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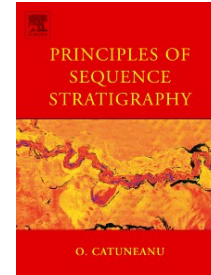
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Principles of Sequence Stratigraphy, by Octavian Catuneanu, 2006. Elsevier B.V., Customer Service Department, Linacre House, Jordan Hill, Oxford OX2 8DP, UK (Europe, Middle East and Africa). Elsevier, Customer Service Department, 11830 Westline Industrial Drive, St. Louis, MO 63146, U.S.A. (U.S.A. and Canada). Hardcover, 375 pages. Price GBP 55.00. ISBN 0-444-51568-2.



“Principles of sequence stratigraphy” is an up-to-date and comprehensive textbook covering both theory and practice of sequence stratigraphy. The book is subdivided in nine chapters: (1) Introduction, (2) Methods of sequence stratigraphic analysis, (3) Accommodation and shoreline shifts, (4) Stratigraphic surfaces, (5) Systems tracts, (6) Sequence models, (7) Time attributes of stratigraphic surfaces, (8) Hierarchy of sequences and sequence boundaries, and (9) Discussion and conclusions.

I read this book from the perspective of a practising petroleum geologist. Currently my main professional activities consist of sedimentological core studies and the teaching of introductory courses on applied sedimentology and stratigraphy for new oil and gas professionals. From both perspectives, I found this book useful and informative as a comprehensive refresher text.

What I looked for in this book was: (1) is the subject coverage comprehensive, balanced and up-to-date?, (2) are fundamental concepts / techniques / insights clearly explained?, and (3) is the book professionally edited and produced? The answer to the first and the last question is a clear “yes.” The answer to the second question is a qualified “yes:” at times I found reading of the text rather heavy going. In all fairness, however, this is more of a reflection on the complexity of the subject matter than on Catuneanu’s writing style. Nevertheless, this makes the book less suited for the novice stratigrapher. Overall though, the book represents good value for money. This may sound surprising given Elsevier’s reputation for top-tier pricing for its scientific publications, but it is my honest view.

What do I like about the book? Octavian Catuneanu has written a balanced, well illustrated, and up-to-date overview of the various approaches to sequence stratigraphy. His Figures 1.6 and 1.7 highlight one of the key challenges to be overcome by anyone who embarks on a sequence stratigraphic analysis of a basin fill. That is to correctly identify the position of a sequence boundary in terms of relative sea-level history. One sequence stratigraphic model positions the sequence boundary at the onset of base-level fall, two models position the sequence boundary at the end of base-level fall, the Genetic Sequence model positions the sequence boundary at the end of transgression, and the Transgressive-Regressive model places the sequence boundary at the end of regression. One of Catuneanu’s key messages is therefore that the sequence stratigraphic methodology is not a “silver bullet” that will solve any stratigraphic problem. It rather offers a structured approach to the stratigraphic analysis of sedimentary sequences. A second key message is that integration of all available data is essential for meaningful results. Seismic, cores, logs, outcrops, sedimentological facies analysis, paleontology, forward and backward modelling results, that is all the available data need to be taken into account.

It is for the same reasons that I particularly liked the two last chapters of the book: (8) Hierarchy of sequences and sequence boundaries, and (9) Discussion and conclusions. Both chapters address the difficulties one faces when making a sequence stratigraphic analysis in

practice. I also liked the sections that cover the application of the sequence stratigraphic method to carbonates, deep-water clastics, non-marine fluvial clastics, and last-but-not-least the application of sequence stratigraphy to Precambrian sedimentary sequences.

In addition, Catuneanu has included useful discussions on the practical impact of sequence stratigraphic analyses for those of us who earn our keep in Industry. Predicting—hopefully accurately—the distribution of reservoir sands, source rocks, seals, coal deposits, and placer ores is after all key to keeping the world supplied with oil, gas, coal and some base metals.

What's missing and what don't I like? Having spent a significant part of my career working on the desert deposits of the Permian Rotliegendes in the southern North Sea region, I found it a significant omission that there is no coverage of how the sequence stratigraphic method can be extended to such economically important desert sequences. The imprint of climatic cycles, i.e. the wetting and drying cycles that control the position of the groundwater table and hence base-level in such inland basins, is a well established fact.

Though the book is extensively illustrated with well-drawn figures, many “figures” are in fact text tables. My feeling is that several of these tables (e.g. Fig. 2.21: Classification of ichnofacies) should for greater clarity have been accompanied or replaced by proper figures.

As stated above I answered with a qualified “yes” when I asked myself the question if the writing is clear and concise. Though I do teach a basic course in sequence stratigraphy course myself, I found the text at times fairly heavy going. This makes the book less suitable as an introductory text.

The book is well edited and produced as I would expect from Elsevier. The only editorial glitch I found is a reference to the editor of Elsevier's *Developments in Sedimentology* series: Tom van Loon. On p. 4—left hand column, one but last paragraph—it is stated: “(see van Loon, 2000, for full discussion)”; there is, however, no mention of Van Loon in the list of references. Despite having made numerous spot checks that is the only missing reference that I noted.

All-in-all, the book represents a job “very well done” by the author as well as the editors! Knowing very well how much time is needed just to write a short paper or report, I can only express my admiration for Octavian Catuneanu who has written a good textbook on an important subject.

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