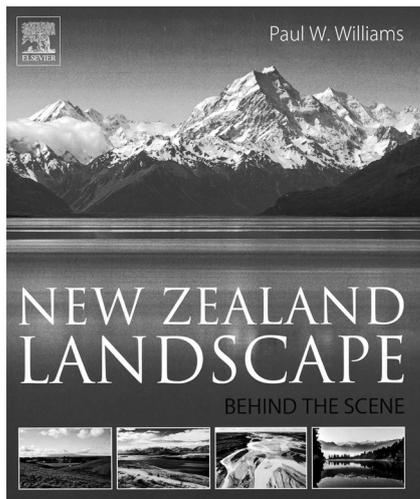


New Zealand landscape. Behind the scene, by Paul Williams, 2017. Elsevier, Amsterdam. 470 pages. Paperback: price \$150, ISBN 978-0-12-812493-2. E-book: price \$150, ISBN 978-0-12-812565-6.



New Zealand is a paradise for any geoscientist, but more particularly for geomorphologists. Not only is this area extremely diverse, it is also highly dynamic in terms of endogenic activity and rates of superficial processes. Here, within a relatively small territory that can be travelled around easily, it is possible to observe and examine physical landscapes as if reading a lavishly illustrated textbook of geomorphology. The South Island is seismic, considerably uplifted, affected by large-scale mass movements and still partly glaciated in the western part, whereas fantastic braided rivers, classic rocky coasts and extraordinary palaeosurfaces can be visited in the eastern part. The North Island, by contrast, is dominated by volcanic and geothermal phenomena that are associated with active, subduction-related volcanism. These distinctive geomorphological facets co-exist with more ordinary hillslope and fluvial landscapes, all bearing the significant overprint of human activity. However, in a dynamic landscape geomorphic hazards are multiple and New Zealanders have learnt how to live with these and minimise the adverse effects whenever these occur. How to present this enormous diversity and relate such a complex story in an attractive way? Professor Paul Williams of the University of Auckland, an eminent geomorphologist who is probably best known for

his contribution to karst science, has found the answer: the book reviewed here.

In short, we have been presented a very well-designed overview of New Zealand's geomorphology, shown from an evolutionary perspective, from the birth of the islands to the contemporary geomorphic environment with multiple nature/human interactions. It is written in an accessible, engaging way, with complicated stories rendered in a simple way, whereas nearly 400 photographs and line diagrams help both enjoy the beauty of the scenery and better appreciate landform patterns and process rates through time. Wherever necessary, the author refers to the basic principles and explains key concepts that are vital for our understanding changes in landforms, both past and present, so that even readers with a limited background in geomorphology can follow this story.

The book is divided into nine chapters. In the opening one the scene is set. We are told how New Zealand came into existence during the breakup of Gondwana, how it became a largely submerged continent and where the legacy of Gondwana can be found in New Zealand; and, yes, this is possible! Chapter 2 unfolds the story of the emergence of New Zealand, linking large-scale topography and the difference between the South and North Island to the context of plate tectonics. Chapter 3 introduces one of New Zealand's specials – volcanoes. It starts with a diverse array of volcanic processes and phenomena in general, then going to particular volcanic provinces of the North Island, such the Central Volcanic Region, split into two unequal parts by the highly active Taupo Volcanic Zone, the Taranaki Volcanic Centre in the southwest and the Auckland Volcanic Field in the northwest. Here one of my very few and minor criticisms of the book comes in. Geothermal phenomena, known to produce unique landforms in the North Island, are merely mentioned in places, but these probably would have deserved more attention. After the volcano break, Chapter 4 continues the story of mountain geomorphology, but now the emphasis has shifted to superficial processes responsible for the erosion of

mountains. Various mechanisms that contribute to overall erosion are presented, such as weathering, glaciation, periglaciation, mass movements and, last but not least, fluvial erosion and valley carving. The fluvial theme is carried onto Chapter 5, which focuses on a more detailed examination of six selected river basins in both islands. The principle of selecting the sample was to show the diversity that is underpinned by dissimilar crustal trends of uplift, subsidence, compression and relative stability. Chapter 6 brings us to Paul Williams' home turf: karst and caves. Although limestones and marbles are not particularly abundant in New Zealand, they do give rise to some very fine karst scenery such as that on Mount Owen in northwest Nelson, South Island, or in King Country, including the famous Waitomo Caves, in the North Island. In Chapter 7 we learn about the legacy of the Ice Ages, with an introduction to global patterns first and then to the Quaternary in New Zealand itself, where advances during cold phases and glacier recessions during warmer intervals occurred. Chapter 8 describes the coasts; New Zealand has so many varieties of coastal scenery that they alone could have filled the entire book. Again, after learning about some necessary fundamental issues, beaches and associated depositional landforms are presented, followed by tidal inlets, hard rock cliffs and platforms. At the end of

the chapter, sea level changes are examined and the factor of inheritance is convincingly demonstrated. The final chapter, Chapter 9, revolves around humans and their multiple interactions with New Zealand's dynamic geomorphic environment. Natural hazards and exposure to them are given due attention, but then the account revolves examination of human effects on the geomorphic landscape, both direct (deforestation leading to soil erosion and landsliding) as well as indirect (accelerating coastal erosion due to increasing storm activity and sea level rise). Two indexes help the reader to navigate: by geography and by subject.

In conclusion, Professor Williams is to be congratulated for providing us with this excellent book. More regional presentations such as this one should be available for different parts of the world where the geomorphic scenery, although of course different, is also extremely appealing. Whether you intend to travel to New Zealand or not (although the first option is strongly recommended), investment in a "New Zealand Landscape" can only be beneficial.

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