total, to enhance the text and explain key concepts. The book contains more than 900 references in a comprehensive bibliography intended to be a gateway to further reading. There is also a useful 11-page subject index. Each chapter is well illustrated and the book contains over 300 figures and 13 colour plates.

This is an excellent second edition of *Tectonic Geomorphology* and is highly recommended to geologists and geomorphologists with an interest in neotectonics and landscape evolution. The authors concede that they have not yet looked at submarine topography, and the implications sea-floor studies have to offer in an interpretation of the interactions between tectonics and geomorphology, but that is something to look forward to in the third edition.

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FIELD BIOLOGY (third edition) by Esbern Warncke. Narayana Press, Gylling [available as e-book from www.saxo.com]. No. of pages: 302. Price: UK£22.50. ISBN 978-87-996087-0-6 (hardback).

The third edition of Esbern Warncke's beautifully illustrated, well-written and highly instructive guide to the background and techniques of field biology is essential reading for any field-based biologist. Why is it of any relevance to geologists and palaeontologists? Fifty years ago, Derek Ager (1963) published the first major textbook, in the English language, on palaeoecology. The core of Ager's book is the importance of fieldwork, the careful observation and recording of field data, and their subsequent analysis and interpretation. Ager drew on a number of field techniques pioneered by biologists such as the line transect and quadrat in capturing data to subsequently frame and test hypotheses. He also emphasized the importance of sampling sufficiency tested with rarefaction. *Field Biology* continues this tradition of observation before inference.

Warncke's comprehensive guide is based around nine chapters that lead the reader through the basic concepts of ecology, how scientists investigate, examine and describe living floras and faunas, an overview of the factors affecting aquatic and terrestrial life to the organisms themselves, together with an insight into the changes in the environment and its biota in more recent time; finally, a chapter is devoted to data analysis and presentation. Where possible, the book is illustrated by well-documented and suitably relevant case histories and completed by a comprehensive index.

Much palaeoecological research is based on actualism and uniformitarianism (such as Schäfer, 1962); our interpretations of ancient marine ecosystems, at least those evolved during the last 550 Myr, being based where possible on modern analogues (see, for example, Brenchley and Harper 1998). Despite the weaknesses of the fossil record when matched with a living biota, our sampling strategies are, not surprisingly, very similar. Warncke provides a very readable and well-structured, state-of-the-art journey through this key area of investigative science. He also presents strong arguments why biologists must adopt field-based strategies if we are to understand modern ecosystems. Fossils were once-living animals and plants, in Ager's (1963, p. vii) words, '….their lives were a continuous battle with their environments. Their story is the essential prelude to the fleeting present and the unknown future'. Palaeontologists, too, must continue to collect and analyse field data, with the newest methodologies and technologies, if we are to fully understand the evolution of the planet's ecosystems through deep time. *Field Biology* is a useful textbook for anyone investigating living and fossil communities and ecosystems.

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ATLAS OF SHEAR ZONE STRUCTURES IN MESO SCALE by Soumyajit Mukherjee. Springer Geology, New York, 2014. No. of pages: 124. Price: Euro 105.99 (hardback), Euro 83.29 (eBook) ISBN 978-3-319-00088-6 (hardback); 978-3-319-00089-3 (eBook).

The *Atlas of Shear Zone Structures in Meso-Scale* illustrates the morphological characteristics of shear zones within the Himalayas that have been gathered by the author's intensive field observations over the last decade. The book deals with various shear zone-related structures, produced in brittle and/or ductile regimes. The shear sense indicators and associated microstructures are also described. The best part of this book are the 180 colour photographs and their brief descriptions. This *Atlas* is a logical step forward for readers who are moving from a theoretical to a more practical point of view.

The first chapter describes ductile shear and S–C fabrics. Chapter 2 presents folds associated with shear zones. Folds were classified into pre-shear and syn-shear types. Chapter 3 concentrates on vein orientations, and symmetric clast rotations in shear zones and nearby areas. Chapter 4 describes shear-related symmetric and asymmetric boudins; indeed, boudin varieties with all the possible geometries are discussed. Finally, Chapter 5 shows brittle shear features, viz. P- and Y-planes. It gives an outline for the brittle shear-dominated deformational structures. In this instance it is the field photographs that are more helpful, rather than recorded data.

The *Atlas* introduces the possibilities of similar types of shear zone structures throughout the Himalayan arc, although the

morphological variation of shear zones structures within the same is still poorly understood. Despite careful efforts, the lack of a GPS location for each photograph can be a problem for further field observations in the same area. Furthermore, this atlas is mainly targeted to the early stage learners, but a more vivid chapter with details of theory would have increased its general acceptability. Nevertheless, the *Atlas* is a milestone for researchers, students and professional structural geologists who would like to work on shear zones. The wide variety of structures related to shear zones which are presented in this book include those that are commonly beyond the scope of publication in research articles. This treatment will cater for all who are interested in shear zone dynamics.

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ATLAS OF BENTHIC FORAMINIFERA by Ann Holbourn, Andrew S. Henderson, and Norman McLeod. Wiley-Blackwell, Chichester, 2013. No. of pages: 642. Price: UK£149.95. ISBN 978-1-118-38980-5 (hardback).

The scope of this thick volume is adequately covered by the title. The introductory chapter starts with the basic aspects of foraminifera morphology, ecology, evolution and applications summarized in just two pages. This is followed by a brief summary of the history of deep sea drilling, the samples of which are an important source for the material shown in this book. The purpose, however, is to make a big step towards standardizing benthic foraminifera taxonomy. As the authors explain, a major restriction on using benthic foraminifera is the limited standardization of their taxonomy, due to the lack of good illustrations. Original descriptions are often accompanied by poor illustrations that allow for multiple interpretations, and different specialists and schools have often applied these names heterogeneously.

This book is a major first step towards standardization. The bulk of the book is formed by accounts of 300 species of benthic foraminifera. These species were selected based on use for either palaeoecological reconstructions, stratigraphy or geochemistry. Additionally, some agglutinated taxa were included to illustrate a wider range in morphological and textural variation. Each of the species is treated in an account comprised of, usually, two or three, but occasionally only a single, image; a description; the most important synonyms; brief remarks on ecology and stratigraphy; and the most important references featuring the species. The images are all of high quality and especially useful since they show the specimens under light, rather than as SE micrographs. The latter display more detail, but are difficult to compare with foraminifera as you encounter them when searching through a sample under the binocular microscope. The stacked image technique used results in a large depth of field.

This makes the book a 'must have' when studying deep water benthic foraminifera. This brings me to my only criticism of this book. From the title I expected a coverage of all benthic foraminifera, maybe a sheer impossible task, but *Atlas of Benthic Foraminifera* covers only deep water taxa, arguably a relatively small part of this group's diversity. Maybe this could have been indicated in the title of the book.

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CLIMATE FORCING OF GEOLOGICAL HAZARDS, edited by Bill McGuire and Mark Maslin. Wiley-Blackwell, Oxford, 2013. No. of pages: xiii+311. Price: UK£75.00. ISBN 978-0-470-65865-9 (hardback).

Volcanic eruptions, earthquakes and submarine mass movements have not been the focus of discussions on hazards associated with a changing climate. In the reviewer's experience, discussion on links between climate change and geological hazards is often limited to possibilities of increases in mass movements such as landslides and rock falls, due to increased precipitation. Indeed, the geo-hazards community has been under-represented, if not excluded, in discussions on climate change adaptation and disaster risk reduction which have focussed more on hydro-meteorological hazards. The research presented in this volume, however, suggests that any restriction of the discussion on the effects of climate change to such hazards risks ignoring the possibility of other potentially serious threats.

The book reviews research on climate change as a driver for geological hazards. Volcanic and seismic activity, mass movement, tsunamis and gas hydrate releases are all presented as possible responses of the earth to changes in its climate. Evidence from the end of the Last Glacial Maximum through the Pleistocene and Holocene is reviewed, and the case is presented for a link between melting of continental ice sheets, rapid sea-level rise and fault rupture, volcanic eruptions, and submarine and sub-aerial mass movements.

Climate change projections and possible implications for geo-hazards in high latitude regions, other mountain regions and volcanic landscapes are discussed. Possible links between El Nino and earthquake activity are explored as are climate control of submarine mass failures which could act as tsunami sources.

Uncertainties associated with data and analyses are discussed and many authors call for more research to better understand the hazardous phenomena, their relationships and the timescales over which some of these hazardous processes will occur. The current state of knowledge does not permit a link of cause and effect to be made between climate change and an increase in the frequency of occurrence of geological hazards, but the evidence suggests that the relationship between climate change and geo-hazards should be included in discussions on disaster risk reduction and climate change adaptation.

This volume represents a good compilation of the current state of research on climate forcing of geo-hazards. Outside of Academia, the disaster risk reduction and climate change adaptation