Ekofisk Life Of Field Seismic Operations And 4d Processing

Geological Society Memoir 52 records the extraordinary 50+ year journey that has led to the development of some 458 oil and gas fields on the UKCS. It contains papers on almost 150 onshore and offshore fields in all of the UK's main petroliferous basins. These papers range from look-backs on some of the first-developed gas fields in the Southern North Sea, to papers on fields that have only just been brought into production or may still remain undeveloped, and includes two candidate CO2 sequestration projects. These papers are intended to provide a consistent summary of the exploration, appraisal, development and production history of each field, leading to the current subsurface understanding which is described in greater detail. As such the Memoir will be an enduring reference source for those exploring for, developing, producing hydrocarbons and sequestering CO2 on the UKCS in the coming decades. It encapsulates the petroleum industry's deep subsurface knowledge accrued over more than 50 years of exploration and production.

Taking the case of the Norwegian petroleum industry as its vantage point, the book discusses the question of industrial transformations in resource-based industries. The book presents new, empirically-based analyses of the development of the petroleum industry, with an emphasis on three ongoing transformation processes: Technological upgrading and innovation in upstream petroleum. Globalisation of the petroleum industry and suppliers' experiences of entering foreign markets. Diversification into and out of petroleum – and the potential for new growth paths after oil. Drawing together a range of key thinkers in this field, this volume addresses the ways in which the petroleum industry and its supply industry has changed since the turn of the millennium. It provides recommendations for the development of resource economies in general and petroleum economies in particular. This book will be of great interest to students and scholars of energy policy and economics, natural resource management, innovation studies and the politics of the oil and gas sector.

New Scientist magazine was launched in 1956 "for all those men and women who are interested in scientific discovery, and in its industrial, commercial and social consequences". The brand's mission is no different today - for its consumers, New Scientist reports, explores and interprets the results of human endeavour set in the context of society and culture.

Time Lapse Approach to Monitoring Oil, Gas, and CO2 Storage by Seismic Methods delivers a new technology to geoscientists, well logging experts, and reservoir engineers, giving them a new basis on which to influence decisions on oil and gas reservoir management. Named ACROSS (Accurately Controlled and Routinely Operated Signal System), this new evaluation method is presented to address more complex reservoirs, such as shale and heavy oil. The book also discusses prolonged production methods for enhanced oil recovery. The monitoring of storage zones for carbon capture are also included, all helping the petroleum and reservoir engineer to fully extend the life of a field and locate untapped pockets of additional oil and gas resources. Rounded out with case studies from locations such as Japan, Saudi Arabia, and Canada, this book will help readers, scientists, and engineers alike to better manage the life of their oil and gas resources and reservoirs. Benefits both geoscientists and reservoir engineers to optimize complex reservoirs such as shale and heavy oil Explains a more accurate and cost efficient reservoir monitoring technology called ACROSS (Accurately Controlled and Routinely Operated Signal System) Illustrates real-world application through multiple case studies from around the world A comprehensive and richly illustrated overview of the Gulf of Mexico Basin, including its reservoirs, source rocks, tectonics and evolution.

"This book was written for students, new professionals in oil companies, and for anyone with an interest in reservoir geology. It explains the background to production geology in the context of oil field subsurface operations. It also gives practical guidelines as to how a production geologist can analyze the reservoir geology and fluid flow characteristics of an oil field with the aim of improving hydrocarbon recovery. Advice is given on how to search for the remaining oil volumes in a producing field, where these pockets are typically found, and then how to plan wells to target these volumes."—Publisher's description.

Seismic measurements take many forms, and appear to have a universal role in the Earth Sciences. They are the means for most easily and economically interpreting what lies beneath the visible surface. There are huge economic rewards and losses to be made when interpreting the shallow crust or subsurface more, or less accurately, as the case may be.

Active Geophysical Monitoring, Second Edition, presents a key method for studying time-evolving structures and states in the tectonically active Earth's lithosphere. Based on repeated time-lapse observations and interpretation of rock-induced changes in geophysical fields periodically excited by controlled sources, active geophysical monitoring can be applied to a variety of fields in geophysics, from exploration, to seismology and disaster mitigation. This revised edition presents the results of strategic systematic development and the application of new technologies. It demonstrates the impact of active monitoring on solid Earth geophysics, also delving into key topics, such as carbon capture and storage, geodesy, and new technological tools. This book is an essential for graduate students, researchers and practitioners across geophysics. Outlines the general concepts of active geophysical monitoring with powerful seismic vibrators and MHD generators Provides historical background for previous studies of seismically active zones Covers the theory and technology of active monitoring, including signal processing, data analysis, novel approaches to numerical modeling, and interpretation Discusses case histories and presents the results of worldwide, regional active monitoring experiments Thoroughly updated to include recent developments, such as updates relating to carbon capture and storage, microgravity, InSAR technologies, geodesy, reservoir monitoring, seismic reflection, and more

This book explains physical principles, unique benefits, broad categories, implementation aspects, and performance criteria of distributed optical fiber sensors (DOFS). For each kind of sensor, the book highlights industrial applications, which range from oil and gas production to power line monitoring, plant and process engineering, environmental monitoring, industrial fire and leakage detection, and so on. The text also includes a discussion of such key areas as backscattering, launched power limitations, and receiver sensitivity, as well as a concise historical account of the field's development.

This study provides an overview of the new technical approaches required for best use of horizontal and extended-reach technology in different reservoir situations. The volume
is a selection from more than 50 papers presented at an AAPG/SPWLA Hedberg Research Symposium, 'International Horizontal and Extended Reach Well Symposium: Focus on the Reservoir', held in The Woodlands, Texas, on October 10-14, 1999. The 16 chapters describe horizontal and extended-reach wells and drilling programmes in a variety of geologic settings all over the world.

Öz Yilmaz has expanded his original volume on processing to include inversion and interpretation of seismic data. In addition to the developments in all aspects of conventional processing, this two-volume set represents a comprehensive and complete coverage of the modern trends in the seismic industry-from time to depth, from 3-D to 4-D, from 4-D to 4-C, and from isotropy to anisotropy.

This reference manual is designed to enable more geophysicists to appreciate static corrections, especially their limitations, their relationship with near-surface geology, and their impact on the quality of final interpreted sections. The book is addressed to those involved in data acquisition (datum static corrections), data processing (datum static and residual static corrections), and interpretation (the impact that unresolved static corrections, especially the long-wavelength or low-spatial-frequency component, have on the interpretation of the final section). Simple explanations of the underlying principles are included in an attempt to remove some of the mystique of static corrections. The principles involved are illustrated with simple models; these are supplemented with many data examples. This book details differences in approaches that must be considered among 2D, 3D, and crossed-line recordings as well as between P-wave and S-wave surveys. Static corrections are shown to be a simplified yet practical approach to modeling the effects of the near surface where a more correct wavefield or raypath-modeled method may not be efficiently undertaken. Chapters cover near-surface topography and geology; computation of datum static corrections; upheave surveys; refraction surveys; static corrections-limitations and effect on seismic data processes; residual static corrections; and interpretation aspects. An extensive index and a large list of references are included.

The purpose of this book is to give a theoretical and practical introduction to seismic-while-drilling by using the drill-bit noise. This recent technology offers important products for geophysical control of drilling. It involves aspects typical of borehole seismics and of the drilling control surveying, hitherto the sole domain of mudlogging. For aspects related to the drill-bit source performance and borehole acoustics, the book attempts to provide a connection between experts working in geophysics and in drilling. There are different ways of thinking related to basic knowledge, operational procedures and precision in the observation of the physical quantities. The goal of the book is to help build a bridge between geophysicists involved in seismic while drilling - who may need to familiarize themselves with methods and procedures of drilling and drilling-rock mechanics - and drillers involved in geosteering and drilling of "smart wells" - who may have to familiarize themselves with seismic signals, wave resolution and radiation. For instance, an argument of common interest for drilling and seismic while drilling studies is the monitoring of the drill-string and bit vibrations. This volume contains a large number of real examples of SWD data analysis and applications.

Beginning with 1999 first issue of the year devoted to coverage of the International ASEG Conference and Exhibition.

This book demystifies that art and science of seismic interpretation for those with and without formal geophysical training. From geologists to managers and investors, The Art and Science of Seismic Interpretation is a guide to what seismic data is, how it is interpreted, and what it can deliver.

The first edition of this book was a slightly modified version of my dissertation (defended in February 2001). This second edition has been extended considerably. Many technological developments of the past 10 years have been included. Feedback from students attending my course on 3D survey design has helped clarify various not-so-clear discussions in the book. Another major difference is the inclusion of many new figures copied from the literature. Most of the existing figures have been redrawn to comply with the high standards for figures in Geophysics, and all references are now compiled in a single list. Although the main text for this edition was ready by the end of 2010, some developments in the field of seismic data acquisition that occurred in 2011 and 2012 have still been included. The ideas and results discussed in this book should help one to achieve a better understanding of the structure of 3D acquisition geometries. With this understanding, geophysical requirements can be satisfied with an optimal choice of acquisition geometry and its parameters. Processing techniques can be adapted to honor and exploit the specific requirements of each geometry, especially orthogonal and areal geometries, leading to a more interpretable end product.

Time-lapse (4D) seismic technology is a key enabler for improved hydrocarbon recovery and more cost-effective field operations. Practical Applications of Time-lapse Seismic Data (SEG Distinguished Instructor Series No. 16) shows how 4D seismic data are used for reservoir surveillance, how they provide valuable insight on dynamic reservoir properties such as fluid saturation, pressure, and temperature, and how they add value to reservoir management. The material, based on the 2013 SEG Distinguished Instructor Short Course, includes discussions of reservoir-engineering concepts and rock physics critical to the understanding of 4D data, along with topics in 4D seismic acquisition and processing. A primary focus of the book is interpretation and data integration. Case-study examples are used to demonstrate key concepts and are drawn on to demonstrate the range of interpretation methods currently employed by industry and the diversity of geologic settings and production scenarios in which 4D is making a difference. Time-lapse seismic interpretation is inherently integrative, drawing on geophysical, geologic, and reservoir-engineering data and concepts. As a result, this book should be of interest to individuals from all subsurface disciplines.

This volume reviews our current understanding and ability to model the complex distribution and behaviour of fault and fracture networks, highlighting their fluid compartmentalizing effects and storage-transmissivity characteristics, and outlining approaches for predicting the dynamic fluid flow and geomechanical behaviour of these reservoirs. This collection of 25 papers provides an overview of recent progress and outstanding issues in the areas of structural complexity and fault geometry, detection and prediction of faults and fractures, compartmentalizing effects of fault systems and complex siliciclastic reservoirs and critical controls affecting fractured reservoirs.

Covering New York, American & regional stock exchanges & international companies.

Introduces practical seismic analysis techniques and evaluation of interpretation confidence, for graduate students and industry professionals - independent of commercial software products.

A review of the extensive advances made in the understanding the petroleum geology of the Atlantic margin of northwest Europe, of the North Sea and of adjacent areas since the last conference in 1992. In particular, the volume focuses on: the development of and application of 3D seismic, time-lapse (‘4D’) and other innovative seismic tools; the ongoing refinement of sequence and other stratigraphic
approaches, including the integration of detailed biostratigraphic data; the development of modelling at both the reservoir and basin scale which can respond to new data acquisition and be used to assess uncertainties at the reservoir scale and scenarios at the basin scale.

Hardcover plus DVD

3C seismic applications provide enhanced rock property characterization of the reservoir that can complement P-wave methods. Continued interest in converted P- to S-waves (PS-waves) and vertical seismic profiles (VSPs) has resulted in the steady development of advanced vector wavefield techniques. PS-wave images along with VSP data can be used to help P-wave interpretation of structure in gas obscured zones, of elastic and fluid properties for lithology discrimination from S-wave impedance and density inversion in unconventional reservoirs, and of fracture characterization and stress monitoring from S-wave birefringence (splitting) analysis. The book, which accompanies the 2016 SEG Distinguished Instructor Short Course, presents an overview of 3C seismic theory and practical application: from fundamentals of PS-waves and VSPs, through to acquisition and processing including interpretation techniques. The emphasis is on unique aspects of vector wavefields, anisotropy, and the important relationships that unify S-waves and P-waves. Various applications and case studies demonstrate image benefits from PS-waves, elastic properties and fluid discrimination from joint inversion of amplitude variations with offset/angle (AVO/A), and VSP methods for anisotropic velocity model building and improved reservoir imaging. The book will be of interest to geophysicists, geologists, and engineers, especially those involved with or considering the use of AVO/A inversion, fracture/stress characterization analyses, or interpretation in gas-obscured reservoirs.

This book provides a unified framework for subsurface imaging based upon asymptotic and trajectory-based methods, with online software applications. An overview of the geophysical techniques and analysis methods for monitoring subsurface carbon dioxide storage for researchers and industry practitioners.

This is a study of how, and why, the British economy has changed since 1951. It covers the Golden Age of 1945-1973 when unemployment was below one million; when governments built millions of council houses and flats; when electricity, telephones, and gas were supplied by nationalised monopolies; when income and wealth inequality were narrowing; and when the UK was not a member of the European Economic Community. Moving through the inflation, rising unemployment, and rapid contraction of the manufacturing industry from the mid-1970s, Changing Times examines the transfer of assets which was effected in the privatisation of public housing and nationalised industries from the early 1980s. The role of the State changed as public investment fell. The financing of old-age care, of state pensions, and of the National Health Service became of increasing concern and were less politically amenable to the approach of using private finance (the Private Finance Initiative and tuition fees) to fund former public obligations. Changes were made to the system of taxation, but public expenditure changed little as a share of national income, although the government now built little. Difficulties emerged in ensuring adequate housing for a growing population, and uncertainty grew as to where future investment in necessities like electricity supply would come from. Having narrowed in the Golden Age, inequality of income and wealth widened. Environmental concerns also grew, from the local smogs of the 1950s, through the concern with acid rain from the 1960s, to the current global concern with climate change. The financial crash of 2008 and the decision to "Brexit" in the referendum of 2016 reduced economic growth and highlighted the extent of economic change since 1951. This is a study of that change.

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