

COMPUTATIONAL RIVER, COASTAL AND DELTA HYDRODYNAMICS AND MORPHODYNAMICS

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ABSTRACT

Soil erosion and sedimentation is a continuing problem with far-reaching consequences. There is a clear need to develop better tools and resources for evaluating spatial and temporal discontinuities in runoff and sediment supply at a range of scales; this information is essential for evaluating land-based fluxes of water, sediment and carbon to the oceans. Given present-day computer capabilities for processing spatially explicit data sets on surface-water hydrology, topography and soils, river hydrodynamics and sediment transport, we are uniquely positioned to address the question of what factors affect regional patterns of erosion and sediment yield as well as how sedimentation affects deltas and coastal areas where millions of people live around the world.

This MS hopes to attract computational modeling papers addressing the following topics:

Sediment transport mechanics

Alluvial rivers, deltas, estuaries, bays

Responses of river and estuaries to floods and storms

The impact of catastrophic events on morphological processes

Turbulent flow in rivers and coastal areas

Modeling of catchment and fluvial processes

Impact of large hydraulic structures on catchment, fluvial and coastal processes

Disturbance of stream-lake systems and its environmental and ecological impacts

Sedimentation processes in large reservoirs

River engineering and restoration, habitat protection, environmental flows

River confluences, tributaries and distributaries

River bends and meandering, scouring and bank erosion

Turbidity currents and submarine morphodynamics

Tidal flats, costal and shelf bedforms