

Preface

Since 1986, the International Commission on Continental Erosion (ICCE) of the International Association of Hydrological Sciences (IAHS) has been active in the organization of several important international symposia focusing on erosion and sediment yield: *Symposium on Drainage Basin Sediment Delivery* (Albuquerque, 1986), *Workshop on Erosion, Transport and Deposition Processes* (Jerusalem, 1987), *Symposium on Sediment Budgets* (Porto Alegre, 1988), *Symposium on Sediment and the Environment* (Baltimore, 1989), *Symposium on Debris Flows and Environment in Mountain Regions* (Chengdu, 1992), *Symposium on Erosion and Sediment Transport Monitoring Programmes in River Basins* (Oslo, 1992), *Symposium on Sediment Problems: Strategies for Monitoring, Prediction and Control* (Yokohama, 1993), *Symposium on Variability in Stream Erosion and Sediment Transport* (Canberra, 1994), *Symposium on Erosion and Sediment Yield: Global and Regional Perspectives* (Exeter, 1996), *Symposium on Human Impact on Erosion and Sedimentation* (Rabat, 1997) and *Symposium on Modelling Soil Erosion, Sediment Transport and Closely Related Hydrological Processes* (Vienna, 1998). The Waterloo Symposium on *The Role of Erosion and Sediment Transport in Nutrient and Contaminant Transfer* builds upon previous ICCE contributions. It specifically addresses transport processes and the role of sediment as a vector for nutrient and contaminant transfer in terrestrial and aquatic systems.

Increasing awareness of the effects of sediment-associated chemical transfer on water quality and ecosystem health has raised concern for the sustainable use of water resources worldwide. Consequently, there is global concern for the conveyance of sediment-associated nutrients and contaminants across eroding land surfaces and into receiving waters. The rates and magnitudes of nutrient and contaminant transfer vary in space and time according to the nature of erosion processes, sediment sources as well as conveyance and in-stream processes. Knowledge regarding the spatial and temporal variation of sediment sources as well as sediment properties and environmental factors affecting transport processes is required to model sediment-associated nutrient and contaminant transfer. Such information is necessary to plan and manage the sustainable use of water resources. The Waterloo Symposium contributes to UNESCO IHP-V Project 2.1—“Vegetation, Land Use and Erosion”, which explicitly addresses the Symposium theme.

The 34 papers in this volume advance our understanding of basic processes of erosion and sediment transport in relation to chemical transfer at a range of spatial and temporal scales. They have been grouped into five main themes. The papers on *Variability in nutrient, contaminant and sediment transfer* are concerned with fluxes and yields of suspended sediment in large rivers and their role in chemical transfer. A group of papers on *Terrestrial transfer processes* provide valuable information on soil erosion processes for nutrient and contaminant transfer from terrestrial to aquatic systems. Nine papers on *Suspended sediment characteristics and transport processes* provide new knowledge about the physical, chemical and

transport characteristics of fluvial suspended sediment in a range of river systems varying in size, land use and geographical location. In a section devoted to *Sinks and sources of nutrients and contaminants*, research findings on physical and chemical processes affecting the storage and release of contaminants in deltas, flood plains and lakes are presented. Theoretical aspects of modelling contaminant transfer, model validation for monitoring, and model applications for cohesive sediment transport are considered in the section on *Modelling nutrient and contaminant transfer*.

Michael Stone

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