The Dynamics and Environmental Context of Aeolian Sedimentary Systems

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The Dynamics and Environmental Context of Aeolian Sedimentary Systems

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Dust and loess

Preface

This volume arises from a two-day international symposium held at the Geological Society of London on 22–23 October 1991. The meeting was convened by K. Pye of Reading University and sponsored jointly by the British Sedimentological Research Group and the British Geomorphological Research Group. It brought together approximately one hundred researchers with interests in aeolian processes and environments, both ancient and modern. The aim of the meeting was to provide an opportunity to discuss recent advances in understanding of the environmental controls on aeolian sediment transport processes, dune morphodynamics, and dunefield evolution. The selection of twenty-four papers included in this volume address a wide range of issues, ranging from short-term experimental studies of individual grain movement and grain-bed collisions during aeolian transport to long-term climatic, eustatic and tectonic controls on the development of sand seas. Consideration is given to warm continental desert dunefields, cold climate and temperate continental aeolian environments, coastal dunes, aeolian dust transport and loess formation.

Several of the papers report recent advances in the development of methods for dating late Quaternary aeolian deposits. These methods make it possible, for the first time, to rigorously test hypotheses which relate major phases of aeolian activity to changes in climate, sea-level, and anthropogenic disturbance. Thick sequences of aeolian sand, loess and palaeosols potentially provide some of the most complete and detailed evidence of the nature of environmental changes which have affected continental areas during the Quaternary and earlier geological periods. Similarly, dust deposits in ocean sediments can record important information about changes in continental surface conditions and global atmospheric processes. The papers in this volume indicate that much has been learned in the past decade about the relationships between climate, sea-level, aeolian transport and deposition, although it is not yet possible to claim a full understanding.

The editor is grateful to many individuals who helped in the organization of the meeting and subsequent processing of the manuscripts for publication. In particular, the assistance of the following in refereeing papers is gratefully acknowledged: J. R. L. Allen, J. R. Burkinshaw, G. Butterfield, D. J. Carruthers, R. W. G. Carter, L. Clemmensen, E. Derbyshire, G. Kocurek, N. Lancaster, T. Littmann, I. Livingstone, D. Loope, B. Maher, K. Rasmussen, H. Rendell, R. Sarre, S. Stokes, D. S. G. Thomas, H. Tsoar, A. Warren, P. Wilson, B. B. Willetts, A. G. Wintle, P. Worsley, and V. P. Wright. Final processing of the manuscripts was ably handled by Joanna Cooke of the Geological Society Publishing House.

K. Pye