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Soggetti	Geophysics Water quality Water pollution Geotechnical engineering Fossil fuels Climate change Geophysics/Geodesy Water Quality/Water Pollution Geotechnical Engineering & Applied Earth Sciences Fossil Fuels (incl. Carbon Capture) Climate Change Management and Policy
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Nota di bibliografia	Includes bibliographical references at the end of each chapters.
Nota di contenuto	Joint Research Project CO2MAN (CO2MAN Reservoir Management): Continuation of Research and Development Work for CO2 Storage at the Ketzin Pilot Site -- MONACO - Monitoring Approach for Geological CO2 Storage Sites Using a Hierarchical Observation Concept -- Advances in Stable Isotope Monitoring of Injected CO2 Under Elevated Pressures, Temperatures and Salinities: Selected Results from the Project CO2ISO-LABEL -- CO2BioPerm - Influence of Bio-Geochemical CO2-Transformation Processes on the Long-Term Permeability -- Seismic and Sub-seismic Deformation Prediction in the Context of Geological Carbon Trapping and Storage -- Long-Term Safety of Well Abandonment: First Results from Large Scale Laboratory Experiments

(COBRA) -- "CO2RINA" - CO2 storage Risk Integrated Analysis -- Saltwater Monitoring Using Long-Electrode ERT -- Carbon Dioxide Storage in Eastern Brandenburg: Implications for Synergetic Geothermal Heat Recovery and Conceptualization of an Early Warning System Against Freshwater Salinization - BRINE -- Combined Natural and Social Science Approach for Regional-Scale Characterisation of CO2 Storage Formations and Brine Migration Risks (CO2Brim) -- Chances for and Limitations of Acceptance for CCS in Germany.

Sommario/riassunto

This book explores the industrial use of secure, permanent storage technologies for carbon dioxide (CO₂), especially geological CO₂ storage. Readers are invited to discover how this greenhouse gas could be spared from permanent release into the atmosphere through storage in deep rock formations. Themes explored here include CO₂ reservoir management, caprock formation, bio-chemical processes and fluid migration. Particular attention is given to groundwater protection, the improvement of sensor technology, borehole seals and cement quality. A collaborative work by scientists and industrial partners, this volume presents original research, it investigates several aspects of innovative technologies for medium-term use and it includes a detailed risk analysis. Coal-based power generation, energy consuming industrial processes (such as steel and cement) and the burning of biomass all result in carbon dioxide. Those involved in such industries who are considering geological storage of CO₂, as well as earth scientists and engineers will value this book and the innovative monitoring methods described. Researchers in the field of computer imaging and pattern recognition will also find something of interest in these chapters.
