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CRITERION 3 Research, Innovations and Extensions

3.3 Research Publications and Awards

Documentation w.r.t. 3.3.1 Number of research papers published per teacher in the Journals notified on UGC website during the last five years





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Title of paper	Name of the author/s	Departme nt of the teacher	Name of journal	Calendar Year of publication	ISSN number	Link to website of the Journal	Link to article / paper / abstract of the article	Is it listed in UGC Care list	Academic Session
Analyzing the Spatio-temporal Dynamics of Channel Behavior in Relation to Channel Braiding: Integrating Topological Braid Modeling with Quantitative Traditional Analysis in the Chel Basin (North Bengal)	Debarshi Ghosh & Senhasish Saha	Geography	Modelling Earth Systems & Environment	2019	Electronic ISSN 2363-6211, Print ISSN 2363-6203	https://link.spring er.com/article/10. 1007/s40808-019- 00616-9	https://doi.org/10. 1007/s40808-019- 00616-9	Scopus Indexed/Imapact Factor3.0 (2022)	2019-20
Estimation of Surface Soil Erosion Using USLE Model (Modified) of Dhupguri Block, Jalpaiguri (WB)	Snehasish Saha & Debarshi Ghosh	Geography	Annals of the National Association of Geographers, India (NAGI)	2019	ISSN: 0970- 972X	https://sites.googl e.com/view/nagio rgin/annals-of- nagi	FROM APRIL 2021 TO PRSENT	UGC CARE ENLISTED	2019-20
Determining process of occasional flooding from channel hydrological characteristics of Chel Basin, North Bengal (India)	Debarshi Ghosh	Geography	Spatial Information Research (Springer)	2019	E ISSN 2366- 3294	https://link.spring er.com/article/10. 1007/s41324-019- 00290-0	https://doi.org/10. 1007/s41324-019- 00290-0	UGC CARE ENLISTED (IMPACT FACTOR 2.1)	2019-20
Determining the spatio-temporal response of downstream coarse sediment sorting process in the Chel river (North Bengal, India) using cluster analysis	Debarshi Ghosh & Senhasish Saha	Geography	Modelling Earth Systems & Environment	2021	Electronic ISSN 2363-6211, Print ISSN 2363-6203	https://link.spring er.com/article/10. 1007/s40808-019- 00616-9	https://doi.org/10. 1007/s40808-019- 00616-9	Scopus Indexed/Imapact Factor3.0 (2022)	2020-21
Avulsion potential modeling using integrated Fuzzy-AHP in lower catchment of Chel river of North Bengal, India	Debarshi Ghosh & Apurba Sarkar	Geography	Modelling Earth Systems & Environment	2021	Electronic ISSN 2363-6211, Print ISSN 2363-6203	https://link.spring er.com/article/10. 1007/s40808-021- 01230	https://doi.org/10. 1007/s40808-019- 00616-9	Scopus Indexed/Imapact Factor3.0 (2022)	2020-21
Identifying Potential River Bank Erosion Zones using Geo- Spatial and Binary Logistic Regression Modeling: A Case Study of the Ganga River in Malda District, India	Debarshi Ghosh & Senhasish Saha	Geography	Modelling Earth Systems & Environment	2023	Electronic ISSN 2363-6211, Print ISSN 2363-6203	https://link.spring er.com/article/10. 1007/s40808-023- 01740-3	https://doi.org/10. 1007/s40808-019- 00616-9	Scopus Indexed/Imapact Factor3.0 (2022)	2022-23
COVID-19 second wave: District level study of concentration of confirmed cases and fatality in India	Debarshi Ghosh, Apurba Sarkar, Pradip Chauhan	Geography	Environmental Challenges	2021	Online ISSN: 2667-0100	https://www.scien cedirect.com/scie nce/article/pii/S26 67010021002006 #	https://doi.org/10. 1016/j.envc.2021. 100221	Scopus Indexed	2020-21







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Janojagorane Mukundo Das	Keya Mustafi	Bengali	Ebong Prantik. (vol.8)	2021	ISBN-2582- 3841(O),23 48-487X(P)	https://ebongp rantik.in/	DOI: 10.5281/zeno do.5517966	No	2020- 21
Shri Shri Ramakrishna Kathamrita : Galpokathay Brihot katha	Keya Mustafi	Bengali	Ebong Prantik (Vol 9)	2022	ISSN: 2348- 487x(P)	https://ebongp rantik.in/		No	2021- 22
Antarotamer Anweshane	Keya Mustafi	Bengali	Tabu Ekalavya (Nazrul Sankha)	2022	ISBN: 978- 93-92110- 71-9	https://baatigh ar.com/shop/p roduct/97893 92110016- 81305#attr=		YES	2021-22
Manusmriti: A Critical Analysis	Satarupa Sarkar	History	International Journal of Humanities & Social Science Studies (IJHSSS)	2022	ISSN:2349- 6959(ONLI NE)	http://www.ij hsss.com	10.29032/ijhss s.v8.i6.2022.2 55-260	No	2021-22
Paradigm Shift: Educational Hub from Darjeeling to Siliguri in Post Colonial Period	Satarupa Sarkar	History	International Education and Research Journal	2023	E-ISSN No- 2454-9916	http://ierj.in	http://ierj.in/jo urnal/index.ph p/ierj/article/v iew/3063	No	2022-23
Post-Parttion Poverty, Hunger and Death: An Interpretative Analysis of Manaranjan Byapari's Interrogating My Chandal Life: An Autobiography of a Dalit	Suvanka r Jana	English	Peer- Reviewed ISSN approved Journal	2023	ISSN NO: 2456-4184	www.ijnrd.or g	https://www.ij nrd.org/papers /IJNRD23052 27.pdf	Peer- Reviewed	2022-23
National Education Policy, 2020 And Higher Education in India: Understanding the Nuances	Suvanka r Jana	English	UGC approved Journal No23602 (19)	2021	E-ISSN: 2348- 1269	www.ijrar.org	https://ijrar.or g/download.p hp?file=IJRA R21C2318.pd f	Peer- Reviewed	2020-21
INSURGENT IMAGINATIO NS: WORLD LITERATURE AND THE PERIPHERIES	Dhritim an Chakrab orty & Debarati Dutta	English	TEXTUAL PRACTICE	2022	Print ISSN: 0950-236X Online ISSN: 1470- 1308	https://www.t andfonline.co m/journals/rtp r20	https://www.t andfonline.co m/doi/full/10. 1080/0950236 X.2022.20751 64	IMPACT FACTOR 0.5	2022-23







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Modeling Earth Systems and Environment https://doi.org/10.1007/s40808-019-00616-9

ORIGINAL ARTICLE



Spatio-temporal variability of channel behavior in relation to channel braiding: a milieu of topological braid modeling and quantitative traditional analysis of Chel basin (North Bengal)

Debarshi Ghosh¹ · Snehasish Saha²

Received: 1 May 2019 / Accepted: 10 June 2019 © Springer Nature Switzerland AG 2019

Abstract

Channel behavior is related to the existing channel processes that lead to frequent changes in the water and sediment flow pattern of a river. The channel behavior reflects its tendency of auto-cyclic cut and fill processes. On the piedmont surface, the channel hydraulic geometry transforms due to the huge supply of bed load and the fluctuation of flood discharge. The heterogeneity of load and nature of load dispersal favors braiding of a river which adjusts with auto-cyclic processes of cut and fill. In the present study, conventional models for braiding proposed by Brice (BI: 3.69–9.04), Rust (BP: 5.1–12.3) and Richards (modified) (4.7–10.9) have attempted to associate them with channel network analysis by computing vertex detour index (VDI) with temporal changes, eta index, theta index, pie index, planform index (PFI), flow geometry index (FGI), and execution of the planner circuit model of the braided course based on link-node ratios like α index, β index, and γ index. The standard sinuosity index (SSI) was calculated to be maximum (1.11) for the reach 4 with the average range of 1.027–1.045 in 2016 keeping the same persisting trend over 1981. The flow geometry index is 107.4 compared to the planform index of braid accounting for 0.35 which held flood as the most responsible factor. In 2016, the channel network of river Chel revealed moderate channel efficiency with a greater degree of channel diversion along the bars (103–111). Moreover, complex or volatility of braid vs. sinuosity has been noticed in case of the river which unshadows no spectacular trend over time.

Keywords Avulsion · Channel dynamics · Braiding index · Sinuosity index · Foreland basin · Planner circuit model

Introduction

Channel behavior on the piedmont surface is related to the channel processes, flow and sediment flow pattern of the river. The qualitative determination of channel patterns (Dury 1969; Leopold and Wolman 1957) and their behavioral trend develop with temporal channel dynamics and can be derived from 'reach statistics' (Goudie et al. 1990) like simple planform identity of channel sinuosity (Muller 1968)

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and complex topological expression from the planner circuit model of multi-thread channels (Kansky 1963). Nowadays, the channel morphological changes with respect to water and sediment supply can be studied through digital terrain analysis (DTM) (Allen 1978). In the braided course, the dominant morphological changes are duly related to the sediment supply (Lane et al. 1996). The braided courses are often considered as a stochastic system from the analysis of sediment flux during turbulent flows (Paola 1996). The braided behavior of a channel is adjusted with the rate of aggradation, channel belt mobility, bed scour activity (Huggenberger 1993) and moreover channel adjustment related to channel gradient, cross-section and discharge. The channel behavior in the piedmont of Darjeeling Himalaya (North Bengal) reflects a tendency of auto-cyclic cut and fill (Field Investigation 2015) process evolving with the changes in the relative heights of the existing river terraces. The channel exhibits succession of fan sediment that indicates maturity of the surface with the channel braided network (Knighton and Nanson 1993) triggered by flood recurrences. These flood





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Modeling Earth Systems and Environment (2021) 7:1353-1372 https://doi.org/10.1007/s40808-020-01028-w

ORIGINAL ARTICLE



Determining the spatio-temporal response of downstream coarse sediment sorting process in the Chel river (North Bengal, India) using cluster analysis

Debarshi Ghosh¹ - Snehasish Saha²

Received: 23 July 2020 / Accepted: 17 October 2020 / Published online: 3 November 2020 © Springer Nature Switzerland AG 2020

Abstract

The fluvial transportation efficiency related to rainstorm events is important to understand the variability of sediment sorting process in the channel. The supply limitation of different size of sediment grades in downstream reveals the nature of geomorphological scale of response (spatio-temporal). Pebble count method has been attempted here for determination of d_{50} (median) particle size associated with frequency distribution of sediment samples from 13 study reaches on the basis of standard sediment grade scale of Wentworth and modified Udden-Wentworth grain scale seasonally. Intra temporal variability (IATV) and inter temporal variability (IETV) results were categorized under hierarchical cluster analysis to view the sediment movement downstream from minimum distance algorithm. On the piedmont, the bed configuration is mostly boulder infested of heavier size class (> 256 mm) and that remains greater than 86% in pre-monsoon condition. It comes out on the basis of random mixing of sediment load (> 2 mm) while transporting as discharge. In Chel basin, the process of sediment load dispersal indicates less heterogeneity in the sediment sorting process towards downstream. The haphazard distribution of very coarse to medium boulders (4096–512 mm) up to reach 6 indicates the limit of channel competency. The paper seeks to know the seasonal variability in the sediment dispersal process i.e. finding the reach wise variability of the sediment mixing process downstream and the sediment supply limits of median particle size.

Keywords Sediment sorting · Frequency distribution curve · Normal probability distribution · Hierarchical cluster · ANOVA

Introduction

The main goal of cluster analysis is to build homogeneous groups from a geographical area according to certain variables (De Carvalho and Lechevallier 2009; Dutta et al. 2019, Dutta and Das 2019). Statistical parameters like the mean, median, standard, deviation, kurtosis, and skewness have been widely used to characterize grain size distribution

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within the channel bed and clustering finds the similar distributions. Most of the studies have employed the method to group a limited number of grain size distribution parameters like the mean and standard deviation, and few studies have taken advantage of the entire distribution (Zhou et al. 2015; Nelson et al. 2014; Ordóñez et al. 2016). Thus, both the process helps to infer variations in hydrodynamic conditions, eolian activity, and sediment sources (Fournier et al. 2014; Zhang et al. 2018). The frequency distribution and mixing process of various grain sizes as bed load can be expressed through percentile-median diameter (CM) pattern (Passega 1964), standard deviation method (Boulay et al. 2003), curve fitting models (Wu et al. 2020; Paterson and Heslop 2015) and bayesian method (Yu et al. 2016) of sediment mixing process. The cluster analysis groups similar conditions of grain size mixing process with end-member modeling (Varga et al. 2019). The cluster analysis is also an important spatial analysis tool. The modern clustering pro-



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COVID-19 second wave: District level study of concentration of confirmed cases and fatality in India



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ARTICLE INFO

Spatial autocorrelation Location quotient Moran's I statistics Case Fatality Ratio

nfection mortality ratio

Keyworst.

ABSTRACT

The paper aims to reveal the spatial pattern of the concentration of COVID-19 confirmed cases and the spread of the pandemic from the Case Fatality Ratio. The study has been accomplished with district-level data. The analysis of the spatial pattern decoding has been done considering the Global and Local Moran's I statistics comprising the linear trend of spatial autocorrelation for the whole India. The timeframe has been divided considering the surge of the second wave in March, 2021 and the peak of the wave in May 2021. The spatial clustering technique presents both the concentration of confirmed cases using Location Quotient analysis and the pattern of spread of the infection-related fatality throughout the country. The high Location Quotient of the confirmed cases strongly clustered around the Mumbai-Puna region, Kerala-Karnataka region, Garhwal Himachal, NCT of Delhi and Ladakh-Kashmir-Himachal Pradesh region during the period of the study. In May, the concentration has randomly clustered around the middle part of India. The Case Fatality Ratio was high in Maharashtra, Madhya Pradesh, Punjab and Haryana at the surge of the second wave. During the peak (May), two significant clusters of high Case Fatality Ratio are observed in and around the Mumbai urban (Maharashtra) and NCT of Delhi (including Punjab-Haryana)

1. Introduction

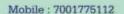
COVID-19 pandemic has been impacting the life and economy across the globe since December 2019 and has caused major disruptions (Walker et al. 2020). The COVID-19 pandemic has resurfaced in India in the form of a hard-hitting second wave. The COVID-19 has brought a threatening challenge to Indian society and the economy (Sarkar and Chouhan, 2021). India's devastating second wave of COVID-19 has overwhelmed its health system and the country (Ranjan, 2020, Ghosh et al., 2020). The second wave of COVID-19, caused by severe acute respiratory syndrome (SARS-CoV-2), has struck India severely, with a significant case fatality rate (Tomar and Gupta, 2020). The situation in India is more critical as it has a huge population, poor medical infrastructure and complex socio-economic structure, where self-isolation, social distancing and quality treatment are the key controlling factors to neutralise the impact of the disease (Kaliya-Perumal et al., 2020, Bhuyan, 2021). The growth of towns and the consequent need for more supplies have damaged the delicate environment of India, where there are high levels of smog, fine dust, and water pollution. Sulfur dioxide (SO2), Nitrogen

dioxide (NO2), and particulate matter (PM) contribute in part to the toxins causing environmental contamination (Sarkar and Chouhan, 2020, Huang and Brown, 2021, Bherwani et al., 2021). Many Indian urban communities, including Mumbai, Kolkata, and Pune, are at the risk of air contamination (Conibear et al., 2018). One out of eight (about 12.5%) deaths in 2017 in the country were attributable to high rates of respiratory disease, stroke, heart disease, diabetes, and lung cancer, all conditions for which a certain percentage of cases result from severe air pollution (Gurjar et al., 2016). Some relevant scientific literature highlights that exposure to air pollution may be relevant to virus infection spread, and more recent literature focuses on COVID-19 diffusion (Cheng et al., 2020, Report et al., 2020, Saha and Chouhan, 2021). On January 30 2020, the Director-General WHO declared that the outbreak of novel coronavirus (2019-nCoV) constitutes a Public Health Emergency of International Concern (PHEIC) as per the advice of the International Health Regulations (IHR) Emergency Committee (Black et al., 2020). In the first surge in 2020, COVID-19 has infected nearly 20 million people across the globe, with 90 countries in the community transmission stage (Bherwani et al., 2021). The daily reported confirmed cases started to rise from February 2021 in India (Sengupta et al., 2021). The mid of April 2021, registered sudden hike over thousands of daily death was observed around the country (Khanna, 2020). Multiple fac-

tps://doi.org/10.1016/j.envc.2021.100221 eccived 22 May 2021; Received in revised for

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Determining process of occasional flooding from channel hydrological characteristics of Chel Basin, North Bengal (India)

Debarshi Ghosh¹

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© Korean Spatial Information Society 2019

Abstract Occasional flooding has a distinct impact on fluvial dynamics of a channel. It brings new thresholds of adjustment for hydraulic conditions of a channel. The task of estimation of peak discharge during occasional floods is very complex, as the water recedes very quickly. The flood and rainfall design techniques (Gumbel's frequency distribution) are the relevant solutions for peak discharge estimation at an un-gauged station of measurement. This paper aims to estimate the volume of peak discharge during the phase of occasional floods at 't' recurrence intervals (5, 10, 20, 50 and 100 years) which are 148.87221, 158.58408, 167.9592, 179.9475, and 218.8758 cumecs. The separate yield of peak runoffs from small 3rd-order basins has been estimated by rational method on 2 years (162.70 cumecs) and 10 years (212.60 cumecs) probabilities of recurrence. While deriving probable peak flood discharge, various temporal hydrological relationships regarding rainfallrunoff and stage-discharge have been established by curvefitting method in linear and power regression models. The temporal study (2015-2017) reveals some interesting hydrological results, including (a) 1284.21-1522.22 Ha m day-1 channel runoff causes discharge greater than 150 cumecs, (b) effect of basin lag influences the runoff curve and (c) the water stage above 2.5 m gauge height indicates occasional floods. The rainfall as system input indicates high spatio-temporal variation ranges, between 200 and 5500 mm, as maximum annual average. This approach fundamentally assembles the rainfall-runoff-

flood - Peak discharge

A flood is an unusual high stage of water due to runoff from rainfall and melting of snow in quantities too great to be confined in the normal water surface elevations of the river or stream [1, 2]. That is, a flood is any relatively high flow that overtops the natural or artificial banks in any reach of a stream [2]. Reliable estimates of the magnitude and frequency of floods are essential for flood insurance studies, flood-plain management, and the design of transportation and water conveyance structures, such as roads, bridges, culverts, dams, and levees [3, 4]. The process of flooding is related with the increase in relative heights of water column or the stage. It can be determined from the peak flows in flow duration curves. Flooding is an integral part of the channel process that sometimes causes the fixation of new thresholds for water and sediment continuity [5, 6]. Floods can be measured from the volume of peak discharge, stage of the water, and the floodplain inundation. Artificial neural networks (ANNs)1 applied in the field of hydrological modeling have been used for over a decade for flood estimation in un-gauged catchments [5]. The advanced technique of flood loss estimation models integrates physically based distributed hydrologic model and a

discharge trio relation in estimating the design for peak

Keywords Discharge · Gauge height · Intensity-duration-

frequency curve · Flood probability · Runoff · Occasional

occasional flood discharge for Chel Basin.

¹ Introduction

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An artificial neural network is an interconnected group of nodes to



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ORIGINAL ARTICLE



Avulsion potential modeling using integrated Fuzzy-AHP in lower catchment of Chel river of North Bengal, India

Debarshi Ghosh¹ - Apurba Sarkar²

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Abstract

The paper aims to determine the potential avulsion zones on the piedmont segment of the Chel river basin. A total of 12 hydro-geomorphic causative variables have been selected considering the river basin's present geomorphological and hydrological characteristics. The analysis focused on spatial modeling considering Multi-Criteria Evaluation (MCE) technique. The paper's main contribution is to identify the active avulsion zones on the piedmont of Darjeeling Himalaya triggered by high monsoon rainfall (5479.3 mm maximum annual average). The model's input comes from high-resolution Digital Elevation Model (DEM) based on interpolated rasters, proximity rasters, and rainfall raster. The raster overlay inputs have been fuzzified to scale down within 0–1 and produce the final factor weights. The Analytical Hierarchic Process (AHP) checks the priorities judged by each variable's pair wise relative importance as a part of MCE. Finally, the model indicates that suitable sites on a continuous scale of suitability range between 0 and 1. The rainfall raster gets the highest weightage in the AHP priority scoring. The model correctly classified 85.7% of sites suitable to avulsion, and it has also been proven from the recent (2017–2020) field photographs. The Fuzzy-MCE technique has revealed the role of high rainfall in triggering avulsion on the piedmont surface. The final composite layer indicates the mountain outlet (junction of Chel, Manzing and Fagu Khola) as the most potential site for avulsion.

Keywords Channel avulsion · Multi-criteria evaluation · Fuzzy logic · Analytical hierarchic process · Rainfall intensity

Introduction

Avulsions encompass considerable insinuations for the lateral redeployment of water, sediment, nutrients, and hence are a key influence on flood-plain and delta geomorphology, sedimentology, and ecology (Makaske et al. 2002; Sinha et al. 2014; Larkin et al. 2017). The heavy rainfall and flood catastrophes compel the river course to avulse to new courses. Avulsion can be progradational, incisional, reoccupational based on a process of new channel formation. Progradational process associated with multi-channel overbank flows from large-sized crevasse splays and cross-valley

channel formation with high rate of channel bed aggradations, incisional process triggers newly scoured channel into the flood-plain surface with slow aggradation of the channel bed and re-occupational process is associated with formation of new channel occupying the existing active or abandoned channel in the flood plain (Slingerland and Smith 2004). Channel behavior frequently changes downstream due to the supply of discharge as related to the gradual decrease in the slope (Langat et al. 2019). The process of channel avulsion is mainly dependent on rainfall, discharge and slope of the channel and valley. Avulsion occurs when overbank flows from a main channel take advantage and permanently occupy secondary or relict channels on the flood-plain or create new flood-plain channels (Slingerland and Smith 2004; Sinha et al. 2019). The piedmont zone of sub-Himalayan North Bengal is very responsive to high rainfall occurrence in monsoon. The channel bed aggradation, course shifting vis-à-vis avulsion are the direct results of high rainfall events especially in 1990s. The local-scale avulsion is a very common fluvial phenomena triggered by extreme rainfall and flash floods on the piedmont surface. A local-scale avulsion

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ORIGINAL ARTICLE



Identifying river bank erosion potential zones through geo-spatial and binary logistic regression modeling approach: a case study of river Ganga in Malda district (India)

Debarshi Ghosh^{1,2} • Snehasish Saha²

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Abstract

This study aims to evaluate the causative factors for high bank erosion probability along the left bank of Ganga river in Malda district using binary logistic regression model. The bank erosion at the outer bend of Ganga in Manikchak and Kaliachak-II blocks during the recession of flood water in Ganga poses serious threats to the inhabitants of Diara since the construction of the Farakka barrage. The constriction slowly started a problem of water pilling at the up-stream of the barrage and extended up to the Bhutni Island (40 km up stream). The seepage mechanism allows the entry of rising flood water to the banks and again released when water level recedes gradually and causes bank slumping. In recent monsoon (2020), Gopalpur, Jot Bhabani Dharampur gram panchayats of Manikchak block are heavily affected by bank erosion. A total of nine causative factors are selected as predictor variables in binary logistic regression model categorized broadly as vegetation, water and moisture indices, proximity based on river channel and settlement, soil characteristics and land use-cover classes. The omnibus test of model coefficient gives the likelihood ratio (224.433) for the overall model fitting (p value 0.0). The model predicts correctly 254 sites as low bank erosion (LBE) and 111 sites as High bank erosion (HBE) category with 84.4% and 67.3% accuracy. The soil bearing capacity significantly expresses highest odds (87.6%) of telling the high probability of bank erosion. The model produces an accuracy of up to 87.4%.

Keywords Odds ratio · Log-likelihood statistics · Bank erosion probability · Influential statistics

Introduction

Rivers are extremely sensitive to its surrounding environment (Rudra 2010). The channel dynamics is associated with frequent spatio-temporal changes of channel behavior under different environmental settings (Wohl 2020). The channel morphology and its dynamic nature are the outcome of complex interaction between water and sediment transportation process in the river (Kummu et al. 2008). The process of river dynamics is more frequent in alluvial channels. River bank erosion is another outcome of such fluvial dynamics.

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The bank erosion process is a complex phenomenon resulting from fluvial process and anthropogenic pressure of the flood plain (Bordoloi and Nikam 2020). The bank erosion process manifests through both erosion and construction. It not only engulfs the floodplain but also takes a role in development (Rudra 2014). The bank erosion process is considered as the natural geomorphological process of a river. The process is a complex interaction between channel hydraulics and structural properties of banks. A sandy substrate is more vulnerable for impinge flow attack which causes toppling in many alluvial river of lower Ganga plain (Bandyopadhyay et al. 2021). The vulnerability of banks under flow impact results in bank retreat, collapse, block/chunk failure etc. Bank retreat affects the river bed configuration (Ghosh and Kar 2018). In lower Ganga plain, many rivers erode in one direction and many 'Char-lands' (new alluvial deposition) rises in the opposite (Rudra 2020). The new sediment source creates riparian habitat along the banks. So, bank erosion plays a key role in the development of fluvial habitat. In contrary to this, bank erosion imposes an uninvited hazard risk

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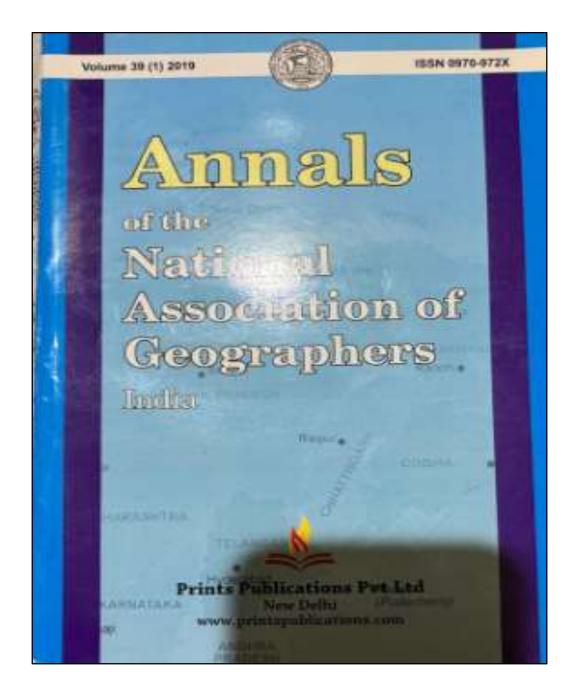




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DHUPGURI * JALPAIGURI * PIN-735210

Ref. No..... Dr. Debarshi Ghosh, Dept. of Geography Date.....

ANNALs, NAGI VOLUME 39 (No. 1), JUNE 2019, Page 35-56 ESTIMATION OF SURFACE SOIL EROSION USING USLE MODEL (MODIFIED) OF DHUPGURI BLOCK, JALPAIGURI (WEST BENGAL) SNOW SAVALAND DEBARSHI GHOSH ESTRACT The mounts Dioars in North-Bengal receives sail erosion through it h hit removal of surface soil along the local alopes in a may area especially from the elevated terraces for excess murchi Tea-garden areas composed of high percent of sill and and that promotes moderate to high rate of infiltration on surface runos. Following, rotational agricultural practices, gully cuts in the ten gardens, channel neulsion and occasional floods of high frequency etc. have aggravated the occurrence here associated with human interferences in the form of too plantation and habitations. Field investigation (2015 and 2017) revealed the estimated soil loss of 0. 2-0-5 igm² year for selected plots over the collusionaline at tracts of the Doors in Dhuggari CD-block. In the present paper the nuthers have true to estimate the soil erosion taking ours also and thereto rejections the still loss characters using USLE model of Warhinger and Smith (1962) with site specific modifications. For which collected samples have tested. The speculated achievement of the unit is to focus the smells if accounty remedial strategies to their ant crosses arrived to agreement development and benefits. 1) Assistant Professor Department of Compatible & Assistant Companies. University of North Benny E-Mail: anchasish show to 19700 mail and Assistant Professor Disappart fints College on the Michigana Assistant

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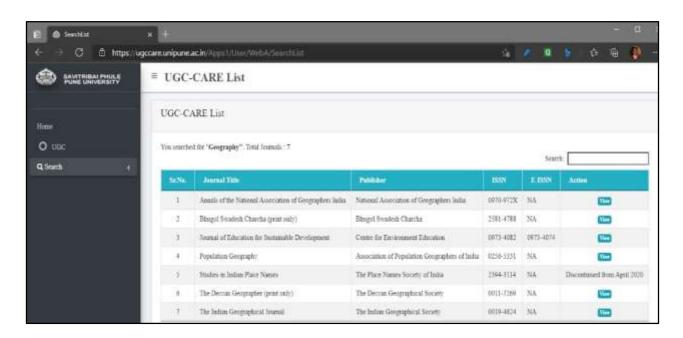
Overview The peer-reviewed journal Modeling Earth Systems and Environment (MESE) provides a unique publication platform by discussing interdisciplinary problems and approaches through modeling in earth and environment related fields, such as: Earth and environmental engineering; climate change; hydrogeology; aquatic systems and functions. Atmospheric research and water; land use and vegetation change; modeling of forest and agricultural dynamics; and economic and energy systems. Furthermore, the journal combines these topics with modeling of anthropogenic or social phenomena and projections to be used by decision makers. Executive Editor-in-Chief Md. Nazrul Islam Editors-in-Chief Julian Aherne, Daisuke Kitazawa, Ruud J. Schotting Journal Impact Factor 5-year Journal Impact Factor 2.7 (2023) 3.0 (2023) Submission to first decision (median) Downloads [3] 404,464 (2023) 21 days

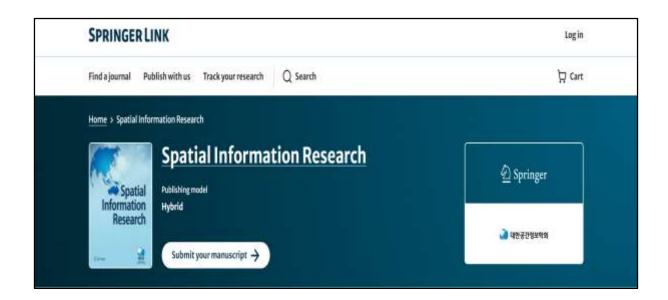




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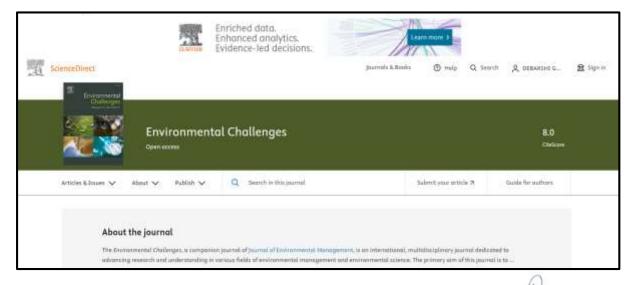


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Insurgent imaginations: world literature and the periphery

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Dhritiman Chakraborty & Debarati Dutta

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'Manusmriti': A Critical Analysis

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Abstract

The first written script of Hindu dharma 'Manusmriti' was translated by Sir William Jones in 1794. It reflects the social and religious customs of ancient Hindus, According to Manu Hindus were divided into four colors, and later on, four exists namely Brahmanas, Kshatriyas, Vaisyas, and Sudras. In that system kings and Brahmanas were connected to each other regarded by the remaining castes. It explains Grihya-Sutras, spirituality and women's position in society. There was a certain code for Vaisyas and Sudras. Although Dr. B.R. Ambedkar accused the Manu system of indiscrimination castism in India. Gandhi preferred the social system by their duties but not on rights.

Key words:-Customs, Grihya-Sutra, Spirituality, Indiscrimination, Castism.

Introduction: The Manusmrii[1]' is an ancient legal text among the many Dharmaśästras of Hinduism. It was one of the first Sanskrii texts translated during the British rule of India in 1794, by Sir William Jones, and used to formulate the Hindu law by the colonial government.[2] 'Over fifty manuscripts of the Manusmriit are now known, but the earliest discovered, most translated, and presumed authentic version since the 18th century has been the "Calcutta manuscript with Kulluka Bhatta commentary.[3]Modern scholarship states this presumed authenticity is false, and the various manuscripts of Manusmriit discovered in India are inconsistent with each other, and within themselves, raising concerns about its authenticity, insertions and interpolations made into the text in later times.[44]

Discussion: The metrical text is in Sanskrit, is variously dated to be from the 2nd century BCE to the 3nd century CE, and it presents itself as a discourse given by Manu (Svayambhuva) and Bhrigu on dharma topics such as duties, rights, laws, conduct, virtues, and others. The text's fame spread outside India, long before the colonial era.

The medieval era Buddhistic law of Myanmar and Thailand are also ascribed to Manu,[5] and the text influenced past Hindu kingdoms in Cambodia and Indonesia. [6] Eighteenth-century philologists Sir William Jones and Karl Withelm Friedrich Schlegel assigned Manusmriti to the period of around 1250 BCE and 1000 BCE respectively, which from later linguistic developments is untenable due to the language of the text which must be dated later than the late Vedic texts such as the Upanishads which have themselves dated

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'Manusmriti': A Critical Analysis

a few centuries ago around 500BC. [7].Later scholarship shifted the chronology of the text to between 200 BCE and 200 CE. [8]

to between 200 BCE and 200 CE. [8]

Olivelle adds that numismatics evidence, and the mention of gold coins as a fine, suggest that the Text may date to the 2nd or 3nd century CE [9]. Most scholars consider the text a composite produced by many authors put together over a long period. Olivelle states that the various ancient and medieval Indian texts claim revisions and editions were derived from the original text with 100,000 verses and 1,080 chapters. However, the text version in modern use, according to Olivelle, is likely the work of a single author or a chairman with research assistants. [10] "Manusmriti, Olivelle states, was not a new document, it drew on other texts, and it reflects "a crystallization of an accumulated knowledge" in ancient India[11], "The root of theoretical models within Manusmriti relies on at least two shastras that pre-date it: Artha (statecraft and legal process), and Dharma (an ancient Indian concept that includes duties, rights, laws, conduct, virtues, and others discussed in various Dharmasutras older than Manusmriti). Its contents can be traced to Kalpasutras of the Vedic era, which led to the development of Smartasutras consisting of Grithyasutras and Dharmasutras[12]. The foundational texts of Manusmriti include many of these autras, all from an era necessing the Common For. Most of these ancient texts are now lost, and only





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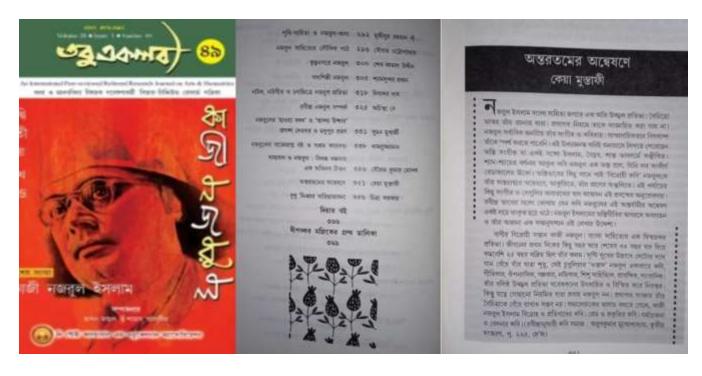
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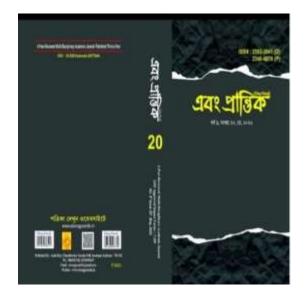
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DR. KEYA MUSTAFI

DEPT. OF BENGALI





শ্রীশ্রীরামকৃষ্ণকথামৃত: গল্পকথায় বৃহৎকথা

- ७. क्सा मुखाकी

(সহকারী অধ্যাণক, বাংলা বিভাগ, পুশুভড়ি গার্লন কলেজ, জলপাইওড়ি)

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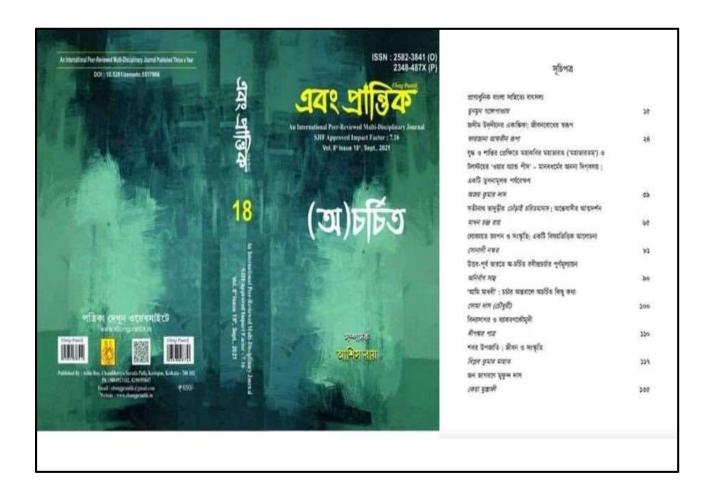
মূল বজৰা : শ্ৰীম কথিত প্ৰীন্তীনামকৃষ্ণকথামূত এক জীবন পথের সভান। বামকৃষ্ণ দেবের সহজ সরল বাক ভবিষ্যত গল্পের আর্রাচ যে পরম সভা পরিবেশন করেছেন, ভা ভবুমার ধর্মারাটী ভক্ত শিক্ষা নাম সরল সাধারণ মানুধাকেই সাহার সভান দেছ। সংসারদদ্ধ চিত্তে এ যেন অমৃত পরশ। এই প্রন্থেক সর্বভানীন আবেদন জনজীকার্য। এ যেন জীবাছার শান্তিবারি ভব্তপ।

মূল লাম : শ্রীম মহেন্দ্র ৬৩, শ্রীশ্রীরামকৃষ্ণকথামূত, উপাধান, গোকণিক্ষা, কটিন কথা সহজ্ঞ করা, জীবনসন্ধান,আজন্ত প্রাথমিক ।



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জন জাগরণে মুকুন্দ দাস

ভ,কেয়া মুক্তাফী (সহকারী অধ্যাপক,ধূপগুড়ি গার্লস কলেজ)

নারসংকেশ :

যে কোন দেশের মুক্তিসংগ্রামে চারণ কবিনের বড়ো ভূমিকা থাকে। তথুমার রাজনৈতিক বা রাষ্ট্রনৈতিক জাগরণে
নয়, সামাজিক তথা জনজাগরনেও চারণদের ভূমিকা ওকাত্বপূর্ণ। ভারতবর্ধের ইতিহাসে সেজাবে কোন চারণকবির
নাম বুব বেশি প্রচলিত না হলেও, গরাধীন ভারতবর্ধে যে চারণ কবি জনজীবনে তাঁর ভূমিকা উল্লেখযোগা ভাবে
প্রতিষ্ঠিত করতে পেরেছিলেন, তিনি চারণ কবি মুকুল দাস। তাঁর গানে, নাটকে তিনি ভনিয়েছেন বাঙালি জাতিকে
উবুদ্ধ করে তোলবার বাণী। সমকালে জনপ্রিয়তার শিখর ছুঁলেও, স্বাধীনতা উত্তর বাংলা তথা ভারত তাঁর কথা
সেভাবে ভাবে মনেও রাখেনি, চর্চা তো অনেক দুরের কথা। এই বিশ্বত চারণকে শ্বরণেই আমার প্রভাষ্টা।

সুচক শব্দ : চারণ কবি, পরিচয়, উজ্জীবনের গান, কর্মশীর, অসাম্প্রদায়িক,দেশমাতার বীর সম্ভান।

" জাগতে হবে উঠতে হবে লাগতে হবে কাজে।/ জগৎ মাঝে কেউ বসে নেই, মোদের কি যুম সাজে/ যেতে হবে সাগরের পাড়, ছাড়তে হবে জাতের বিচার/ চনতে হবে জগৎ বীণা, কোন্ সুরেতে বাজে।"

পরাধীনতার অমানিশায় বাঙ্কলি যখন কোনরকমে 'বাঁচা'-কেই তার অভ্যাসে পরিনত করেছে,-ঠিক তথনই এক ঝোড়ো হাওয়া যেন বরে গেল তাদের গতিহীন, গতানুগতিক জীবনে। নতুন ভাবে তারা ভাবতে চাইল,বাঁচতে চাইল।

জগৎ বীখার সূর ওনিরে পরাধীন ভারত মারের নিচ্চিত সম্ভানদের মুক্তি সংগ্রামে অংশগ্রহণ করানোর পুণা সংকল্পে, যিনি এই উদান্তকটে ভাক নিয়েছিলেন,- তিনি কর্মযোগী কবি মুকুন্দ দাস। যাঁর পরিচিতি ও প্রসিদ্ধি 'চারণ কবি' নামে। বাঙাণি জাতির শুন্ত গরিমা,ঐতিহা,সাহস কিরিয়ে আনার সংকল্প যাঁর স্বঞ্চে।

কৰি মাত্ৰই প্ৰতিভাধৰ । যাঁদের সৃষ্টিতে ধনা সাহিত্য ভাভার। তবে সব কবি চারণ কৰি নন। 'চারণ' বলতে আমরা বৃঝি, আনন্দলোকের যাত্রী, মৃত্যুঞ্জয়ী পথিক এবং যাঁরা ঐশ্ববিক শক্তিতে শক্তিমান। চারণকবি প্রতিভাবান, তাঁদের ক্ষেত্রেও প্রতিভার 'পাণগামি' লক্ষা করা যায় চারণেরা গোককথার ঐতিজ্ঞবাহী শিল্পী। এরা মৃত্যপুক্ষ,