SANDSTONE LANDFORMS

Sandstones form the backdrop to some of the world’s most spectacular scenery – forming high mountain ranges, bold cliffs, extensive plateaus, impressive caverns and magnificent towers. They are found all over the planet and in all climates, from hot deserts to the polar region, and provide the construction material for iconic buildings in numerous countries.

Following on from the authors’ successful 1992 book, this is the only volume that considers sandstone landforms from a truly global perspective. It describes the wide variety of landforms that are found in sandstone, and discusses the role of lithological variation, chemical weathering and erosional processes in creating these features, with examples drawn from around the world. Climatic and tectonic constraints on the development of sandstone landscapes are also considered.

This volume provides a comprehensive assessment of the literature from publications in a range of languages, and is illustrated with over 130 photographs of sandstone features from every continent. It presents a holistic account of sandstone terrain for researchers and graduate students in a variety of fields including geography, geomorphology, sedimentology and geomechanics.

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Collectively, the authors have over 70 years’ experience in the subject.
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Sandstones are found worldwide – from Greenland to Antarctica, and on all
continents. The Old Red Sandstone forms the spine of Britain, extending from
Wales to the Orkney Islands. Its stratigraphy and fossils were studied by the doyen
of geology, James Hutton, and were the core of the ‘map that changed the world’
by the pioneering geologist, William Smith. The world’s tallest waterfall, Angel
Falls, tumbles over the sandstones of the Roraima in Venezuela. Iconic buildings in
many parts of the world are made of sandstone. Movie-goers will recognize the
sandstone terrain of Utah in many Westerns and the sandstone spires in the Czech
Republic in the film *The Lion, The Witch and The Wardrobe*. Sandstone and its
landforms are therefore of interest not only academically but generally.

The Youngs’ earlier book, *Sandstone Landforms*, was published by Springer in
1992 (copyright reverted to Robert and Ann Young in 1997). Their aim then was
to draw together the main explanations of sandstone geomorphology from
accounts scattered throughout the literature, and to add their own field
observations. This was written as a high-level academic book, and is now out
of print. To our knowledge, its only predecessor was a 1972 treatise in French by
Monique Mainguet. Since 1992, the focus of research on sandstones has shifted to
what was then a new field – the widespread and significant impacts of silica
solution on sandstone landscapes. A major review of European sandstones is due
for publication (Hartel et al., in press). Still however, much information remains
scattered within a plethora of scientific journals.

Our aim here is to bring together not just an overview of research on sandstone
landforms, but a global perspective that includes assessment of the underlying
principles used in interpreting the landscapes. We have updated and revised the
previous work, and the section on solutional landforms and processes has been
greatly expanded. As with the earlier edition, we hope that we can convey some
of the fascination and interest – some may even say, absorption – that sandstone
landscapes have provided for all of us.
Preface

We are grateful to colleagues who have provided photographs (as acknowledged in the captions) and assistance – Piotr Migon, Stefan Doerr, Rowl Twidale, Dennis Netoff, Andy Spate and John Dixon. We acknowledge also the use of photographs from Mr Hong Kaidi, Jan Galloway and the estate of the late J. N. Jennings. At Cambridge University Press, London, we thank Matt Lloyd for arranging the publication, and Diya Gupta, Anna-Marie Lovett and Sarah Lewis for editorial assistance.