

Preface

Analysing the magnitude–frequency relations of erosion, transport and deposition processes is a classic theme within fluvial research. Hydromorphology, dealing with the physical structure and formative hydrological processes of fluvial systems is also an established concept, but has been given new currency by its prominent role within the European Union’s Water Framework Directive (WFD). Linking sediment dynamics to hydromorphology, and by extension to the biogeochemical functioning and eco-hydrology of fluvial systems, was thus the novel unifying concept underlying the Symposium “*Sediment Dynamics and the Hydromorphology of Fluvial Systems*”, convened by the International Commission on Continental Erosion of the International Association of Hydrological Sciences, and held in Dundee, Scotland, 2–7 July 2006.

The provenance of the authors, spanning five continents and nearly 30 countries, is testament to the truly international spirit of the IAHS-AIHS organization and the appeal of Scotland as a conference venue. The range of institutional and disciplinary backgrounds of authors was similarly diverse, yet four coherent sessions emerged from the 71 submitted papers accepted for the symposium proceedings, viz:

1. Fluvial Sediment Dynamics and The Importance of Extreme Events,
2. The Structure, Functioning and Management of Fluvial Sediment Systems,
3. Unlocking the Sediment Record, and
4. Experiment-based and Modelling Approaches to Sediment Research.

Over 20 poster papers presented at the meeting further explored these themes and collectively provided a stimulating framework to share research findings and inform best practice.

Fluvial sediment dynamics were explored over a range of spatial and temporal scales, spanning global and continental-scale flux rates to detailed, process-oriented work on small instrumented catchments. The magnitude–frequency relations of erosion and transportation events were a common concern, with particular attention given to the role of extreme events in terms of sediment production, geochemical fluxes and hydromorphological change. The structure, functioning and management of fluvial sediment systems examined the process links between hydromorphology and ecology, as well as introducing a number of management-related studies. Delivering new tools and bridging the gap between research and practice were important outcomes of this session. Lakes, reservoir and flood plains are key storage sites for minerogenic sediment, organic carbon and sediment-associated nutrients and contaminants. The utility of such sediment archives for reconstructing long-term catchment sediment fluxes and to elucidate the role of land use and climate change processes on sediment delivery and biogeochemical cycling was thus the focus of the third session. The critical issue of residence time, especially in relation to channel storage, was also usefully explored in several contributions. The final session concentrated on recent developments in experiment-led research and in modelling erosion and sediment dynamics. Investigations spanned a range of scales from flume-based hydraulics and

microcosm studies of diffuse pollutant behaviour to modelling the effects of potential climate and land use changes on erosion and sedimentation processes.

The editors are grateful to all authors of posters and papers for collectively contributing to a high quality and research-led international symposium addressing many of the key agendas facing the scientific community and society more widely. Finally, we wish to extend our thanks to the consummate professionalism of Cate Gardner and Penny Farnell of IAHS Press who supported us tirelessly throughout the process of programme development and Red Book production.

John S. Rowan, Robert W. Duck & Alan Werritty

*Environmental Systems Research Group, School of Social Sciences
University of Dundee, DD1 4HN, UK*