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Nota di contenuto	Title Page; Contents; Preface; An Introduction to Global Carbon Cycle Management; Section 1 Monitoring the Global Carbon Cycle: A Tribute to Charles David Keeling; The Mauna Loa Carbon Dioxide Record: Lessons for Long-Term Earth Observations; The Influence of David Keeling on Oceanic CO2 Measurements; Next-Generation Terrestrial Carbon Monitoring; Section 2 Assessment of Local and Regional Carbon Sources and Sinks; Terrestrial Biological Carbon Sequestration: Science for Enhancement and Implementation Satellite Data Analysis and Ecosystem Modeling for Carbon Sequestration Assessments in the Western United States An Inventory of Carbon Storage in Forest Soil and Down Woody Material of the United States; Quantifying the Spatial Details of Carbon Sequestration Potential and Performance; Soil Inorganic Carbon Sequestration as a Result of Cultivation in the Mollisols; Natural Analogs of Geologic CO2 Sequestration: Some General Implications for Engineered Sequestration; Hydrogeochemical Characterization of Leaking, Carbon Dioxide-Charged Fault Zones in East-Central Utah, With Implications for Geo Section 3: Assessing Risks, Benefits, and Impacts of Sequestration Is There an Optimal Timing for Sequestration to Stabilize Future Climate?; Present and Future Changes in Seawater Chemistry; Erosion of Soil

Organic Carbon: Implications for Carbon Sequestration; Assessing the Potential for CO<sub>2</sub> Leakage, Particularly Through Wells, From Geological Storage Sites; Scoping Calculations on Leakage of CO<sub>2</sub> in Geologic Storage: The Impact of Overburden Permeability, Phase Trapping, and Dissolution; Geochemical Impacts of Sequestering Carbon Dioxide in Brine Formations

Quantification of CO<sub>2</sub> Trapping and Storage Capacity in the Subsurface: Uncertainty due to Solubility Models

Quantification of CO<sub>2</sub> Flow and Transport in the Subsurface: Uncertainty due to Equations of State

Algorithms; Section 4 Evaluation of Carbon Management Requirements;

Verification and Accreditation Schemes for Climate Change Activities: A

Review of Requirements for Verification of Greenhouse Gas Reductions

and Accreditation of Verifiers-Implications for Long-Term Carbon

Sequestration; Sociopolitical Drivers in the Development of Deliberate

Carbon Storage

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Geologic Storage of CO<sub>2</sub> Integrating Terrestrial Sequestration Into a

Greenhouse Gas Management Plan; A Conceptual Framework for

Management of Carbon Sequestration Data and Models; Looking Ahead:

Research Agenda for the Study of Carbon Sequestration; Index

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Sommario/riassunto

Published by the American Geophysical Union as part of the

Geophysical Monograph Series, Volume 183. For carbon sequestration

the issues of monitoring, risk assessment, and verification of carbon

content and storage efficacy are perhaps the most uncertain. Yet these

issues are also the most critical challenges facing the broader context

of carbon sequestration as a means for addressing climate change. In

response to these challenges, Carbon Sequestration and Its Role in the

Global Carbon Cycle presents current perspectives and research that

combine five major areas: Th

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