

elasticity and mantle viscosity; and high-resolution marine seismic evidence related to the nature of sediment subduction along the Andean chain. Part II ('Elements of the Subduction System') has six chapters covering the dynamics of subduction and mass transfer by subduction erosion. Part III ('Tectonics and Surface Processes – Responses to Change') is the largest, with nine chapters, mainly on the effects of uplift and subsidence, including basin and salar formation, landscape and climate. In Part IV ('The System at Depth: Images and Models'), five chapters present seismological and other geophysical data, resulting in numerical modelling of deformation and constraints on melting within the crust. Part V ('The Andean Information System: Data, Maps and Movies') has five chapters on data management in the project, digital databases and geological and gravity maps of the study area, many of which are included in the accompanying DVD, as well as movies and field photos, together with most of the necessary software to view them (Linux, Macintosh and Windows compatible versions). Incidentally, the animations could be used for teaching at an elementary level.

Overall the book reflects the enormous investment in geophysical data represented by this long-term project, and the resulting geophysical interpretations of crustal structure and processes. Conventional geological and petrological investigation of tectonic evolution, following up many previous years of smaller-scale German-funded research in northern Chile, is dealt with in much less detail, and there is very little reference to the Patagonian Andes south of 42° S, where the crustal structure, magmatism and plate interactions are very different. With this proviso I recommend this book as an indispensable resource for serious researchers interested in the structure of this unique, active, subduction-related mountain system.

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VEEKEN, P. C. H. 2007. *Seismic Stratigraphy, Basin Analysis and Reservoir Characterisation*. Handbook of Geophysical Exploration, Volume 37. xi + 509 pp. Amsterdam, Boston, Heidelberg, London: Elsevier. Price £85.00, US \$145.00, Euros 125 (hard covers). ISBN 9780 0804 5311 8. doi:10.1017/S0016756808004329

The concept for this book is good; all too often the seismic architecture of sedimentary basins is discussed without reference to prediction of rock properties. The author is a geophysicist with extensive experience in the hydrocarbon industry; this clearly shows, as does the fact that he is not a sedimentary geologist.

The introductory chapter makes it clear that the focus is on pore-fill evaluation in hydrocarbon-bearing basins, basinal evaluation for other resources getting no mention. The second

chapter covers seismic reflection principles and processing, rapidly progressing to velocity anisotropy, 3D depth migration and display considerations. This is all concisely done, well illustrated and up to date. The third chapter illustrates seismic stratigraphic techniques such as the mapping of geometry and facies, well calibration and interpretation of depositional environment/chronostratigraphy. There are many nice pictures of depositional environments taken from the literature but too many are not illustrated seismically. The value of insets showing a palaeo-MOHO, deviated drilling and wellhead tubing layouts is debatable and the implication on Figure 3.8 that flat erosion surfaces are subaerial is unfortunate.

The fourth chapter tackles basinal sedimentation patterns and sea level changes that are central to both subsidence analysis and the construction of coastal onlap curves. Although many complicating factors are duly mentioned in the text, the key control on relative sea level seems accepted as allogenic with autogenic controls ignored. Many of the illustrations are from AAPG publications of thirty years ago and many key modern references on sequence stratigraphy are not given. There is no mention of the estimation of stretching factors and relationship of plate tectonic context to heat flow nor that thermal conductivity may be calculated when acoustic impedance is known.

The fifth chapter, on hydrocarbon habitat, discusses source rock maturation, structural mapping and direct hydrocarbon indicators. Hydrocarbon migration is ascribed solely to 'density contrasts' and there is much illustrative material recycled from Oman. The sixth chapter, seismic reservoir characterization, includes the uses of offset-dependency, inversion to acoustic impedance volumes, fluid substitution and the estimation of rock properties. As with Chapter One, the author seems happiest on his geophysical home turf and the references are up to date through 2005. I thought this the best chapter in the book.

The final chapter is the worst. It deals with volumetrics and prospect appraisal, largely by giving a list of factors 'worth considering' and includes a very poor section on overpressures. Expectation curves get no mention. The section on 'hydrocarbon development and the global economy' seems hardly relevant and a personal indulgence.

All too often the book comes across as an enthusiastic but disorganized collage: undisciplined, undigested and derivative. While packed with information it lacks a clear individual viewpoint and would have benefited from much tighter review and English language editing. This is unfortunate as it is beautifully printed and industry sponsorship of colour illustrations has resulted in very good value for money on a price-per-page basis. It may provide a useful source of references but cannot be recommended as an authoritative treatment of its title.

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