

Preface

The International Commission on Continental Erosion (ICCE) has organized, sponsored or co-sponsored two symposia since 1981 that were concerned primarily with the topics of erosion and sediment transport measurements, and the prediction of erosion and sediment yield. The International Symposium on Erosion and Sediment Transport Measurement (IAHS Publication no. 133) was held in Florence, Italy, in June 1981. In July 1982 a symposium was held in Exeter, UK (IAHS Publication no. 137) that dealt with the explanation and prediction of erosion and sediment yield. Both of those symposia focused on problems of measurement, monitoring, and prediction of processes of erosion and sediment yield. The themes of the Yokohama Symposium Proceedings published in this volume are also concerned with sediment problems related to monitoring, prediction, and erosion control.

The papers that comprise the Yokohama Symposium may be divided into six general groups: (1) erosion and sediment yield; (2) landslides and pyroclastic flows: characteristics and controls; (3) deposition processes in reservoirs; (4) modelling and monitoring of sedimentation and erosion processes; (5) soil erosion, sediment losses, and drainage basin characteristics; and (6) monitoring processes of erosion and sediment transport. None of these general groups contains a sufficient number of papers to cover adequately the sediment problems that face us in the wide variety of climates and environments that we live in. There are, however, papers that represent problems in arid, semiarid, and humid regions. These papers present a broad perspective on contemporary studies of erosion and sediment yield.

In the group of papers on erosion and sediment yield there are many interesting approaches to a variety of problems. In the semiarid southwestern United States, sediment yields are estimated using different types of sediment sampling equipment. These estimates are compared with estimates made using the Revised Universal Soil Loss Equation (RUSLE). In China, rates of soil erosion are related to physical-chemical properties of soil, climate, topography, vegetation cover, and human activity. In Tanzania, seasonal variation of sediment yield on interrill areas, in a semiarid region, is being investigated.

In investigations of landslides, pyroclastic flows, and debris flows, methods of modelling and monitoring are discussed. Hydrological observations that relate shallow landslides to rock type and regolith thickness are presented. Pyroclastic flows reach farther downstream depending on the volume of ash that is erupted from a volcanic vent. Debris flows occur even in periods of low rainfall; sediment concentration depends on the volume of runoff. Models are presented for the numerical solution of landslides and pyroclastic flows, and areas that are susceptible to landslides are designated using Landsat Thematic Mapper data.

Several papers consider the use of reservoirs in water management, and the

influence of reservoirs on depositional processes. A one-dimensional numerical model is presented for a reservoir in the Carpathian region of southern Poland which demonstrates the influence of water management on the distribution of sediment in the reservoir and on the backwater profile. The influence of recent climate, sediment particle-size, and reservoir shape and depth are also discussed.

Several innovative methods for monitoring and modelling are presented in this volume. An on-site sediment prediction model is developed for forest roads and timber harvest areas that will assist managers in the rehabilitation of areas disturbed by timber production. Among the recent techniques of monitoring erosional features is the use of an airborne laser altimeter to provide input to natural resources models.

We are hopeful that the papers briefly introduced here and the research findings of all the authors will stimulate discussion of all aspects of sediment problems and their potential solution.

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