BOOK REVIEWS

FAURE, G. & MENSING, T. M. 2011. *The Transantarctic Mountains: Rocks, Ice, Meteorites and Water*. xxvi + 804pp. Springer. Price £153.00, US$229.00 (HB). ISBN 978 1 40208 406 5.
doi:10.1017/S001675681100032X

The Transantarctic Mountains: Rocks, Ice, Meteorites and Water has an ambitiously broad subject matter that has been aimed at an equally wide audience, ranging from active researchers to those who visit Antarctica 'to be inspired by its natural beauty'. For those unfamiliar with Antarctica the authors have provided a fairly broad introduction to the historical exploration of Antarctica, the continent, international treaties, environmental conditions and even cold related injuries. This historical perspective continues at the start of each chapter or new geographical area with a synopsis of post-heroic era scientific exploration, where we learn historical details such as the skimobile used on the 1976/77 international expedition to the Shackleton Range was named 'Buran'. Such information certainly fulfils the authors stated aim of making the book more readable, something that has also been achieved by the provision of numerous appendices that explain scientific analytical techniques and methodology in an accessible manner.

The principal subject of the book, the geology of the Transantarctic Mountains, is well structured being logically split into rocks pre and post the Kukri unconformity and also into geographical regions that form self contained chapters, with meteorites and a useful section on glaciation dealt with separately. The text is well illustrated throughout with detailed location and geological maps, plus reproduced analytical data. Scientifically, the authors stated aims are three-fold: to summarise the relevant facts about the major rock units, present the proposed hypotheses, and aid the identification of areas and geological problems that require additional work. The authors largely deliver on these aims and provide an excellent synopsis of the stratigraphy and lithologies of the Transantarctic Mountains. However, the structural geology of the Transantarctic Mountains, particularly of the basement rocks, is only covered by fairly generalised statements. The authors provide abundant appendices of geochemical and geochronological data for each chapter, however the utility of these are highly variable. Perhaps it is inevitable with a book of such broad scope and scale that some published work has been omitted, but some of the more recent literature is not cited.

Faure & Mensing have produced a hugely ambitious book covering a range of scientific disciplines, and although written in an accessible manner, the subject matter will largely self-select its readership with Antarctic geoscientists (researchers and students) being the main beneficiaries. Regardless of some omissions, *The Transantarctic Mountains: Rocks, Ice, Meteorites and Water* represents a valuable reference text for the stratigraphy and geological history of this remote region, and I would consider it an important resource for anyone wishing to plan a field campaign to this mountain range, as so much local and regional detail is included. This book will be valuable addition to any Antarctic research centre's library, but given the increased prominence of Antarctic science it should also find a place in the Earth Science section of most university libraries.

Mike Curtis
British Antarctic Survey

MCKILLUP, S. & DARBY DYAR, M. 2010. *Geostatistics Explained: An Introductory Guide for Earth Scientists*. xvi + 396 pp. Cambridge University Press. Price £50.00, US$90.00 (HB); £30.00, US$39.99 (PB). ISBN 978 0 52176 322 6 (HB); 978 0 52174 656 4 (PB).
doi:10.1017/S0016756811000355

I very nearly didn't review this book. I'm not really qualified to comment on a book with this title but, as it happens, the book isn't about geostatistics! Instead, it is about the slightly different topic of statistical methods in Earth Sciences where I do have some background (I teach this to undergraduates). That brings me to a second reason why I nearly turned down the review; who needs another 'stats for geologists' book when we already have the excellent *Statistics and Data Analysis in Geology* (Davis, 2002)?

McKillup & Darby Dyar tackle this second objection head-on in the book's Preface where they specifically mention the Davis book and explain that their aim was to produce something a bit less daunting (my words not theirs). The result is a book that won't tell you how to produce much statistics from scratch but which will help you understand the results of computer statistical packages and which will help you decide which analyses to choose. If this is what you need then the book succeeds extremely well.

Some readers may be irritated by my pedantic insistence that this book is about statistics in geology rather than geostatistics. The term 'geostatistics' did indeed originally mean what you might expect but, over the last 30 years, it has come to refer specifically to spatial statistical methods (e.g. interpolation) and has become a very specialized subject. *Geostatistics Explained* barely touches on geostatistics in this narrower sense and therefore has a potentially very misleading title. The reason for this *faux-pas* becomes apparent once the author's biographies are examined. Steve McKillup is a biologist who has previously published a statistics textbook for life scientists. He clearly decided that there was scope to do something similar in geology and turned for help to Melinda Darby Dyar who, like me, is an earth scientist who happens to teach and use statistical methods. Hence, neither author is a geological-stats specialist and they overlooked the problem with the book title. Nevertheless, between them, they have come up with a charming text which succeeds very well in achieving their aims.

What the book does is to provide a friendly introduction to the standard statistical tools from univariate and bivariate methods, for both parametric and non-parametric cases, through to multivariate methods, time series and simple spatial statistics. The first five chapters are a gentle introduction to scientific methodology with the next four providing a grounding in statistical inference. The book then has fourteen chapters giving succinct introductions to the most commonly used statistical methods. I particular enjoyed the explanation of multi-dimensional scaling (MDS) since I've never used this approach and came to it with the eyes of a student trying to grasp a new concept. I'm pretty sure I picked up the main ideas without a struggle and this has to be a good sign!

In summary, reading this book will stop students, researchers and working geologists from using statistics packages as 'black boxes'. There's now no excuse for not having a basic grasp of what you're doing, why you're doing