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Nota di contenuto	Front Cover; Environmental Monitoring and Characterization; Copyright Page; Contents; Preface; Contributors; Reviewers; Chapter 1. Monitoring and Characterization of the Environment; The Environment; Environmental Remediation and Restoration; Scales of Observation; Agencies; Current and Future Status of Environmental Monitoring; Purpose of this Textbook; References and Additional Reading; Chapter 2. Sampling and Data Quality Objectives in Environmental Monitoring; Environmental Characteristics; Representative Units; Sampling Locations; Types of Environmental Sampling; Sampling Plan Analytical Data Quality RequirementsQuality Control Checks; Reporting Data; Units of Measure; Questions; References and Additional Readings; Chapter 3. Statistics and Geostatistics in Environmental Monitoring; Samples and Population; Random Variables; Frequency Distribution and the Probability Density Function; Sample Size and Confidence Intervals; Covariance and Correlation; Linear Regression; Interpolation and Spatial Distributions; Questions and Problems; References and Additional Reading; Chapter 4. Automated Data Acquisition and Processing; Measurement Concepts; Automated Measurement Sensors and TransducersThe Data Acquisition System; Types of Data

Acquisition Systems; Data Management and Quality Control; Questions; References and Additional Reading; Chapter 5. Maps in Environmental Monitoring; Principles of Mapping; Locational and Land-Partitioning Systems; Topographic Maps; Soil Survey Maps; Global Positioning System; Questions; References and Additional Reading; Chapter 6. Geographic Information Systems and Their Use for Environmental Monitoring; Description of Geographic Information Systems; Geographic Information Systems Data; Thematic Data Models of Real-World Problems with Geographic Information Systems Geographic Information System Online Tools and Visualization; The Future: Geographic Information Systems as a Community Resource; Questions; References and Additional Reading; Chapter 7. Soil and Vadose Zone Sampling; Soil Sampling Strategies; Classic Soil Sampling; Soil Sampling in Agriculture; Vadose Zone Sampling for Pollution Characterization; Soil Samplers; Soil-Pore Water Sampling; Quality Control; Questions; References and Additional Reading; Chapter 8. Groundwater Sampling; Groundwater Sampling Objectives Location of Monitor Wells Well Construction; Design and Execution of Groundwater Sampling Programs; Questions; References and Additional Reading; Chapter 9. Monitoring Surface Waters; The Changing States of Water; Water Quality Parameters; Sampling the Water Environment; Sampling Techniques for Surface Waters; Water Sampling Equipment; Miscellaneous Field Methods; Quality Control in Field Measurements and Sampling; Questions; References and Additional Reading; Chapter 10. Monitoring Near-Surface Air Quality; Structure and Composition of the Atmosphere; Sources and Impacts of Air Pollution History of Air Pollution Control

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Sommario/riassunto

Environmental Monitoring and Characterization is an integrated, hands-on resource for monitoring all aspects of the environment. Sample collection methods and relevant physical, chemical and biological processes necessary to characterize the environment are brought together in twenty chapters which cover: sample collection methods, monitoring terrestrial, aquatic and air environments, and relevant chemical, physical and biological processes and contaminants. This book will serve as an authoritative reference for advanced students and environmental professionals.\* Examine

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