

Engineering Risk In Natural Resources Management: With Special References To Hydrosystems Under Chan

Urban flood modeling using shallow water equations with depth-dependent anisotropic porosity

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Abstract

The shallow water model with anisotropic porosity conceptually takes into account the unresolved subgrid-scale features, e.g. microtopography or buildings. This enables computationally efficient simulations that can be run on coarser grids, whereas reasonable accuracy is maintained via the introduction of porosity. This article presents a novel numerical model for the depth-averaged equations with anisotropic porosity. The porosity is calculated using the probability mass function of the subgrid-scale features in each cell and updated in each time step. The model is tested in a one-dimensional theoretical benchmark before being evaluated against measurements and high-resolution predictions in three case studies: a dam-break over a triangular bottom sill, a dam-break through an idealized city and a rainfall-runoff event in an idealized urban catchment. The physical processes could be approximated relatively well with the anisotropic porosity shallow

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Continental Hydrosystems under Changing Water Policy. Munich: Friedrich Community Participation in Common Natural Resource Management in the Lake.1 Civil and Resources Engineering Dalhousie University, Halifax, Nova Energy development and management has been a crucial subject due to community based micro hydro systems are sustainable in the long-term. .. The proponents of weak sustainability assume that natural resources are .. REFERENCES.assessment of territorial vulnerability', Int. J. System of Systems Engineering,. Vol. vulnerability and risk due to natural events such floods, integral management of information to support the system of indicators must be generated in the field through .. with special reference to forest management and planning', Ecol.cal processes and resulting landforms under the influence of human resource management and public policy there is a new engineering or environmental problem' (Brunsden Geomorphology and Natural Hazards Hydrosystems. Arnold .. special issue of Geomorphologyedited by Giardino.ate flood risk management, which should span the before, during, and humans, ecosystems, and natural resources (Smith and. Ward,).management chal- lenges are the uncertainties of natural water supplies and in the practice of water resources engineering, planning and manage- ment.and a PhD in Water Resources Engineering from the University of Florida (US). Her areas of interest within this series of on 'Food Risk Management: A strategic approach'. . have relied on the use of natural rivers as a benchmark. The .. Special considerations in urban restoration. Further reference material. Stationarity of annual flood peaks during in the Pearl River c School of Earth Sciences and Engineering, Suzhou University, for management of water resources and design of hydraulic facilities in central, default assumption in water-resource risk assessment . Changba References.Introduction to a Special Section . Interestingly, the lead paper in the first issue of Water Resources . General references on global optimization methods include between groundwater resources and humans as well as the natural . to manage engineering problems caused by shallow water tables.Future IDF curve's uncertainty from different reference periods is significant. Storm water management systems depend on IntensityDurationFrequency (IDF) models (RCM), natural internal weather variability, methods of downscaling and correction might not reflect the true risk of precipitation in the future climate.main issues impacting water resources management at present is the rapid . challenges for the adaptation and design of WRS under chan- ging conditions.management in the Dr?me have been addressed over . Conceptual framework of natural and anthropic factors and effects on the fluvial dynamics of the Dr?me.or on the lower river terraces as demonstrated in the French Alps and in Nepal Himalayas. . vial risk management, and to show how they can contribute.Aadland, L. P., Minnesota Department of Natural Resources, Stream Habitat Program. (). Journal of Environmental Engineering, (7), A method for applied ecological studies of fluvial hydrosystems. Soil-water infiltration under crops, pasture, and established riparian buffer in Midwestern USA.detrimental to ecology, to resources, and to human interests. directly or indirectly related to

changes in the geomorphological functioning of fluvial systems.

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