

1. Record Nr.	UNINA9910830939903321
Titolo	Mechanics of hydraulic fracturing : experiment, model, and monitoring // edited by Xi Zhang [and three others]
Pubbl/distr/stampa	Hoboken, New Jersey : , : John Wiley & Sons, Inc., , [2022] ©2022
ISBN	1-119-74248-X 1-119-74241-2 9781119742487 9781119742340
Descrizione fisica	1 online resource : illustrations (some color)
Disciplina	622.3381
Soggetti	Hydraulic fracturing
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Part I. Experimental and Monitoring Observations -- 1. Hydraulic Fracture Geometry from Mineback Mapping -- 2. Measurements of the Evolution of the Fluid Lag in Laboratory Hydraulic Fracture Experiments in Rocks -- 3. Mapping Hydraulic Fracture Growth Using Tiltmeter Monitoring Technique -- 4. Experimental Observations of Hydraulic Fracturing -- 5. A Field Trial and Experimental Studies on scCO <sub>2</sub> Fracturing -- Part II. Theoretical and Numerical Methods -- 6. An Unstructured Moving Element Mesh for Hydraulic Fracture Modelling -- 7. Study of Hydraulic Fracture Interference with a Lattice Model -- 8. The Tipping Point: How Tip Asymptotics Can Enhance Numerical Modeling of Hydraulic Fracture Evolution -- 9. Plasticity: A Mechanism for Hydraulic Fracture Height Containment -- 10. Turbulent Flow Effects in Hydraulic Fracture Propagation in Permeable Rock -- 11. Analysis of a Constant Height Hydraulic Fracture -- 12. Discrete Element Modelling of Hydraulic Fracturing -- Part III. Applications and Engineering Approaches -- 13. Interaction of a Hydraulic Fracture with Natural Fractures of Lesser Height and Weak Bedding Interfaces as a Possible Mechanism for Fracture Swarms -- 14. Hydraulic Fracturing Mechanisms Leading to Self-Organization within Dyke Swarms -- 15.

Numerical Simulation of Thermal Fracturing During Heat Extraction from a Closed-Loop Circulation Enhanced Geothermal System -- 16. Multiple Hydraulic Fractures from a Highly Deviated Well: A XFEM Study -- 17. Hydraulic Fracturing-Induced Slip on a Permeable Fault.

---

Sommario/riassunto

Comprehensive single-volume reference work providing an overview of experimental results and predictive methods for hydraulic fracture growth in rocks Mechanics of Hydraulic Fracturing provides a summary of the research in mechanics of hydraulic fractures undertaken the past two decades, plus new research trends to look for in the future. The book covers the contributions from theory, modeling, and experimentation, including the applications of models to reservoir stimulation, mining preconditioning, and the formation of geological structures. The four well-qualified editors emphasize the variety of diverse methods and tools in hydraulic fracturing and help the reader understand hydraulic fracture mechanics in complex geological situations. To aid in reader comprehension, case studies on the applications of new understandings and methods are included throughout the book. Sample topics covered in the book include: Prediction of fracture shapes, sizes, and distributions in sedimentary basins, plus their importance in petroleum industry Real-time monitoring methods, such as micro-seismicity and trace tracking How to uncover geometries of fractures like dikes and veins Fracture growth of individual foundations and applications of the process Researchers and university students working in the field of fluid-driven fracture growth will find immense value in this book as a comprehensive reference on hydraulic fracturing mechanics.

---