

Book reviews

Springer Lecture Series continues

Edwards D. A. 1993. Turbidity Currents: Dynamics, Deposits and Reversals. Lecture Notes in Earth Sciences, 44. Springer-Verlag, Berlin, Heidelberg, New York, etc.; 176 p. (84 Figures and 11 Tables)

This book has a simple structure: three chapters dealing with the background of the subject and providing a comprehensive papers review (Chapter 1), describing experimental results on the incidence of density currents leading to a theoretical model (Chapter 2), applications of the model developed to modern and ancient turbidites (Chapter 3). Supplied is also an adequate glossary of notations following the Contents, three appendices containing experimental data related to Chapter 2 and, finally, a full list of the Springer Lecture Notes in Earth Sciences, accounting of totally 45 issues, with No 1, initiated in 1985. The latest is the only one in the Series out of print. It could be reminded, that it was a volume (465 pp.) edited by U. Bayer and A. Seilacher and scoped on sedimentary and evolutionary cycles. A few of the volumes of the whole Series are directed towards attractive and essential topics of the sedimentary geology.

The volume reviewed here holds also a comprehensive list of references, selectively compiled but containing most sources on the subject, unfortunately, in English only.

The background part of the book outlines all known schemes based upon turbidity current concept. Described are almost all physical models, scales of measurements, dynamics of solitary waves, shallow and deep water theories.

The experimental studies are concentrated on density currents upon various obstructions. Implemented is the mechanism of channelization recognized routinely in almost all fossilized turbiditic sequences. The experiments are illustrated with graphs, numerical tables, sketches and photographs.

Introduced and described in detail is the reversed density current responsible for generation of a variety of collapsed sedimentary structures holding a strong asymmetry. These structures are often met in the real sedimentary sequences. The activity of the reversed density current is highly ramp and obstacle dependent. The morphology of the produced structures including bores is described and explained.

The applications are covering the consequences of the incidence of just mentioned density currents upon low-angle ramps and obstacles. These are various bores and laminations. Bores are easily observed in both recent turbidites and buried rhythmic sequences.

The case study is based on the well recognized sedimentary formation: Windermere Group of Paleozoic marine siliciclastic turbidites of a peripheral foreland basin in Northwest England. All observed in the outcrops sedimentary structures are seen in the light of the carried experimental studies.

As stated in the Preface by the author D. Edwards the book is suitable for the researchers carrying interest towards dynamics of turbidity currents and for the experts within intermediate scopes bringing mathematics, meteorology, engineering and sedimentology together in order to produce new knowledge in the dramatic and promising field of the sedimentary geology. It is reflecting influence of the modern theories of the origin and evolution of the Earth appearing nowadays. The book should be of use for the students and young scientists in the same field, but its reading and understanding will probably require much efforts and careful thinking.

*Vassil T. Vuchev
Geological Institute,
Bulgarian Academy of Sciences
1113 Sofia, Bulgaria*