental Applications of Remote Sensing

Jan Askne



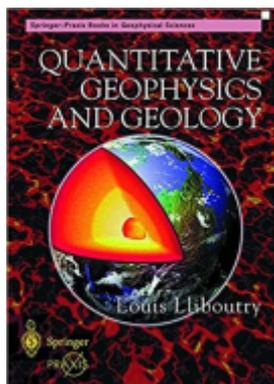
About the Book

In June 1994 the European Association of Remote Sensing Laboratories (EARSeL) held its 14th annual symposium at the Chalmers University of Technology in Gothenburg, Sweden. Chalmers University is renowned among the remote sensing community for its high-level training courses on microwave techniques. The papers presented at this symposium, under the theme 'Sensors and Environmental Applications' are published in these proceedings. The symposium was followed by a specialist workshop on 'Topography from Space' and the overview papers given by keynote invited speakers are also published in this volume. One of the major goals of EARSeL is to act as an interface between the fast-evolving technologies and their applications in many fields. The theme chosen therefore enabled participants to present their latest research covering the analysis of data from the most advanced systems, including both visible and infrared optical sensors and both passive and active microwave sensors, demonstrating their contribution to our understanding of dynamic environmental processes. Papers are grouped according to broad application areas, such as land applications, marine and inland waters, sea ice, oceans, and cartography, as well as technical papers on remote sensing methodology. These reflect the great strides that are being made towards the everyday use of satellite-derived data.

Contents

Preface
 Welcome Address
 Plenary Session
 Land Applications
 Cartographic Aspects
 Oceans
 Sea ice
 Cryosphere
 Marine and inland waters
 Atmosphere
 Hazards
 Sensors - Optical technique
 Sensors Microwave technique
 Remote Sensing Methodology
 Author Index
 Colour Plates.

9789054105244 • 224 (Hb) • 2005 • ₹ 2500.00



Quantitative Geophysics and Geology

Louis Lilboutry

About the Book

For the first time, a book is available that bridges the gap between geology and geophysics. Its integrative approach presents students and researchers in these disciplines with other methodologies as they try to understand the Earth's processes. The book covers the gamut of Earth Sciences, from earthquakes and seismic exploration to thermal convection and the orogenic processes. Each chapter starts with the well-established facts and then proceeds through a logical framework to the most conjectural questions, such as continental drift in Paleozoic and Precambrian times or mantle convection. Many of the issues discussed here have not yet found unanimously agreed solutions, but the extensive references point the reader to further possibilities.

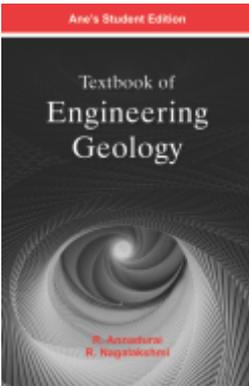
Contents

Rationale.- Earthquakes and Seismic Exploration.- Petrography.- Geomagnetism and Rock Magnetism.- Mid-Ocean Ridges and Hot Spots.- Movement of Lithospheric Shells.- Subduction Zones and Island Arcs.- Earth Rotation - Gravimetry - Isostasy.- Terrestrial Heat.- Elastic and Isoviscous Models.- Rock Creep.- Terrain Rupture and Earthquake Prediction.- Mechanics of Lithospheric Plates.- Orogenic Processes.- A Short History of the Post-Paleozoic.- Polar and Continental Drifts in the Paleozoic.- Mantle Chemistry and Continent Formation.- Glaciations, Glacio-Isostasy and Sea Level.- Thermal Convection in the Earth.- Annex: Mathematical Complements.

9788181282187 • 480 (Pb) • 2004 • ₹ 995.00

Textbook of Engineering Geology

R Annadurai
R Nagalakshmi



About the Book

This book is intended to introduce the subject of engineering geology to civil engineering students at the undergraduate level for all universities in India. The aim is to present a moderately concise and compact text, written in a simple and lucid manner covering all important topics with well-illustrated diagrams that help understand the complex subject easily. The book comprises of five chapters. The first chapter covers introduction to geology with civil engineering applications, earth structure and weathering process followed by details on minerals and their uses. The third chapter explains the different types of rocks, their origin, uses and importance in construction. Chapter four details the structural geology in construction of folding, faulting, joints and geophysical methods used in construction. The fifth chapter is about suitable site selection for dams, tunnels and road construction.

Contents

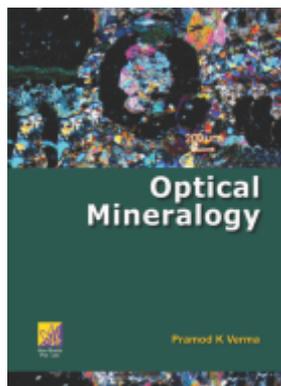
1. Introduction
2. Mineralogy
3. Petrology
4. Structural Geology
5. Geological Investigation and Engineering Constructions

9789385259937 • 176 (Pb) • 2016 • ₹ 250.00



GEOLOGY

G I S / REMOTE SENSING



Optical Mineralogy

Pramod K. Verma

About the Book

Designed to be useful even after students have completed their formal optical mineralogy course, *Optical Mineralogy* covers advances in instrumentation and includes illustrations of minerals as seen through petrological microscopes. The initial chapters familiarize readers with essential concepts in optics and optical mineralogy and questions at the end of each chapter provide insight into issues students will find in the field. With tables that make important information easily accessible, the book highlights the importance of optical mineralogy in the eliciting of information about the interior of crystals.

Contents

Preface, Part I : Principles and Techniques of Optical Mineralogy, 1. Properties of Light, 2. Sample Preparation for Transmitted Microscopy, 3. Refractometry, 4. Optical Crystallography, 5. The Polarizing Microscope, 6. Microscopic Examination of Minerals I: Orthoscopic Condition, 7. Microscopic Examination of Minerals II, 8. Microscopic Examination of Minerals III: Conoscopic Condition, 9. Reorienting Techniques, 10. New Frontiers in Microscopy, Part II : Systematic Description of Common Rock Forming Minerals, 11. Nesosilicates, 12. Sorosilicates and Cyclosilicates, 13. Inosilicates, 14. Phyllosilicates, 15. Tektosilicates, 16. Non-silicates, Appendices, Michael Levy Chart

9789380156088 • 381 (Hb) • 2010 • ₹ 1995.00



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