

<<层序地层学原理>>

图书基本信息

书名：<<层序地层学原理>>

13位ISBN编号：9787502170752

10位ISBN编号：7502170758

出版时间：2009-4

出版时间：石油工业出版社

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页数：375

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## 前言

为了及时学习国外油气勘探开发新理论、新技术和新工艺,推动中国石油上游业务技术进步,本着先进、实用、有效的原则,勘探与生产分公司和石油工业出版社组织多方力量,对国外著名出版社和知名学者最新出版的、代表最先进理论和技术水平的著作进行了引进,并翻译和出版。

从2001年起,在跟踪国外油气勘探、开发最新理论新技术发展和最新出版动态基础上,从生产需求出发,通过优中选优已经翻译出版了五期28本专著。

在这套系列丛书中,有些代表了某一专业的最先进理论和技术水平,有些非常具有实用性,也是生产中所亟需。

这些译著发行后,得到了企业和科研院校广大生产管理、科技人员的欢迎,并在实用中发挥了重要作用,达到了促进生产、更新知识、提高业务水平的目的。

该套系列丛书也获得了我国出版界的认可。

2002年丛书第2辑整体获得了中国出版工作者协会颁发的“引进版科技类优秀图书奖”,2006年丛书第4辑的《井喷与井控手册》再次获得了中国出版工作者协会的“引进版科技类优秀图书奖”,产生了很好的社会效益。

今年在前五期出版的基础上,经过多次调研、筛选,又推选出了国外最新出版的6本专著,即《螺杆泵与井下螺杆钻具》、《气井排水采气》、《钻井和修井作业实用公式与计算手册(第二版)》、《未来能源》、《油藏工程手册》、《层序地层学原理》,以飨读者。

其中《油藏工程手册》、《层序地层学原理》以原版影印版的方式引进出版,以满足广大读者希望能够看到原汁原味的外文书的期望,这也顺应了国内石油行业广大员工外语水平普遍提高的趋势。

在本套丛书的引进、翻译和出版过程中,勘探与生产分公司和石油工业出版社组织了一批著名专家、教授和有丰富实践经验的工程技术人员担任翻译和审校人员,使得该套丛书能以较高的质量和效率翻译出版,并和广大读者见面。

希望该套丛书在相关企业、科研单位、院校的生产和科研中发挥应有的作用。

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### 内容概要

本书在回顾层序地层学发展历史的基础上，叙述了层序地层学的分析方法，介绍了岸线迁移和层序界面，主要研究了体系域及其特征，论述了层序地层学模式，并讨论了地层界面的时间属性问题。

本书可供从事地质、地球物理勘探的科技工作者及油藏工程师使用，也可作为大专院校相关专业的教学参考书。

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## 章节摘录

method for analyzing seismic-reflection data stimulated a revolution in stratigraphy, with an impact on the geological community as important as the introduction of the flow regime concept in the late 1950s—early 1960s and the plate tectonics theory in the 1960s ( Miall, 1995 ) . The concepts of seismic stratigraphy were published together with a global sea-level cycle chart ( Vail et al., 1977 ) , based on the underlying assumption that eustasy is the main driving force behind sequence formation at all levels of stratigraphic cyclicity. Seismic stratigraphy and the global cycle chart were thus introduced to the geological community as a seemingly inseparable package of new stratigraphic methodology. These ideas were then passed onto sequence stratigraphy in its early years, as seismic stratigraphy evolved into sequence stratigraphy with the incorporation of outcrop and well data ( Posamentier et al., 1988; Posamentier and Vail, 1988; Van Wagoner et al., 1990 ) . Subsequent publications ( e.g., Hunt and Tucker, 1992; Posamentier and James, 1993; Posamentier and Allen, 1999 ) shift the focus away from eustasy and towards a blend of eustasy and tectonics, termed relative sea level. Nonetheless, the global-eustasy model as initially proposed ( Vail et al., 1977 ) posed two challenges to the practitioners of conventional stratigraphy: that sequence stratigraphy, as linked to the global cycle chart, constitutes a superior standard of geological time to that assembled from conventional chronostratigraphic evidence, and that stratigraphic processes are dominated by the effects of eustasy to the exclusion of other allogenic mechanisms, including tectonism ( Miall and Miall, 2001 ) . Although the global cycle chart is now under intense scrutiny and criticism ( e.g., Miall, 1992 ) , the global-eustasy model is still used for sequence stratigraphic analysis in some recent publications ( e.g., de Graciansky et al., 1998 ) . In parallel to the eustasy-driven sequence stratigraphy which held by far the largest share of the market, other researchers went to the opposite end of the spectrum by suggesting a methodology that favored tectonism as the main driver of stratigraphic cyclicity. This version of sequence stratigraphy was introduced as tectonostratigraphy ( e.g., Winter, 1984 ) . The major weakness of both schools of thought is that a priori interpretation of the main allogenic control on accommodation was automatically attached to any sequence delineation, which gave the impression that sequence stratigraphy is more of an interpretation artifact than an empirical, data-based method. This a priori interpretation facet of sequence stratigraphy attracted considerable criticism and placed an unwanted shade on a method that otherwise represents a truly important advance in the science of sedimentary geology. Fixing the damaged image of sequence stratigraphy only requires the basic understanding that base-level changes can be controlled by any combination of eustatic and tectonic forces, and that the dominance of any of these allogenic mechanisms should be assessed on a case by case basis. It became clear that sequence stratigraphy needed to be dissociated from the global-eustasy model, and that a more objective analysis should be based on empirical evidence that can actually be observed in outcrop or the subsurface. This realization came from the Exxon research group, where the global cycle chart originated in the first place: Each stratal unit is defined and identified only by physical relationships of the strata, including lateral continuity and geometry of the surfaces bounding the units, vertical stacking patterns, and lateral geometry of the strata within the units. Thickness, time for formation, and interpretation of regional or global origin are not used to define stratal units..., [which]... can be identified in well logs, cores, or outcrops and used to construct a stratigraphic framework regardless of their interpreted relationship to changes in eustasy ( Van Wagoner et al., 1990 ) . The switch in emphasis from sea-level changes to relative sea-level changes in the early 1990s ( e.g., Hunt and Tucker, 1992; Christie-Blick and Driscoll, 1995 ) marked a major and positive turnaround in sequence stratigraphy. By doing so, no interpretation of specific eustatic or tectonic fluctuations was forced upon sequences, systems tracts, or stratigraphic surfaces. Instead, the key surfaces, and implicitly the stratal units between them, are inferred to have formed in relation to a more neutral curve of relative sea-level ( base-level ) changes that can accommodate any balance between the allogenic controls on accommodation.

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