

1. Record Nr.	UNINA9910820433303321
Autore	Rogers Rudy
Titolo	Offshore gas hydrates : origins, development, and production / / Rudy Rogers, Professor Emeritus, Mississippi State University
Pubbl/distr/stampa	Waltham, MA : , : Elsevier Science, , [2015] ©2015
ISBN	0-12-802556-5 0-12-802319-8
Descrizione fisica	1 online resource (401 p.)
Disciplina	665.7
Soggetti	Ocean mining
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Cover; Title Page; Copyright Page; Dedication; Contents; Preface; Acknowledgments; Chapter One - Introduction; 1.1 - The mystique of gas hydrates; 1.2 - Gas hydrates, a basic molecular structure found in nature; 1.2.1 - Buckminster Fuller's Geodesic Dome; 1.2.2 - Fullerenes (Buckyballs); 1.2.3 - Virus Coatings; 1.3 - Seafloor hydrate structures; 1.3.1 - Gas Hydrate Structures; 1.3.2 - Seafloor Hydrates sl; 1.3.3 - Seafloor Hydrates sll; 1.4 - Timeline of gas hydrate research and development proje; 1.5 - Early estimates of worldwide hydrate gas; 1.5.1 - Calculating In-Place Hydrate Gas 1.5.2 - Early Estimates, Prior to Drilling, 1970s to Late 1980s1.5.3 - Estimates, Late 1980s to Mid-1990s; 1.5.4 - Later Estimates of Worldwide In-Place Hydrate Gas; 1.6 - Petroleum systems approach to estimating hydrate gas; 1.7 - Estimated regional in-place hydrate gas; 1.7.1 - Western Rim, Pacific Ocean; 1.7.2 - Gulf of Mexico; 1.8 - Estimates of recoverable hydrate gas; 1.9 - Energy needs compared with gas hydrate supply; 1.9.1 - The United States; 1.9.2 - Japan; References; Chapter Two - Deep Ocean Sediment-Hydrate Relationships; 2.1 - Determining origin of hydrate-occluded gases 2.1.1 - Carbon Isotope Analysis2.1.2 - Molecular Structure Ratios; 2.2 - Wipeout zones; 2.2.1 - Description of Wipeout Zones; 2.2.2 - Venting Variability within Acoustic Wipeout Zones; 2.2.3 - Gas Flares Emanating from Wipeout Zones; 2.3 - Morphologies of seafloor

hydrates; 2.3.1 - Fine Sediment Morphology; 2.3.1.1 - Nodular; 2.3.1.2 - Massive Hydrates; 2.3.1.3 - Fracture Propagation in Fine Sediments; 2.3.1.4 - Fracture Orientations; 2.3.1.5 - CT Scans of Fracture-Filled Hydrates; 2.3.1.6 - Polygonal Faults; 2.3.2 - Dispersed Gas Hydrates; 2.3.2.1 - Coarse Sands  
 Porous, Permeable Hydrate Reservoirs 2.3.2.2 - Fine-Grain Sands and Muds with Dispersed Gas Hydrates; 2.4 - Physical properties of sediment matrix influence hydrates; 2.4.1 - Particle Size Effects on Permeability; 2.4.2 - Particle Size Effects on Hydrate Saturation; 2.4.2.1 - Core Analyses; 2.4.2.2 - Laboratory Analyses, Hydrates Saturating Sands; 2.4.2.3 - CT Scan for Noninvasive Hydrate Analysis of Seafloor Cores; 2.4.3 - Thermal Conductivities of Seafloor Hydrates; 2.4.3.1 - Hydrate Conductivities Compared with Ice; 2.4.3.2 - Composite Conductivities of Hydrate-Sediments  
 2.5 - Determining the hydrate zone 2.5.1 - Hydrate Zones in Seafloor; 2.5.2 - Geothermal Gradients Influenced by Salt Deposits; 2.5.3 - Thermal Gradients in Diverse Gas Hydrate Zones; 2.5.4 - Seismic Techniques for Hydrate Exploration; 2.5.4.1 - BSR Limitations; 2.5.4.2 - BSR Principles; 2.5.4.3 - Acoustic Impedance; 2.5.4.4 - Double BSR; 2.5.4.5 - Determining Thermal Gradients from BSR; 2.5.4.6 - Heat Flux Determined from BSR; References; Chapter Three - Gulf of Mexico, Thermobiogenic Hydrates; 3.1 - Geologic origins significant to gas hydrate accumulations  
 3.1.1 - Outline of Geologic Events

---

Sommario/riassunto

Gas hydrates collect and store both thermogenic and biogenic methane generated in deep ocean sediments that, over geologic time, forms vast methane repositories. Offshore Gas Hydrates: Origins, Development, and Production presents gas hydrates as an emerging, clean energy source possibly more abundant than all other fossil fuels and especially important for countries geographically and economically restricted from conventional fossil fuel resources. The book explores feasible methods to produce offshore hydrate gas, the means to store and transport the remotely produced gas, new hydrate inhib

---