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| 1. | Record Nr. | UNINA9910132259803321 |
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| | Titolo | Solutions in lidar profiling of the atmosphere / / Vladimir A Kovalev |
| | Pubbl/distr/stampa | Hoboken, New Jersey : , : Wiley, , 2015<br>©2015 |
| | ISBN | 1-118-96327-X<br>1-118-96328-8<br>1-118-96329-6 |
| | Descrizione fisica | 1 online resource (300 p.) |
| | Disciplina | 551.5028/7 |
| | Soggetti | Atmosphere - Laser observations<br>Atmosphere - Remote sensing<br>Meteorological optics |
| | Lingua di pubblicazione | Inglese |
| | Formato | Materiale a stampa |
| | Livello bibliografico | Monografia |
| | Note generali | Includes index. |
| | Nota di bibliografia | Includes bibliographical references and index. |
| | Nota di contenuto | Cover; Contents; Preface; Acknowledgments; Definitions; Chapter 1 Inversion of Elastic-Lidar Data as an ILL-Posed Problem; 1.1 Recording and Initial Processing of the Lidar Signal: Essentials and~Specifics; 1.1.1 Lidar Equation and Real Lidar Signal: How Well Do They Match?; 1.1.2 Multiplicative and Additive Distortions in the Lidar Signal: Essentials and Specifics; 1.2 Algorithms for Extraction of the Extinction-Coefficient Profile from the Elastic-Lidar Signal; 1.2.1 Basics; 1.2.2 Fernald's Boundary-Point Solution; 1.2.3 Optical Depth Solution 1.2.4 Implicit Premises and Mandatory Assumptions Required for~Inversion of the Elastic Lidar Signal into the Atmospheric Profile1.3 Profiling of the Optical Parameters of the Atmosphere as a Simulation Based on Past Observations; 1.3.1 Definitions of the Terms; 1.3.2 Random Systematic Errors in the Derived Atmospheric Profiles: Origin and Examples; 1.4 Error Factor in Lidar Data Inversion; 1.5 Backscatter Signal Distortions and Corresponding Errors in the Inverted Atmospheric Profiles; 1.6 Determination of the Constant Offset in the Recorded Lidar Signal Using~the Slope Method 1.6.1 Algorithm and Solution Uncertainty1.6.2 Numerical Simulations and Experimental Data; 1.7 Examination of the Remaining Offset in the |

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| Sommario/riassunto | Provides tools and techniques to identify and address distortions and to interpret data coming from Lidar sensing technology  This book covers the issues encountered in separating the backscatter and transmission terms in the LIDAR equation when profiling the atmosphere with zenith-directed and vertically-scanning Lidars. Solutions in Lidar Profiling of the Atmosphere explains how to manage and interpret the Llidar signals when the uncertainties of the involved atmospheric parameters are not treatable statistically. The author discusses specific scenarios for using specific scenarios for p |