

Geomorphology of Desert Environments  
Second Edition

# Geomorphology of Desert Environments

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Edited by

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## Preface to the First Edition

About one-third of the Earth's land surface experiences a hyperarid, arid, or semi-arid climate, and this area supports approximately 15% of the planet's population. This percentage continues to grow and with this growth comes the need to learn more about the desert environment. Geomorphology is only one aspect of this environment, but an important one, as geomorphic phenomena such as salt weathering, debris flows, flash flooding, and dune encroachment pose major problems to desert settlement and transportation.

The geomorphology of deserts has been the subject of scientific enquiry for more than a century, but desert geomorphology did not emerge as an identifiable sub-discipline in geomorphology until the 1970s when the first textbooks on the subject appeared, namely *Geomorphology in deserts* in 1973 and *Desert landforms* in 1977. Also, in 1977 the Eighth Annual (Binghamton) Geomorphology Symposium was devoted to the theme 'Geomorphology in Arid Lands' and the proceedings of the symposium were published in the same year. The 1980s have seen the appearance of titles dealing with particular topics within desert geomorphology, the most notable of these being *Urban geomorphology in drylands* and *Dryland rivers*. As we enter the 1990s, a new generation of textbooks on desert geomorphology has reached the bookstores. *Arid zone geomorphology* and *Desert geomorphology* incorporate the advances in knowledge that have occurred during the past 20 years but are primarily written for the college student. By contrast, the present volume assumes that the reader already has some knowledge of desert geomorphology. It is pitched at a level somewhat higher than the standard text and is intended to serve mainly as a reference book.

To achieve this goal we sought out authors who were active researchers and authorities in their fields. We asked each to write an up-to-date review of an assigned topic related to their speciality. These reviews are assembled in this book and together represent a comprehensive treatment of the state of knowledge in desert geomorphology. The treatment, perhaps inevitably, contains a geographical bias, in that 14 of the 22 authors are based in North America. Although most of them have experience in deserts on other continents, their discussions and the examples they draw upon are lop-sidedly American. The bias was perhaps inevitable (despite our best efforts to avoid it) because modern research in desert geomorphology published in English is dominated by investigations conducted in the Deserts of the American South-west. Faced with this geographical bias, we specifically requested authors to include research conducted outside North America. Different authors have succeeded in this regard in varying degrees. Thus in spite of the bias, we believe this book will

have appeal and relevance beyond North America and will be useful to geomorphologists working in deserts around the globe.

The idea for this volume emerged during an informal field trip of desert geomorphologists through the Mojave Desert and Death Valley prior to the Annual Meeting of the Association of American Geographers in Phoenix in April 1988. One author submitted his chapter in September, even before we had found a publisher! As we write this Preface, almost four years later, the final chapter has just arrived. Assembling within a limited time frame 26 chapters from 22 authors, all of whom have busy schedules and other commitments and obligations, is a daunting task. Those who submitted their chapters early or on time have waited patiently for those less prompt, while those running late have had to sustain regular badgering by the editors. Finally, however, the book is complete. As is generally the case with edited volumes, the quality of the product depends very heavily on the quality of the individual chapters, and the quality of the chapters depends on the authors. Recognizing this, we would like to thank the authors for their efforts in writing this book. We are pleased with the final product, and we hope they are too.

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## Preface to the Second Edition

When we were approached by Springer to consider a second edition of *Geomorphology of Desert Environments*, our initial inclination was to say no. Before doing so, however, we contacted the authors who contributed chapters to the first edition and asked them if they would be prepared to update their chapters. To our considerable surprise, their response was overwhelmingly positive. With very few exceptions, those still active in the field expressed enthusiasm for the idea. The appearance of this volume is, therefore, more a credit to the contributors to the first edition than it is to the editors! We are grateful to them for their support of this new edition, and to those new contributors, some of whom have filled in the gaps, but the majority of whom have provided chapters additional to those in the first edition. It may be invidious to single out a single contributor, but we should specifically acknowledge Dorothy Sack who not only revised her own chapter from the first edition but offered to take on the revision of the two chapters that the late Don Currey had contributed.

In the decade and a half since the preparation of the first edition, progress in the multitude of subjects that comprise the field of desert geomorphology has varied greatly, and this variation has had a profound effect on the character of the field. Some subjects (for example, dust) have burgeoned over the period to merit a chapter in their own right. Others have seen significant changes, particularly those in which the advances in dating techniques have had an impact. Yet other areas of research have seen relatively little progress and appear to have fallen from fashion. In the course of revising *Geomorphology of Desert Environments*, we therefore made an effort to adjust the coverage of the various subjects to reflect the changes that have occurred in these subjects since the printing of the first edition. Thus the *raison d'être* for the second edition is to provide a balanced and up-to-date synthesis of the geomorphic processes that operate in desert environments and the landforms they produce.

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