1. Record Nr. UNINA9910462009803321 Autore **Ertekin Turgay Titolo** Basic applied reservoir simulation [[electronic resource] /] / Turgay Ertekin, Jamal H. Abou-Kassem, Gregory R. King Richardson, Tex., : Society of Petroleum Engineers, 2001 Pubbl/distr/stampa **ISBN** 1-61399-151-7 Descrizione fisica 1 online resource (418 p.) Collana SPE textbook series ; ; v. 7 Altri autori (Persone) Abou-KassemJamal H (Jamal Hussein) KingGregory R. <1957-> Disciplina 662/.3382 Soggetti Oil reservoir engineering - Simulation methods Oil reservoir engineering - Mathematical models Petroleum engineering - Simulation methods Petroleum engineering - Mathematical models Electronic books. Lingua di pubblicazione Inglese **Formato** Materiale a stampa Livello bibliografico Monografia Description based upon print version of record. Note generali Nota di bibliografia Includes bibliographical references and indexes. ""Introduction""; ""Preface""; ""Acknowledgments""; ""Contents""; ""1 -Nota di contenuto Introduction"": ""1.1 Introduction"": ""1.2 The Need for Reservoir Simulation""; ""1.3 Traditional Modeling Approaches""; ""1.4 Reservoir-Simulation Approach""; ""1.5 Concluding Remarks""; ""1.6 Chapter Project""; ""2 - Basic Reservoir-Engineering Concepts and Reservoir-Fluid and -Rock Properties""; ""2.1 Introduction""; ""2.2 Basic Reservoir-Engineering Concepts""; ""2.3 Reservoir-Rock and -Fluid Properties""; ""2.4 Law of Mass Conservation""; ""2.5 Basic Single-Phase-Flow Equation""; ""2.6 Chapter Project"" ""3 - Basic Mathematical Concepts"""3.1 Introduction""; ""3.2 Basic Differential Calculus"": ""3.3 Basic Differential Equations"": ""3.4 Finite-Difference Calculus""; ""3.5 Basic Linear Algebra""; ""4 - Formulation of Basic Equations for Single-Phase Flow""; ""4.1 Introduction""; ""4.2 Continuity Equation in Various Flow Geometries""; ""4.3 Derivation of Generalized Flow Equations""; ""4.4 Different Forms of Flow Equations"";

""4.5 Initial and Boundary Conditions""; ""4.6 Chapter Project""; ""5 - Finite-Difference Approximation to Linear-Flow Equations""; ""5.1

Introduction""

""5.2 Construction and Properties of Finite-Difference Grids""""5.3 Finite-Difference Approximation of the Spatial Derivative": ""5.4 Finite-Difference Approximation of the Time Derivative"; ""5.5 Implementation of Initial and Boundary Conditions""; ""5.6 Explicit and Implicit Finite-Difference Formulations""; ""5.7 Chapter Project""; ""6 -Well Representation""; ""6.1 Introduction""; ""6.2 Treatment of Source/Sink Terms""; ""6.3 Single-Well Simulation""; ""6.4 Use of Hybrid Grids in the Wellblocks""; ""6.5 Coupling Reservoir and Wellbore-Hydraulics Models""; ""6.6 Chapter Project"" ""7 - Solution of Linear Difference Equations"""7.1 Introduction""; ""7.2 Difference Equations in Matrix Form""; ""7.3 Solution Methods""; ""7.4 Chapter Project""; ""8 - Numerical Solution of Single-Phase-Flow Equations""; ""8.1 Introduction""; ""8.2 Single-Phase Incompressible-Flow Problem""; ""8.3 Single-Phase Slightly-Compressible-Flow Problem""; ""8.4 Single-Phase Compressible-Flow Problem""; ""8.5 Analysis of the Material-Balance Calculation Used in Reservoir Simulation""; ""8.6 Chapter Project""; ""9 - Multiphase-Flow Simulation in Petroleum Reservoirs"; ""9.1 Introduction"" ""9.2 Mass-Conservation Equations in a Multiphase-Flow System"""9.3 Flow Equations in Multiphase Flow""; ""9.4 Flow Models for Basic Flow Systems"": ""9.5 Finite-Difference Approximation of the Flow Equations"": ""9.6 Methods of Solving Multiphase Difference Equations""; ""9.7 Treatment of Problems Specific to Multiphase Flow""; ""9.8 Chapter Project""; ""10 - Practical Aspects of Reservoir Simulation""; ""10.1 Introduction""; ""10.2 Study Objectives""; ""10.3 Data Analysis""; ""10.4 Model Construction""; ""10.5 History Matching""; ""10.6 Reservoir Performance Predictions"" ""10.7 Final Advice""