

## Review

HUUSE M, REDFERN J, Le HERON DP, DIXON RJ, MOSCARIELLO A and CRAIG J (2012) *Glaciogenic reservoirs and hydrocarbon systems*. Geological Society, London (Special Publication 368), 312pp. ISBN-10: 1-862393-48-6, ISBN-13 978-1-862-39348-6, hardback, £120.

As a consequence of numerous episodes of glaciation, glaciogenic sediments are present in many areas of the planet. Although it has long been known that hydrocarbon reservoirs can be found in ancient glacial sedimentary material, with obvious and substantial economic consequences, surprisingly little research has been conducted on the formation and development of such material, and how hydrocarbon systems may evolve as a consequence. Doing so also has numerous scientific advantages, including better understanding ancient glaciations, appreciating how former glacial processes may differ from today, and using contemporary glacial settings to understand past changes.

Here, Huuse and others assemble a series of contributions that provide an excellent benchmark in research at the hydrocarbon-reservoir/glaciology interface. The book contains a nice balance between descriptions of glacial sedimentary records, hydrocarbon systems within glaciogenic material, and past glaciation inferred from ancient deposits. The chapters are consistently informative and detailed, combining to make this text an ideal reference work. The overview at the beginning of the book places the subsequent chapters into a collective context. In fact I found the introduction, which is unusually lengthy for an edited work, very useful as an overview of the subject, given that the following chapters relate more to specific and individual issues. The chapters reveal how glaciogenic hydrocarbon systems have relevance across the planet, and over large portions of geological time, providing evidence of major periods of glaciation in Earth's past.

I would like to have seen some separation of the chapters into discrete sections. Their order is sensible, and they have groupings (discussed below), but grouping them formally would help the reader to understand how the chapters relate

and to briefly identify the broad topics they cover. This minor grumble aside, I think the book has much to recommend it.

The first two main chapters concentrate on sedimentary sequencing of glaci-dynamic sediments, both in a generic sense (contribution by S.A. Schack Pedersen) and with reference to the mid-Norwegian Shelf (D. Ottesen and others). The latter chapter also provides information on what the sediments reveal about the glacial history of this important hydrocarbon region. The next seven chapters deal with (mainly) seismic evidence for tunnel valleys in various glaciological and sedimentary settings. To this point, the book is mainly concerned with western Europe and the late Pleistocene. From here it begins to consider other regions and other time periods. Buckley considers evidence for earlier Pleistocene glaciation in the North Sea, while C.R. Fielding and others examine, slightly provocatively, the reservoir potential in glacial sediments offshore of McMurdo station, Antarctica. The next chapters deal with Carboniferous glaciation in the Middle East (J. Martin and others), and Late Palaeozoic glaciation in Bolivia. A further contribution on tunnel valleys follows, this time from Jordan in the Ordovician (G. Douillet and others), followed by three chapters offering descriptions of glacial sediments, and their ice-sheet implications, from Algeria around the same time.

To complete the book, Le Heron and Craig discuss Neoproterozoic sediments and their implications for the snowball Earth hypothesis, which, based on their evidence, they dispute and critique.

The book is an interesting and unusual compilation of glaciological sedimentary research. It demonstrates that glaciology has relevance and impact way outside its traditional areas of investigation. It makes an excellent addition to the Geological Society's series and will likely serve as a reference work for many years.

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