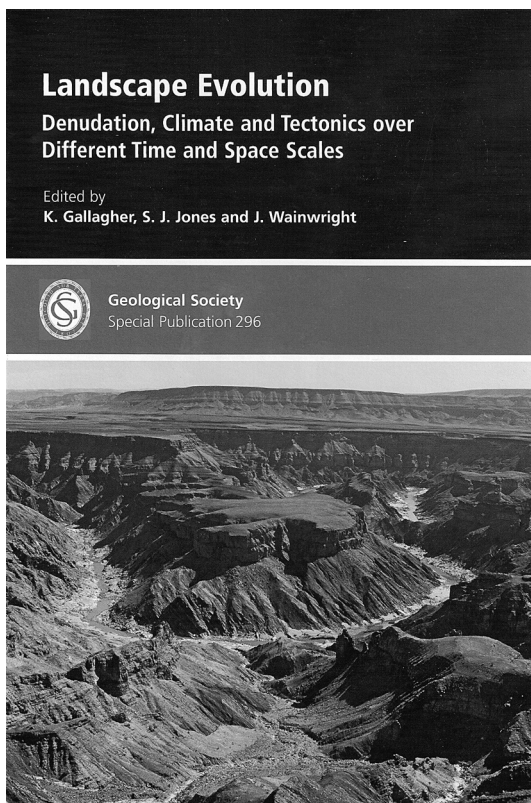


Landscape evolution – denudation, climate and tectonics over different time and space scales, edited by K. Gallagher, S.J. Jones & J. Wainwright, 2008. Geological Society Special Publication 296. The Geological Society of London, The Geological Society Publishing House, Unit 7, Brassmill Enterprise Centre, Brassmill Lane, Bath, BA1 3JN, United Kingdom. Hardback, 198 pages. Price GBP 80.00; (fellow price GBP 40.00; corporate affiliates price GBP 64.00; other societies' price GBP 48.00). ISBN 978-1-86239-250-2.



Volume no. 296 in the prestigious Special Publication series published by the Geological Society of London concerns geomorphology and surface processes and has arisen from a conference held as far back as in 2004. It addresses an issue discussed by geomorphologists since the beginning of the discipline, namely short- and long-term controls on landscape evolution. It is long understood that geomorphic processes

and landform change are responses to climate change and tectonic forcing, but we wish to know more about these responses, their temporal and spatial aspects, and the relative role of climate and bedrock properties in governing the responses. These problems cross-cut many traditional sub-disciplines of geomorphology and can be fruitfully analyzed in any sort of geomorphic system. This is reflected in the content of the volume, which assembles contributions pertinent to very different timescales, spatial scales and processes, from laboratory flume experiments to region-wide analyses of landscapes and stratigraphic records.

The volume contains 11 original research papers, preceded by the usual introduction written jointly by the three editors. Individual contributions vary in terms of subject, breadth of inquiry, methods used, and geographical area. The first two papers are largely theoretical and address two concepts, in many ways central to geomorphology. Allen focuses on landscape deformation in tectonically active areas and associated sediment-routing systems. Theoretical considerations are offered against an area-specific analysis of catchment-fan systems in the south-western United States, which have long served as a natural laboratory to investigate relationships between tectonics, climate, and surface processes. The concept of equilibrium in geomorphic systems is then approached by Bracken & Wainwright, who use their experience from drylands to highlight

many problems and inconsistencies associated with its application to actual situations. Two key obstacles include considerable spatial heterogeneity of landscapes and punctuated nature of formative events. However, areas other than arid exhibit similar heterogeneity, so their findings are clearly transferable to other environments.

Tectonic versus other forcings is at the heart of the contribution by Calvet & Gunnell, who analyze high-altitude surfaces of low relief in the East Pyrenees. After considering multiple complementary sources of information, they conclude that planar surfaces are largely inherited from the middle Miocene and formed at the relative high elevation of approx. 1 km, having been subject to subsequent uplift to their present-day elevation. The reconstructed history provides an important constraint on strategies of the low-temperature thermochronological research which is now proliferating in many parts of the world. This study also demonstrates that planation surfaces remain a good target for research and have considerable information potential, if analyzed with due caution.

Two papers explicitly explore relationships between rock type, process and resultant denudational landforms. King returns to the classical area of pediplains and pediments of South Africa, recording topographic, rock and climatic parameters for more than 9,000 locations in 12 regions located in all major physiographic provinces of the country. He concludes that slope concavity is a feature characteristic of areas of greater aridity, but also of softer bedrock. Cockpit karst topography in Jamaica is the subject of scrutiny in the contribution by Fleurant et al., who have modelled its development using the CHILD (Channel-Hillslope Integrated Landscape Development) software. Two different simulations were carried out, involving isotropic and anisotropic dissolution in time and space, and the modelled topography

contrasted with the real one. Not surprisingly perhaps, the anisotropic dissolution variant yielded a much better fit, which confirms the complexity of natural geomorphological landscapes and warns against too much confidence in outputs of simple models involving a few parameters.

A subject rarely present in geomorphological literature, dominated by terrestrial geomorphology, is the formation of submarine canyons. These are analyzed by Mitchell, who emphasizes striking similarities between submarine canyon networks and those of subaerial drainage systems, suggesting also that methods of inquiry developed for channel morphology on land can be applied in a submarine context.

Other contributions focus on processes rather than landforms as a result of processes. These include consideration of controls on debris-flow occurrences by Bardou & Jaboyedoff, possible solar controls on fluvial processes in the Mediterranean region in the last two millennia by Vita-Finzi, and experimental investigations of the role of sediment character in bed erosion by Frostick et al. Two further contributions focus on processes and events, too, but these are inferred from the sedimentary record of either the Late Pleistocene to Holocene (Briant et al., about the Nene valley in central England), or the Oligo-Miocene to the Plio-Pleistocene, as in the case of gravel-bed fluvial systems South of the Pyrenees (Jones & Frostick).

To sum up, this volume will be a useful addition to geomorphological libraries, although it is not state-of-the-art of one particular problem, and in a sense it lacks coherence. However, by providing different examples and approaches from different fields it should serve as a source of inspiration for further research, which would also be a measure of the success of a publication.

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