

International Conference on Mountain Hydrology and Cryosphere

Proceedings of the International Association of Hydrological
Sciences (PIAHS) Volume 387, 2024

Kathmandu and Dhulikhel, Nepal
9-10 November 2023

Editors:

**Rijan Bhakta Kayastha
Hari Krishna Shrestha
Dhiraj Pradhananga**

ISBN: 979-8-3313-1936-6

Printed from e-media with permission by:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571



Some format issues inherent in the e-media version may also appear in this print version.

The copyright of any article is retained by the author(s) and distributed under the Creative Commons Attribution 4.0 license. <http://creativecommons.org/licenses/by/4.0/>
Unless otherwise stated, associated published material is distributed under the same license. The original work can be found online at:

<http://www.proc-iahs.net/387/index.html>

Printed with permission by Curran Associates, Inc. (2025)

International Association of Hydrological Sciences
Centre for Ecology and Hydrology
Wallingford, Oxfordshire OX10 8BB
United Kingdom

Phone: 441 491 692 442
Fax: 441 491 692 448

<http://iahs.info/>

Additional copies of this publication are available from:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: 845-758-0400
Fax: 845-758-2633
Email: curran@proceedings.com
Web: www.proceedings.com

TABLE OF CONTENTS

| | |
|---|----|
| Preface: Mountain Hydrology and Cryosphere | 1 |
| <i>Rijan Bhakta Kayastha, Hari Krishna Shrestha, Dhiraj Pradhananga</i> | |
| Assessing the Characteristics of Extreme Floods in Nepal | 3 |
| <i>Aabhash Bhattarai, Utsav Bhattarai, Koshish Raj Maharjan, Laxmi Prasad Devkota</i> | |
| Impact of Changes in Climate and Glacier Configurations on Runoff from the Langtang River Basin, Nepal | 9 |
| <i>Dhiraj Pradhananga, Susa Manandhar, Bharat Dhungana, Manavi Chaulagain, Bhola Nath Dhakal, Sunil Adhikary</i> | |
| A Hybrid Approach to Enhance Streamflow Simulation in Data-Constrained Himalayan Basins: Combining the Glacio-hydrological Degree-day Model and Recurrent Neural Networks | 17 |
| <i>Dinesh Joshi, Rijan Bhakta Kayastha, Kundan Lal Shrestha, Rakesh Kayastha</i> | |
| Coupling the Glacio-Hydrological Degree-day Model (GDM) with PCRaster for Spatial Dynamic Modeling of Himalayan River Basins | 25 |
| <i>Kundan Lal Shrestha, Rijan Bhakta Kayastha, Rakesh Kayastha</i> | |
| Potential of Tree-Ring Chronologies for Multi-centennial Streamflow Reconstructions: An Insight from Nepal..... | 33 |
| <i>Narayan P. Gaire, Yub R. Dhakal, Santosh K. Shah, Ze-Xin Fan</i> | |
| Using Radiotracers ^{137}Cs and $^{210}\text{Pb}_{\text{ex}}$ to Document Climate Change in Mountain Areas Through the Estimate of Soil Erosion Rates | 41 |
| <i>Paolo Porto</i> | |
| The Study of Riparian Areas in Tourism: Toward a Conceptual Framework of Riparian Tourism | 47 |
| <i>Rajiv Dahal, Shamik Chakraborty</i> | |
| Hydropower Potential of the Marsyangdi River and Bheri River Basins of Nepal and Their Sensitivity to Climate Variables..... | 53 |
| <i>Rakesh Kayastha, Rijan Bhakta Kayastha, Kundan Lal Shrestha, Smriti Gurung</i> | |
| Glacial Lake Outburst Flood (GLOF) Modeling of Tsho Rolpa Glacial Lake, Nepal..... | 59 |
| <i>Rijan Bhakta Kayastha, Sunwi Maskey</i> | |
| Backwater Effect in Lowland Regions Due to Bridge Structure: A Case Study of Shreekhandapur, Kavre, Nepal..... | 65 |
| <i>Rizbi Buddhacharya, Sailesh Maharjan, Rupesh Choudhary, Shyam Sundar Khadka, Santosh Chaudhary</i> | |
| Augmented-Reality-based Snow Visibility Simulation for Disaster Preparedness in the Western Himalayas..... | 73 |
| <i>Sanjay Saifi, Raaj Ramsankaran</i> | |
| Landslide Hazard Mapping of Wayanad District of Kerala, India, Incorporating Copula-Based Estimation of Joint Probability of Rainfall | 79 |
| <i>Shamla Dilama Shamsudeen, Adarsh Sankaran</i> | |
| Review on Assessing Climate-Change-induced Risks to Run-of-river Hydropower Infrastructure in Nepal | 87 |
| <i>Shraddha Kadel, Santosh Chaudhary, Shyam Sundar Khadka</i> | |

| | |
|--|----|
| Assessment of Permafrost-Related Hazards in China: Based on Chinese Literature | 95 |
| <i>Silian Pan, Prashant Baral, Miriam Jackson</i> | |

Author Index