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Nota di contenuto	Part 1. Introduction and Overview -- 1. Flood Modelling using MIF method with GIS techniques: a case study of Iril River catchment, Manipur, India -- 2. A case study on estimating the ecosystem service values (ESVS) under anthropogenic influences for Chennai and Hyderabad -- 3. Groundwater vulnerability mapping using modified drastic model: a GIS based case study of Imphal east district, Manipur, India -- 4. Flood hazard mapping using hydraulic models and GIS: a review -- 5. A case study on prediction of heatwave days using machine learning algorithms over Telangana -- 6. Quantifying the reliability of reanalysis precipitation products across India -- 7. Weakly nonlinear waves in non-ideal fluids -- 8. Spatial and temporal variability of soil moisture, its measurement and methods for analysis: a review -- Part 2. Causes and Impacts -- 9. Streamflow estimation using entropy-based flow routing technique in Brahmani river, Odisha -- 10. Infiltration of suspended fine sediments into surface layerof coarse sediment-bedded channel -- 11. River water flow prediction rate based on machine learning algorithms: a case study of Dez river,

Iran -- 12. A case study in evaluating spatio-temporal variations in drought and its risk assessment over Telangana using satellite data -- 13. Drought modeling through drought indices in GIS environment: a case study of Thoubal district, Manipur, India -- 14. Copula based probabilistic evaluation of meteorological drought characteristics over India -- 15. Nonstationary flood frequency analysis: review of methods and models -- 16. Multi-day Extreme Precipitation Ranking and Association with Atmospheric Moisture Transport during Indian Summer Monsoon -- Part 3. River Restoration, Hydraulic Structure Stability and Flood Risk Management -- 17. Remote sensing and its application on soil and ecosystem services -- 18. Sustainable land and water management in urban areas: Emerging challenges -- 19. Nature of Bursting Events Over a Rigid Bed with Emergent Vegetation -- 20. Recirculation region control behind a partially submerged cylinder due to wave against current -- 21. Assessment of sedimentation in Kaliasote reservoir, Bhopal using satellite remote sensing techniques -- 22. Development of River Atlas using space and ground based inputs for Brahmaputra and Barak valleys in Assam, India -- 23. Numerical study of flow through Linear Weir -- 24. Artificial Intelligence Based Fully Scalable Realtime Early Flood Warning System -- 25. Sustainability through Integrated Resilience and Risk Management: Rivers and Disasters in Changing Climate.

Sommario/riassunto

This edited book provides a platform for knowledge sharing in all areas related to the rivers, sediment and hydrological extremes. It explains the hypothesis that river flow and sediment transport are intimately linked to erosion, scour and sediment deposition. Sediment transport, erosion and deposition are driven by local base-level changes and are highly variable in space and time. These concepts have serious implication for understanding the recent development of the River, Sediment and Hydrological Extremes. The natural hazards posed by hydrologic events and river systems depend on the uncertainty of hydrological events. This ability is affected by change in climatic conditions. Climate change studies have revealed that the frequency of extreme weather phenomena with increasing damage to human assets has gradually grown worldwide. As a consequence, rainfall events concentrated in time and space are expected to lead to serious local flooding and sediment transport in many parts ofthe world. Floods are remarkable hydro-meteorological phenomena and forceful agents of geomorphic evolution in most physical geographical belts and, from the viewpoint of human society, among the most important environmental hazards. According to the Indian Environment Agency, floods rank as number one on the list of natural disasters in India over the past decade. This book is an attempt to fill the gap in literature and bring forth evidence based latest research about precise estimation of erosion and scour, which is essential to reduce the hazards. The book explains that lack of preparedness and appropriate adaptation strategy makes people more risk-prone. It highlights the vulnerability in South Asia region about the impacts of flood, sediments, and river hazards because a large portion of its population depends on sensitive sectors like agriculture and forestry for livelihoods and several other reasons. The book is relevant for academician, researchers and students of disaster management, hydrology and ecology.