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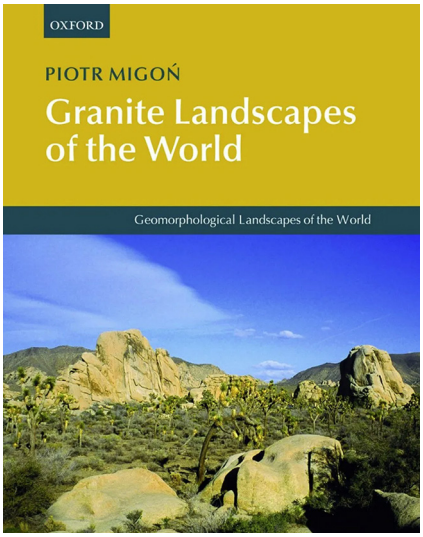
Geologos 28, 3 (2022): 217–218
https://doi.org/10.14746/logos.2022.28.3.0004

GEOLOGOS

Book reviews

Granite landscapes of the world, by Piotr Migoń, 2006. Oxford University Press, Oxford, UK, 384 pages. Hardback: price 383$, ISBN 0-19-927368-5; 978-0-19-927368-3.



Seen from space the Earth stands out from other planets orbiting the Sun by presence of brown-green continents surrounded by blue oceans. The surface of the Earth's continental crust is isostatically elevated above the ocean basins because, taken as a whole, that crust is less dense than the oceanic one. The distinctive lower density of the continental crust derives mainly from the voluminous granitoid rocks, including granites *sensu stricto*, that accumulated through magmatic processes over geological time and have a huge impact on the history of our planet. Granitoids and continents are features that make the Earth unique amongst the planets of our solar system. For this reason alone, these rocks are amongst the most studied ones on earth. Processes that generate granitoid magma are intimately linked with the geodynamic setting in which they form. Consequently, granitic rocks record critical information on the development, differentiation and recycling of the lithosphere from as long ago as the Hadean to the present day. The mineralogical classification of granitoids with variable proportions of quartz (20–60 vol%), alkali feldspar and plagioclase includes four rock types: tonalites, granodiorites, granite (monzogranite and syenogranites) and alkali-feldspar granites.

Granitoids are found in a variety of tectonic settings across the globe, either at plate margins or in intraplate position, but they occur in the largest volumes at convergent plate boundaries, above subduction zones (as in the case of the Andes) and where continents collide (e.g., the Himalayas). Exposed at the surface, following uplift and erosion of overlying rocks, granitoids slowly transform by adapting to new environmental conditions, often producing spectacular landscapes. Physical landscapes are all around, ranking amongst the most fascinating facets of our planet and providing valuable insights into the mechanisms of its geomorphic evolution. Understanding how these landscapes evolve and change and why it is important to understand their genesis, is what the present book is all about.

The present tome is the second in a series entitled, *Geomorphological landscapes of the world*, and published by Oxford University Press. Granitoid landforms have appealed to geologists, geographers and geomorphologists for many decades. However, in spite of this long history of research into such landforms, our understanding of the processes responsible for their genesis is still incomplete. The present volume is the outcome of long-lasting research and the author's fascination with the geomorphic evolution of granitoid areas. In short, the reader is offered a very well-designed overview of the diversity of landscapes, at different scales and associated with the occurrence of granitoids, together with explanations of their genesis.

In ten chapters, this excellent work synthesises a vast amount of current knowledge on the subject. Chapter 1 (pp. 1–23) presents basic information on granitoids, including composition, textures, petrological and geochemical classifications, tectonic settings, mechanisms of magma formation and structures of granitoid bodies, all of which are relevant to the origin of landforms. In Chapter 2 (pp. 24–82),

the emphasis is on processes and products of physical and chemical weathering, and to a lesser extent, on the biological and biochemical weathering of granitoids. In view of its important implications for landscape evolution, the phenomenon of deep weathering, ubiquitous on granitoids, is presented in detail. This is followed by an examination of the genesis, diversity and distribution of the most characteristic individual granitoid landforms such as boulders, tors, inselbergs and bornhardts (Chapter 3, pp. 83–131), followed by minor landforms (e.g., weathering pits, tafoni, alveoles, polygonal cracking, karren and flared slopes) that result from selective weathering in various climatic environments (Chapter 4, pp. 132–160). In Chapter 5 (pp. 161–217) patterns of slope evolution are shown within the context of both rock slopes and deeply weathered terranes. In the next two chapters granitoid geomorphology in coastal (Chapter 6, pp. 218–235) and periglacial and glacial contexts (Chapter 7, pp. 236–253) is presented so as to show how rock characteristics control landform evolution in these specific environments. The variety of geological controls at different spatial scales, their primacy over other factors and their reflection in granite landscapes are discussed in Chapter 8 (pp. 254–289). Geotectonic settings and specific rock characteristics help explain both the distinctiveness of granitoid morphology and its variability within granitoid areas. The typology of natural granitoid landscapes is discussed in Chapter 9 (pp. 290–326). The final chapter, Chapter 10 (pp. 327–343), concludes with the consideration of selected aspects of human-induced changes on natural granitoid landscapes.

It has been a pleasure to read this book; it is written in an accessible, attractive way, with complex relationships presented in a simple and comprehensible manner. The numerous illustrations are critical to efficient documentation of landscape evolution. Sadly, most of these are not in colour. All chapters can be used as independent review texts on specific topics, related to different aspects of granitoid geomorphology. The book concludes with an extensive reference list (675 publications), a mine of information on other studies of the topic. Examples from all parts of the world and extensive referencing ensure that this tome will act as a guide to the fascinating world of granitoid geomorphology for years to come. The index makes for easy navigation through the book and allows to find links and common threads amongst individual chapters. This volume will certainly prove useful to those seeking an accessible synthesis on granitoid geomorphology. Geologists, geomorphologists, geoscience students and anyone interested in geology will appreciate it.

In conclusion, the reader is certain to obtain a high-quality, extensive and well-illustrated compilation of our knowledge of the variability of granitoid landscapes and of key elements controlling their evolution; the author deserves to be congratulated on achieving this.

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