1. Record Nr. UNISA996466850103316

Titolo	Springer series in light scattering . Volume 7 Light absorption and scattering in turbid media / / Alexander Kokhanovsky, editor
Pubbl/distr/stampa	Cham, Switzerland : , : Springer, , [2021] ©2021
ISBN	3-030-87683-7
Descrizione fisica	1 online resource (165 pages)
Collana	Springer series in light scattering
Disciplina	523.113
Soggetti	Light absorption
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Includes index.
Nota di contenuto	Intro -- Contents -- Light-Absorbing Particles in Snow and Ice: A Brief Journey Across Latitudes -- 1 Introduction -- 2 A Journey Across Latitudes -- 2.1 Middle Latitudes -- 2.2 Tropical Areas -- 2.3 Polar Regions -- 3 Optical Properties of LAPs on Snow and Ice -- 3.1 Non-carbonaceous Particles -- 3.2 Carbonaceous Particles -- 3.3 Biogenic Particles -- 3.4 Cryoconite -- 4 Proximal and Remote Sensing of LAPs -- 4.1 Field Spectroscopy -- 4.2 Airborne Sensor Data -- 4.3 Satellite Data -- 5 Conclusion and Future Perspectives -- References -- Machine Learning Based Retrieval Algorithms: Application to Ocean Optics -- 1 Introduction -- 2 Physical Model -- 3 Machine Learning Model -- 4 Important Aspects of ML -- 4.1 Data -- 4.2 Quality of Fit -- 4.3 Multilayer Perceptron (MLP) -- 4.4 Hyperparameters -- 4.5 Activation Functions -- 4.6 Optimization Methods -- 5 ML Based Ocean Optics Retrieval Algorithms -- 5.1 Conclusion -- References -- Radiative Properties of Non-spherical Black Carbon Aerosols -- 1 Introduction -- 2 The Morphological Characteristics of BC -- 2.1 Bare BC -- 2.2 Coated BC -- 3 Modeling of the Radiative Properties of Non-spherical BC -- 3.1 Light Scattering Methods -- 3.2 Models -- 3.3 Radiative Properties of Non-spherical BC -- 4 The Optical Measurements Constrained by BC Morphologies -- 4.1 The Retrieval of BC Size Distribution -- 4.2 The Retrieval of BC Refractive Index -- 4.3 The Retrieval of BrC Absorption -- 5 Paramerization of Radiative Properties of BC with Non-spherical Morphologies -- 6 Coupling Non-

spherical BC Radiative Model with the Chemical Transport Model -- 7 Summary and Future Remarks -- References -- Scattering of Shaped Beams by Large Particles: Theoretical Interpretation and Numerical Techniques -- 1 Introduction -- 2 Theoretical Framework of Variable Separation Method.
3 Beam Shape Coefficients in Different Coordinate Systems -- 3.1 BSC in Spherical Coordinate System -- 3.2 BSC in Other Coordinate Systems -- 4 Scattering Coefficients -- 5 Calculation of Physical Quantities and Software ABSphere -- 6 Angular Spectrum Decomposition -- 6.1 Angular Spectrum Decomposition of a Shaped Beam -- 6.2 Homogeneous and Inhomogeneous Plane Waves -- 6.3 Shaped Beams with Simple Symmetry -- References -- Index.

Sommario/riassunto

The book aims to the description of recent progress in studies of light absorption and scattering in turbid media. In particular, light scattering/oceanic optics/snow optics research community will greatly benefit from the publication of this book.