Record Nr. UNINA9911006653903321

Autore Shanmugam G. <1944->

Titolo Deep-water processes and facies models: implications for sandstone

petroleum reservoirs / / G. Shanmugam

Amsterdam ; ; Oxford, : Elsevier, 2006 Pubbl/distr/stampa

**ISBN** 1-280-64178-9

> 9786610641789 0-08-045842-4

Edizione [1st ed.]

Descrizione fisica 1 online resource (496 p.)

Handbook of petroleum exploration and production; ; 5 Collana

Disciplina 551.303015118

Soggetti Sedimentation and deposition

Sedimentation and deposition - Mathematical models

Marine sediments Geological modeling Petroleum - Geology

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 (p. 419-456) and index.

Nota di contenuto Cover; Contents; Acknowledgements; Preface; Introduction and process

> sedimentology; Introduction; Process sedimentology; Synopsis; History of deep-water research (1885O2005); Introduction; History; Scientific revolutions; A Philosophical retrospective; Gravity-driven processes; Introduction; Mass-transport processes; Sediment flows; Synopsis;

Deep-water bottom currents: Introduction: Bottom currents: Thermohaline-induced geostrophic bottom currents; Wind-driven bottom currents: Deep-marine tidal bottom currents in submarine canvons; Synopsis; Other processes and the phenomena of tsunamis IntroductionLiquidization; Clastic injections; Mud diapirism; Sediment plumes, wind transport, ice rafting, nepheloid layers, and volcanism; Pelagic and hemipelagic settling; The phenomena of tsunamis; Synopsis: Depositional environments: Introduction: Deep-lacustrine environments; Submarine slope environments; Submarine canyon and gully environments: Submarine fan environments: Submarine non-fan environments; Submarine basin-plain environments; Synopsis; Process-

related problems; Introduction; Conflicting definitions of turbidity

currents; Conflicting definitions of turbidites

Conflicting definitions of high-density turbidity currentsUnknowable flow transformations; Conflicting definitions of slurry flows; Conflicting origins of flute structures; Conflicting definitions of normal grading; Problematic origin of traction structures; Problematic origin of mud waves; Problematic subaerial analogs; Problematic origin of sinuous forms; Problematic hyperpycnal flows; Conflicting origins of massive sands; Conflicting definitions of turbidite systems; Inadequate seismic resolution; Synopsis; The turbidite facies model; Introduction; The turbidite facies model

The Annot SandstoneBasal sedimentary features; Upper Inormally graded intervals; Origin of inverse to normally graded intervals; Inadequacy of the turbidite facies model; Problems with other facies models: Synopsis: Submarine fan models: Introduction: Modern-fan model; Ancient-fan model; General-fan model; Turbidite facies association: The Jackfork Group and the turbidite controversy: The impermanence of submarine fan models; Synopsis; Sequencestratigraphic fan models; Introduction; Basin-floor fans and slope fans; Seismic geometries; Wireline-log motifs; Parasequence concept Abandonment of submarine fan modelsSynopsis; Tectonic and eustatic controls; Introduction; Tectonic control; Eustatic control; Synopsis; Implications for sandstone petroleum reservoirs; Introduction; Grainsize distribution; Spatial distribution of sand; Dimensions and geometries; Lateral changes in sediment thickness; Reservoir heterogeneity: Sand injection and reservoir communication: Correlation of sandbodies; Depositional mud matrix; Reservoir quality; Depositional models; Epilogue; References; Index; About the Author

## Sommario/riassunto

This rock-based book is an attempt to link deep-water process sedimentology with sandstone petroleum reservoirs. In presenting a consistent process interpretation, the author has relied on his description and interpretation of core and outcrop (1:20 to 1:50 scale) from 35 case studies (which include 32 petroleum reservoirs), totaling more than 30,000 feet (9,145 m), carried out during the past 30 years (1974-2004). This book should serve as an important source of information for students on history, methodology, first principles, advanced concepts, controversies, and practical applications on