

References and Bibliography

- Akhter S, Eibek KU, Islam S, Towfiqul Islam ARM, Chu R, Shuanghe S (2019) Predicting spatiotemporal changes of channel morphology in the reach of Teesta River, Bangladesh using GIS and ARIMA modeling. *Quat Int* 513(July 2018):80–94.
- Agarwal CS (1998) Study of drainage pattern through aerial data in Naugarh area of Varanasi district, U.P. *J. Indian Soc. Remote Sens.*, v. 26, pp.169–175.
- Altin T B, Altin BN (2011) Development and morphometry of drainage network in volcanic terrain, Central Anatolia, Turkey. *Geomorphology*, v. 125, pp. 485–503.
- Ambili V, Narayana AC (2014) Tectonic effects on the longitudinal profiles of the Chaliyar River and its tributaries, southwest India. *Geomorphology*, 217, 37-47.<https://doi.org/10.1016/j.geomorph.2014.04.013>.
- Arnold J G, Srinivasan R, Muttiah RS, Williams JR (1998) Large area hydrological modeling and assessment part 1: model development. *Journal of American water resources association*, 34(1), pp. 74-89.
- Aslan A, Autin W, Blum M (2005) Causes of river avulsion: insights from the late holocene avulsion history of the Mississippi river, U.S.A. *Journal of Sedimentary Research*, 75: 650–664.
- Avinash K, Jayappa KS, Deepika B (2011) Prioritization of sub-basins based on geomorphology and morphometric analysis using remote sensing and geographic information system (GIS) techniques. *Geocarto International*, v. 26, pp. 569–592.
- Azor A, Keller EA, Yeats RS (2002) Geomorphic indicators of active fold growth: South Mountain-Oak Ridge Ventura basin, southern California. *Geological Society of America Bulletin*, 114:745–753.
- Bagchi K, Mukherjee KN (1983) Diagnostic survey of West Bengal (North). Deptt. of Geography, University of Calcutta.
- Bagnold RA (1966) An approach to the sediment transport problem from general physics. USGS Professional Paper 422-I. Washington, DC: U.S. Geological Survey.

- Bagnold RA (1980) An empirical co-relation of bed load transport rates in flumes and natural rivers. *Proceedings of the Royal Society.* 372A, 453-73pp.
- Bagyaraj M, Gurugnanam B (2011) Significance of morphometry studies, soil characteristics, erosion phenomena and landform processes using remote Sensing and GIS for Kodaikanal Hills, a global biodiversity hotspot in Western Ghats, Dindigul District, Tamil Nadu, South India. *Research Journal of Environmental and Earth Sciences*, v. 3, pp. 221–233.
- Baillie IC, Norbu C (2004) Climate and other factors in the development of river and interfluvial profiles in Bhutan, Eastern Himalayas, *Journal of Asian Earth Sciences*, 22, p. 539–553.
- Bali R, Agarwal KK, Ali SN, Rastogi SK, Krishna K (2012) Drainage morphometry of Himalayan Glaciofluvial basin, India: hydrologic and neotectonic implications. *Environmental Earth Sciences*, v. 66, pp. 1163–1174.
- Banerjee AN (2007) The West Bengal Minor Minerals Rules, 2002 Also the Mines and Minerals (Development and Regulation) Act, 1957 (as amended up-to-date), Tax 'N Law, Kolkata, pp. 3–29.
- Banerjee U (1964) Forest of Darjeeling District, Centenary Commemoration Volume of Forest Department, Government of West Bengal, Calcutta.
- Basu SR, Ghatowar L (1986) A Quantitative Analysis of the Long Profiles of the Lish and Gish Rivers of the Darjeeling Himalayas, *Indian Journal of Landscape System and Ecological Studies* 9: 66–70.
- Basu SR, Ghatowar L (1988) Landslides and Soil-Erosion in the Gish Drainage Basin of the Darjeeling Himalaya and Their Bearing on North Bengal Floods. *Studia Geomorphologica Carpatho-Balcanica* 22: 105–122.
- Basu SR, Ghatowar L (1990) The Impact of Landslides on Fluvial Processes in the Lish Basin of the Darjeeling Himalayas. *Geographia Polonica.* 59: 77–87.
- Basu SR, Ghosh L (1993) A Comprehensive Study of Landslides and Floods in the Lish Basin of the Darjeeling Himalaya. *Indian Journal of Power and River Valley Development* 43, 10: 196–203.

- Batalla RJ, Gomez CM, Kondolf GM (2004) Reservoir-induced hydrological changes in the Ebro River basin (NE Spain). *Journal of Hydrology*, v. 290, pp. 117–136.
- Bhandari, L, Kale, S (2009) Indian states at a glance 2008–09: West Bengal: performance, facts and figures. Indicus Analytics, New Delhi
- Bhujel RB (1996) Studies on the Dicotyledonous Flora of Darjeeling District, Ph.D. Thesis, North Bengal University, India.
- Bhunias GS, Shit PK, Pal DK (2016) Channel dynamics associated with land use/ cover change in Ganges River, India, 1989-2010. *Spatial Information Research*, v. 24, pp. 437-449.
- Biswas A, Majumdar DD, Banerjee S (2014) Morphometry governs the dynamics of a drainage basin: Analysis and implications. *Geography Journal*, v. 2014, pp. 1-14, <https://dx.doi.org/10.1155/2014/927176>.
- Biswas M, Banerjee P (2018) Bridge construction and river channel morphology—A comprehensive study of flow behavior and sediment size alteration of the River Chel, India. *Arabian Journal of Geosciences* (2018) 11:467 <https://doi.org/10.1007/s12517-018-3789-7>.
- Bordoloi K, Nikam BR, Srivastav SK, Sahariah D (2020). Assessment of riverbank erosion and erosion probability using geospatial approach: a case study of the Subansiri River, Assam, India. *Applied Geomatics* <https://doi.org/10.1007/s12518-019-00296-1>.
- Bouska WW, Keane T, Paukert CP (2011) The effects of road crossings on prairie stream habitat and function. *J Freshw Ecol*: 499–506.
- Boyer SE, Elliott D (1982) Thrust systems. *Am. Assoc. Pet. Geol. Bull.* 66, 1196-1230.
- Brice JC (1964) Channel patterns and terraces of the Loup Rivers in Nebraska. Geological Survey Professional Paper, 422-D, Washington DC, D2–D41.
- Bridge J (1993) The interaction between channel geometry, water flow, sediment transport and deposition in braided rivers. *In: Braided Rivers* J. Best and C. Bristow (eds.), Geological Society, London, Special Publication no. 75, pp. 13–71.

- Brookfield ME (1998) The evolution of the great river systems of southern Asia during the Cenozoic India–Asia collision: rivers draining southwards. *Geomorphology* 22, 285–312.
- Brozovic N, Burbank DW (2000) Dynamic fluvial systems and gravel progradation in the Himalayan foreland. *Geological Society of America Bulletin*, 112: 394- 412.
- Buccolini M, Coco L, Cappadonia C, Rotigliano E (2012) Relationships between a new slope morphometric index and calanchi erosion in northern Sicily, Italy. *Geomorphology*, v. 149-150, pp. 41–48.
- Bull WB (1978) Geomorphic tectonic activity classes of the south front of the San Gabriel Mountains, California. Unpubl. Final Rep., U.S. Geol. Surv., Contract No. 14-08- 0001-G-394.
- Bull WB, McFadden LD (1977) Tectonic geomorphology North and South of the Garlock Fault, California, *Geomorphology in Arid Regions*. Proceedings of the eighth annual geomorphology symposium. State University of New York, Binghamton. pp. 115–138.
- Burbank DW, Anderson RS (2001) *Tectonic Geomorphology*. Blackwell Scientific, Oxford: 270 pp.
- Carlston CW (1968) Slope-discharge relations for eight rivers in the United States. *United States Geological Survey Professional Paper*, 600-D, 45-7Ppp.
- Chakraborty S , Mukhopadhyay S (2014) A comparative study on the nature of channel confluence dynamics in the lower jaldhaka river system, west bengal, india. *International Journal of Geology, Earth & Environmental Sciences*. 2014 Vol. 4 (2) May-August, pp. 87-97.
- Chakraborty S , Datta K (2013) Causes and Consequences of Channel Changes – A Spatio-Temporal Analysis using Remote Sensing and Gis— Jaldhaka-Diana River System (Lower Course), Jalpaiguri (Duars), West Bengal, India. *J Geogr Nat Disast* 3: 107. doi:10.4172/2167-0587.1000107.
- Chakraborty S, Mukhopadhyay S (2014) An assessment on the nature of channel migration of River Diana of the sub-Himalayan West Bengal using field and GIS techniques. *Arab J. Geosci.*, v. 8(8), 5649–5661.

- Chakraborty T, Ghosh P (2010) The geomorphology and sedimentology of the Tista megafan, Darjeeling Himalaya: Implications for megafan building processes. *Geomorphology*, 115(3–4): 252–266.
- Champion GH, Seth SK (1968) *A revised Survey of Forest Types of India*. New Delhi: Government of India.
- Chattopadhyay GS, Das A (1992) Quaternary Geology and Geomorphology of the Tista-Torsha Interfluvial Area- A Brief Review, *Geological Survey of India Records*. 118: 115-124.
- Chen YC, Sung Q, Cheng KY (2003) Along-strike variations of morphotectonic features in the Western Foothills of Taiwan: tectonic implications based on stream gradient and hypsometric analysis. *Geomorphology*. 56, 109–137.
- Chiu CL, Tung NC (2002) Maximum velocity and regularities in open-channel flow. *J. Hydraul. Eng.*, 128(4), 390-398pp.
- Chopra R, Dhiman RD, Sharma PK (2005) Morphometric analysis of sub-watersheds in Gurdaspur district, Punjab using remote sensing and GIS techniques. *Jour. Indian Society of Remote Sensing*, v. 33, pp. 531–539.
- Chorley RJ, Kennedy, B.A. (1971) *Physical Geography: A System Approach*, London, Prentice- Hall.
- Chorley RJ, Morgan MA (1962) Comparison of morphometric features, Unaka Mountains, Tennessee and North Carolina, and Dart moor, England. *Geological Society of America Bulletin*, v. 73, pp. 17–34.
- Chorley RJ, Schumm SA, Sugden DE (1984) *Geomorphology*. Methuen, London, 607p.
- Chorley, RJ (1957) Climate and morphometry. *Jour. Geology*, v. 65. pp. 628-638. <http://dx.doi.org/10.1086/626468>.
- Chorley RJ (ed.) (1972) *Spatial analysis in geomorphology*, Harper and Row, New York, pp. 17–90.
- Chougale SS, Sapkale BJ (2017) Morphometric analysis of Kadvi River Basin, Maharashtra using Geospatial techniques. *Current World Environment*, v. 12, pp. 635-645.

- Clarke, J. I. (1966) Morphometry from maps. *In: G. H. Dury (ed.) Essays in geomorphology*, pp. 235–274, Elsevier, New York, USA.
- Coleman JM (1969) Brahmaputra River: channel process and sedimentation, *Sediment. Geol*, 3, 129-139pp.
- Cox RT (1994) Analysis of Drainage Basin Symmetry as a Rapid Technique to Identify Areas of Possible Quaternary Tilt-Block Tectonics: An Example from the Mississippi Embayment. *Geological Society American Bulletin*, 106, 571-581.
- Daniel JF (1971) Channel movement of meandering Indian Streams: Physiographic and hydraulic studies of rivers, US Geol. Survey. Prof. Paper, 732-A.
- Das A, Chattopadhyay GS (1993) Neotectonics in the Tista, Jaldhaka and Torsha Interfluvial Belt of North Bengal, *Geological Survey of India Records* 121: 101-109.
- Das B, Mondal M, Das A (2012) Monitoring of bank line erosion of River Ganga, Malda District, and West Bengal: using RS and GIS compiled with statistical techniques. *Int J Geomat Geosci* 3:1
- Das JD, Shujat Y, Saraf AK (2011) Spatial technologies in deriving the morphotectonic characteristics of tectonically active Western Tripura Region, Northeast India. *Jour. Indian Society of Remote Sensing*, v. 39, pp. 249–258.
- Deb M, Ferreira C (2015) Planform channel dynamics and bank migration hazard assessment of a highly sinuous river in the north-eastern zone of Bangladesh. *Environ Earth Sci* 73(10):6613–6623
- DeCelles PG, Robinson DM, Zandt G (2002) Implications of shortening in the Himalayan fold-thrust belt for uplift of the Tibetan Plateau. *TECTONICS*, VOL. 21, NO. 6, 1062, doi:10.1029/2001TC001322.
- Dehborzogi M, Pourkermani M, Arian M, Matkan AA, Motamedi H, Hosseiniasl A (2010) Quantitative analysis of relative tectonic activity in the Sarvestan area, central Zagros, Iran. *Geomorphology*, 121 (2010) 329–341.
- Demoulin A (2011) Basin and river profile morphometry: a new index with a high potential for relative dating of tectonic uplift. *Geomorphology*, v. 126, pp. 97–107.

- Dewan A, Corner R, Saleem A, Rahman MM, Haider MR, Rahman MM, Sarker MH (2017) Assessing channel changes of the Ganges-Padma River system in Bangladesh using Landsat and hydrological data. *Geomorphology*, v. 276, pp. 257–279.
- Dhanya V (2014) Basin Asymmetry and associated tectonics: A case study of Achankovil River Basin, Kerala. *Transactions of the Institute of Indian Geographers* 36(2):207-215.
- Dhar ON, Nandargi S (2000) A study of floods in the Brahmaputra basin in India, *International Journal of Climatology*, 20, 771–78.
- Diakakis M (2011) A method for flood hazard mapping based on basin morphometry: application in two catchments in Greece. *Natural Hazards*, v. 56, pp. 803–814.
- Dutt CN (1966) Landslides and Hillside Stability in the Eastern Himalayas, Bulletin No. 15, Pt. 1, Series B, GST, P 61-78.
- Eaton BC, Millar RG, Davidson S (2010) Channel patterns: braided, anabranching, and single-thread. *Geomorphology* 120, 353–364.
- Egozi R, Ashmore P (2008) Defining and measuring braiding intensity. *Earth Surf. Process. Landforms*, v. 33(14), pp. 2121–2138.
- El. Hamdouni, Irigaray, R., Fernandez, C., J. Chacón, T. & Keller E.A. (2007) Assessment of relative active tectonics, southwest border of Sierra Nevada (southern Spain). *Geomorphology*, 96: 150–173.
- Evans, S. (1972) General Geomorphometry, Derivatives of Altitude, and Descriptive Statistics. In: Chorley, R.J., Ed., *Spatial Analysis in Geomorphology*, Methuen & Co. Ltd., London, 17-90.
- Fahnestock RK (1963) Morphology and hydrology of a glacial stream-White River, Mount Rainier, Washington. United States Geological Survey Professional Paper. 422A.
- Faniran A (1968) The Index of drainage intensity- A provisional new drainage factor. *Australian Journal of Science*, v. 31, pp. 328-330.

- Ferraris F, Firpo M, Pazzaglia FJ (2012) DEM Analyses and Morphotectonic Interpretation: The Plio-Quaternary Evolution of The Eastern Ligurian Alps, Italy. *Geomorphology*. 149–150: 27–40.
- Forman RT, Alexander LE (1998) Roads and their major ecological effects. *Annu Rev Ecol Syst* 29:207–231.
- Friend PF, Sinha R (1993) Braiding and meandering parameters. In J. L. Best & C. S. Bristow (Eds.), *Braided Rivers* (pp. 105–111). Washington: Geological Society Special Publications No.75, pp 105-11.
- Froehlich W, Starkel L (1993) The effects of deforestation on slope and channel evolution in the tectonically active Darjeeling Himalaya, *Earth Surface Processes and Landforms*, 18, p. 285–290.
- Gan B (2008) Child Workers in the Stone Crushing Family, North Bengal *Anthropologists*, 1, 1, pp. 66.
- Gansser A. 1964. *The Geology of the Himalayas*. New York: Wiley Interscience. 289pp.
- Gardner TW, Back W, Bullard TF, Hare PW, Kesel RH, Lowe DR, Troester JW (1987) Central America and the Caribbean. *Geomorphic systems of North America: Boulder, Colorado. Geological Society of America*, 2, 343–401 (CentennialSpecial).
- Garg SK (1983) *Geology- the Science of the Earth*. Khanna Publishers, New Delhi.
- Gottschalk, L. C. (1964) Reservoir sedimentation. *In: V.T. Chow (ed.) Handbook of applied hydrology*. McGraw Hill Book Company, pp. 1-34.
- Garrote J, Heydt GG, Cox RT (2008) Multi-Stream Order Analyses in Basin Asymmetry: A Tool to Discriminate the Influence of Neotectonics in Fluvial Landscape Development Madrid Basin, Central Spain. *Geomorphology*, 102:130– 144.
- Gehrels GE, DeCelles PG, Martin AT, Ojha P, Pinhassi G, Upreti BN (2003). Initiation of the Himalayan orogen as an early Paleozoic thin-skinned thrust belt. *Geological Society of America Today*, 13(9): 4e9.

- Ghosh K (2012) Changing pattern of channel planform after Gazaldoba Barrage Construction: Teesta River, West Bengal. M.Phil Thesis, Jawaharlal Nehru University, New Delhi.
- Ghosh PK, Bandopadhyay S, Jana NC, Mukhopadhyay R (2016) Sand quarrying activities in an alluvial reach of Damodar River, Eastern India: towards a geomorphic assessment, *International Journal of River Basin Management*, DOI: 10.1080/15715124.2016.1209509.
- Ghosh, S, Carranza, EJM (2010) Spatial analysis of mutual fault/fracture and slope controls on rock sliding in Darjeeling Himalaya, India. *Geomorphology* 122:1-24
- Giaconia F, Booth-Rea G, Martínez-Martínez JM, Azañón JM, Pérez-Peña JV, Pérez-Romero J, Villegas I (2012) Geomorphic Evidence of Active Tectonics in the Sierra Alhamilla Eastern Betics, SE Spain. *Geomorphology*, 145–146: 90–106.
- Giardino JR, Lee AA (2011) Rates of Channel Migration on the Brazos River. Report submitted to Texas Water Development Board.
- Gibling MR, Tandon SK, Sinha R, Jain M (2005) Discontinuity bounded alluvial sequences of the southern Gangetic plains, India; aggradation and degradation in response to monsoonal strength. *Journal of Sedimentary Research* 75 (3), 369–385.
- Gilvear DJ, Winterbottom SJ (1992) Channel change and flood events since 1783 on the regulated River Tay, Scotland: implications for flood hazard management. *Regul. Rivers: Res. Mgmt.*, v. 7, pp. 247–260.
- Goswami U, Sarma JN, Patgiri AD (1999) River channel changes of the Subansiri in Assam, India. *Geomorphology* 30:227–244. [https://doi.org/10.1016/S0169-555X\(99\)00032-X](https://doi.org/10.1016/S0169-555X(99)00032-X)
- Government of West Bengal (2008-2009) State Forest Report West Bengal. Directorate of Forests, Kolkata
- Gregory K (2006) The human role in changing river channels. *Geomorphology* 79:172–191.
- Gregory KJ, Park C (1974) Adjustment of river channel capacity downstream from a reservoir, *Water Resources Research*, v. 10, pp. 870-873.

- Gregory KJ, Walling DE (1968) The Variation of drainage density within a catchment. International Association of Scientific Hydrology - Bulletin, v. 13, pp. 61- 68.
- Grujic, D, Coutand, J, Bookhagen, B, Bonnet, S, Blythe, A, Duncan, C (2006) Climatic forcing of erosion, landscape, and tectonics in the Bhutan Himalaya. *Geology* 34:801-804
- Guha D, Bardhan S, Basir SR, De AK, Sarkar A (2006) Imprints of Himalayan Thrust Tectonics on the Quaternary Piedmont Sediments of the Neora– Jaldhaka Valley, Darjeeling–Sikkim Sub-Himalayas, India, *J Asian Earth Sci*: 30: 464-473.
- Gupta N (2012) Channel Planform Dynamics of the Ganga-Padma system, India (PhD thesis). University of Southampton.
- Gupta N, Atkinson PM, Carling PA (2013) Decadal length changes in the fluvial planform of the river Ganga: bringing a mega-river to life with Landsat archives. *Remote Sens. Lett.* 4 (1), 1–9.
- Gurnell AM (1997) Channel change on the river Dee meanders, 1946–1992, from the analysis of air photographs. *Regul. Rivers: Res. Mgmt.*, v. 3, pp. 13–26.
- Gurnell AM, Downward SR, Jones R (1994) Channel planform change on the River Dee meanders, 1876–1992. *Regulated Rivers: Research and Management* 9, 187–204.
- Hack JT (1957) Studies of longitudinal stream profiles in Virginia and Maryland. Geological Survey Professional Paper, 294-B. DOI.10.3133/PP294B
- Hack JT (1973) Stream-profile analysis and stream-gradient index. *Journal of Research of the U.S. Geological Survey*, v. 1, pp. 421-430.
- Hamdouni El, Irigaray R, Fernandez C, J.T Chacón, Keller EA (2007) Assessment of relative active tectonics, southwest border of Sierra Nevada (southern Spain). *Geomorphology*, 96: 150–173.
- Hare PH, Gardner TW (1985) Geomorphic indicators of vertical neotectonism along Converging plate margins, Nicoya Peninsula, Costa Rica. In: Morisawa, M., Hack, J.T. (Eds.), *Tectonic Geomorphology*, Allen and Unwin, Boston. pp.75-104.
- Harmar, O.P., & Clifford, N.J. (2006). Planform dynamics of Lower Mississippi River. *Earth Surface Processes and Landforms*, 31, 825-843.

- Harvey AM (1969) Channel capacity and the adjustment of streams to hydrologic regime. *Journal of Hydrology*. 8, 82-98pp.
- Heim A, Gansser A (1939) Central Himalaya Geological Observations of Swiss Expedition, 1936. *Mem. Soc. Helv. Sci. Nat.* 73, 1e245.
- Heitmuller F T (2014) Channel adjustments to historical disturbances along the lower Brazos and Sabine Rivers, south-central USA. *Geomorphology*, v. 204, pp. 382-398.
- Hey RD (1978) Determinate hydraulic geometry of river channels. *Journal of the Hydraulics Division American Society of Civil Engineers*. 104, HY6, 365-79pp.
- Holburt MB (1984) The 1983 high flows on the Colorado River and their aftermath. *Water International*, v. 9, pp. 99-105.
- Horton RE (1932) Drainage basin characteristics. *American Geophysical Union Trans.*, v. 13, pp. 348–352.
- Horton RE (1945) Erosional development of streams and their drainage basins: hydrophysical approach to quantitative morphology. *Geological Society of America Bulletin*, v. 56, pp. 275–370.
- Horton RE (1970) Erosional development of streams: quantitative physiographic factors. In: Dury, G.H. (Ed.), *River and River Terraces*. Macmillan, London, pp. 117–165.
- Howard AD (1971) Optimal angles of stream junction: geometric stability to capture and minimum power criteria. *Water Resources Research* 7, 863–873.
- Hubbell DW, Matejka DQ (1959). Investigations of sediment transportation Middle Loup River at Dunning, Nebraska, US Geol. Survey, Water Supply Paper, 1476, 123pp.
- Hughes FMR (1997) Flood plain biogeomorphology. *Progress in Physical Geography* 21 (4), 501–529.
- Hughes FMR, Adams WM, Muller E, Nilsson C, Richards KS, Barsoum N, Decamps H, Foussadier R, Girel J, Guillois H, Hayes A, Johansson M, Lambs L, Pautou G, Peiry JL, Perrow M, Vautier F, Winfield M (2001) The importance of different scale processes for the restoration of floodplain woodlands. *Regul. Rivers: Res. Mgmt*, v. 17, pp. 325 – 345.

- Ismail S (2009) Evaluation of local scour around bridge piers (River Nile bridges as case study). Thirteenth International Water Technology Conference.13, pp. 1249-1260. Hurghada, Egypt: IWTC.
- Jain V, Preston N, Fryirs K, Brierley G (2006) Comparative assessment of three approaches for deriving stream power plots along longitudinal profile in the upper Hunter River catchment, New South Wales, Australia. *Geomorphology*, 74, 297–317.
- Jain V, Sinha R (2003) Hyperavulsive-anabranching Baghmata river system, north Bihar plains, eastern India. *Zeitschrift für Geomorphologie* 47/1, 101–116.
- Jain V, Sinha R (2004) Fluvial dynamics of an anabranching river system in Himalayan foreland basin, Baghmata River, north Bihar plains, India. *Geomorphology* 60, 147–170.
- Jasmin I , Mallikarjuna P (2013) Morphometric analysis of Araniar river basin using remote sensing and geographical information system in the assessment of groundwater potential. *Arab Journal of Geosciences*, v. 6, pp. 3683–3692.
- Javed AM, Khanday Y, Rai S (2011) Watershed prioritization using morphometric and land use/land cover parameters: a remote sensing and GIS based approach. *Jour. Geological Society of India*, v. 78, pp. 63–75.
- John Wilson JS, Chandrasekar N, Magesh NS (2012) Morphometric analysis of major Sub Watersheds in Aiyar and Karai Pottanar Basin, Central Tamil Nadu, India using Remote Sensing & GIS Techniques. *Bonfring Int. J. Ind. Eng. Manag. Sci.*, v. 2 (special issue 1), pp. 8–15.
- Jones LS, Schumm SA (1999) Causes of avulsion: an overview. In: Smith, N.D., Rogers, J. (Eds.), *Fluvial Sedimentology VI. Special Publication of International Association of Sedimentologists*, vol. 28, pp. 171–178.
- Joon Heo & Trinh Anh Duc & Hyung-Sik Cho & Sung-Uk Choi (2009). Characterization and prediction of meandering channel migration in the GIS environment: A case study of the Sabine River in the USA. *Environ Monit Assess* (2009) 152:155–165. DOI 10.1007/s10661-008-0304-8.
- Kale VS (2014) Geomorphic history and landscape of India. In: Kale, V.S. (Ed.), *Landscapes and Landforms of India*. Springer-Verlag, Heidelberg, pp. 25– 37.

- Kale VS, Shejwalkar N (2008) Uplift Along the Western Margin of the Deccan Basalt Province: Is There Any Geomorphometric Evidence? *Journal of Earth System Sciences*, 1176: 959–971.
- Keller EA (1972) Development of alluvial stream channels: a five stage model. *Bulletin of the Geological Society of America*. 83, 1531-6pp.
- Keller EA (1986) *Investigation of Active Tectonics: Use of Surficial Earth Processes*,” National Academy Press, Washington DC, 1986, pp. 136-147.
- Keller EA, Pinter N (1996) *Active Tectonics: Earthquakes, Uplift, and Landscape*. 1st Edition, Prentice Hall, New Jersey.
- Keller EA, Pinter N (2002) *Active Tectonics: Earthquakes, Uplift, and Landscape*. 2nd Edition, Prentice Hall, New Jersey.
- Khalifa AA, Kheireldin KA, EltahanAH (2009) Scour around bridge Piers applying stream power approach. Thirteenth International water Technology Conference.13, pp. 1261-1280. Hurgada, Egypt: IWTC
- Knighton AD (1981) Local variations of cross-sectional form in a small gravel bed stream. *Journal of Hydrology (New Zealand)*. 20, 131-46pp.
- Knighton AD (1988) The impact of the Parangana Dam on the River Mersey, Tasmania. *Geomorphology*, 1, 221-37pp.
- Knighton AD (1989) River adjustment to changes in sediment load: the effects of tin mining on the Ringrooma River, Tasmania, 1875±1984. *Earth Surface Processes and Landforms*, v. 14, pp. 333-359.
- Knighton AD (1998) *Fluvial Forms and Processes: A New Perspective*. *Arnold, London*. 383 pp.
- Kondolf GM (1994) Geomorphic and environmental effects of in stream gravel mining, *Landscape and urban Planning*, 28, pp. 225-243.
- Kondolf GM (1997) Hungry water: effects of dams and gravel mining on river channels', *Environmental Management*, 21(4), 533±551.

- Kothyari GC, Rastogi BK (2013) Tectonic Control on Drainage Network Evolution in the Upper Narmada Valley: Implication to Neotectonics. *Geography Journal*, <http://dx.doi.org/10.1155/2013/325808>.
- Kothyari UC, Garde RJ, Ranga Raju KG (1992) Live-bed scour around cylindrical bridge piers. *J Hydraul Res* 30:701–715.
- Kummu M, Lu XX, Rasphone A, Sarkkula J, Koponen J (2008) Riverbank changes along the Mekong River: Remote sensing detection in the Vientiane–Nong Khai area. *Quaternary International*, v. 186, pp.100–11.
- Kundu A (2013) Geometry of the Frontal Thrust Sheets in Siwalik Sequence of the Darjeeling Sub-Himalaya, West Bengal, India. Ph. D. Thesis. Calcutta University.
- Kundu A, Matin A, Mukul M (2011) Depositional environment and provenance of Middle Siwalik sediments in Tista valley, Darjiling District, Eastern Himalaya, India. *J. Earth Syst. Sci.* 121 (1), 73e79.
- Kundu A, Matin A, Mukul M, Eriksson PG (2012) Sedimentary facies and soft sediment deformation structures in the late Miocene-Pliocene Middle Siwalik subgroup, eastern Himalaya, Darjiling District, India. *J. Geol. Soc. India* 78 (4), 321e336.
- Lama S, Maiti R (2019) Morphometric analysis of Chel river basin, West Bengal, India, using geographic information system. *e-Journal Earth Science India*, v. 12, pp. 1-23.
- Langbein WB (1947) Topographic characteristics of Drainage Basins. *US Geological Survey Water-Supply Paper*, 968-C, 125-157.
- Langbein WB, Leopold LB (1966) River meanders-theory of minimum variance, *US Geol. Survey Prof. Paper*, 422-H, 1-15pp.
- Langer HW (2003) A General Overview of the technology of In-Stream mining of sand and gravel resources associated potential environmental impacts, and methods to control potential impacts, open file Report, U.S Department of the Interior, U. S Geological Survey, pp. 4-12.
- Lave J. & Avouac JP (2001). Fluvial incision and tectonic uplift across the Himalayas of central Nepal. *Journal of Geophysical Research*, VOL. 106, NO. B11, PAGES 26,561-26,591.

- Latrubesse, E.M. (2008). Patterns of anabranching channels: The ultimate end-member adjustment of mega rivers. *Geomorphology*,101,130-145.
- Lawler DM (1993) The measurement of river bank erosion and lateral channel change: a review. *Earth Surface Processes and Landforms*, v. 18, pp. 777-821.
- Liebault, F, Piegay, H (2002) Causes of 20th century channel narrowing in mountain and piedmont rivers of southeastern France. *Earth Surf. Process. Landform.* 27:425-444
- Leier AL, DeCelles PG, Pelletier JD (2005) Mountains, monsoons and megafans. *Geology* 33 (4), 289–292.
- Leighly JB (1934) Turbulence and the transportation of rock debris by streams, *Geogr. Rev.*,24, 453-64pp.
- Leopold LB, Maddock T (1953) The hydraulic geometry of stream channels and some physiographic implications, *US Geol. Survey Prof.paper*, 252pp.
- Leopold, L.B. and Wolman, M.G. (1957). River Channel Patterns-braided, meandering and straight. *United States Geological Survey Professional Paper*. 282B, 39-85pp.
- Leopold LB, Wolman M, Miller, JP (1965) *Fluvial processes in geomorphology*. San Francisco and London: W.H.Freeman and Co.
- Leopold LB, Wolman MG, Miller JP (1964) *Fluvial Processes in Geomorphology*. Freeman, San Francisco, CA. 522 pp.
- Leopold, L.B., 1973. River channel change with time: an example: address as retiring president of the Geological Society of America, Minneapolis, Minnesota, November 1972. *Geol. Soc. Am. Bull.* 84, 1845–1860.
- Lewin J (1977) Channel pattern changes, in: *River channel changes*, Gregory, K.J. (ed.). Wiley, New York, pp. 167-84pp.
- Lewin J, Macklin MG, Newson MD (1988) Regime theory and environmental change-irreconcilable concepts? In: White, W.R. _Ed., *International Conference on River Regime*, New York.

- Lyew-Ayee P, Viles HA, Tucker GE (2007) The use of GIS based digital morphometric techniques in the study of cockpit karst. *Earth Surface Processes and Landforms*, v. 32, no. 2, pp. 165–179.
- Magesh NS, Jitheshlal KV, Chandrasekar N, Jini KV (2012) GIS based morphometric evaluation of Chimmini and Mupily watersheds, parts of Western Ghats, Thrissur District, Kerala, India. *Earth Science Information*, v. 5, pp. 111–121.
- Madhusudan, K (2011) Nature tourism development and impact assessment in peripheral areas - a study of North Bengal (India). *South Asian J. Tour. Herit.* 4:90e99
- Mahadevaswamy G, Nagaraju D, Siddalingamurthy S, Lakshamma MSL, Nagesh PC, Rao K (2011) Morphometric analysis of Nanjangud Taluk, Mysore District, Karnataka, India, using GIS techniques. *Int. J. Geomat. Geosci.*, v. 1, pp. 179–187.
- Mahalanobis PC (1927) Rainfall and floods in North Bengal, 1870–1922, Department of Irrigation, Bengal Government.
- Malik I, Bhat S, Kuchay NA (2011) Watershed based drainage morphometric analysis of Lidder catchment in Kashmir valley using Geographical Information System. *Recent Research in Science and Technology*, v. 3, pp. 118–126.
- Mallet FR (1874) On the geology and mineral resources of the Darjiling District and the western Duars. *Memoirs of the Geological Survey of India* 11, 1–50
- Mandal S, Sarkar S (2016) Overprint of neotectonism along the course of River Chel, North Bengal, India. *Journal of Paleogeography*, 5(3): 221-240. <http://dx.doi.org/10.1016/j.jop.2016.05.004>.
- Marshak S (2004) Arcs, Oroclines, salients, and syntaxes e the origin of map-view curvature in fold-thrust belts. *Am. Assoc. Pet. Geol. Mem.* 82, 131e156.
- Mather AE (2000) Adjustment of a drainage network to capture induced base-level change: an example from the Sorbas Basin, SE Spain. *Gemorphology* 34, 271–289.
- Mather AE, Harvey AM, Stokes M (2000) Quantifying long-term catchment changes of alluvial fan systems. *Geological Society America Bulletin* 112 (12), 1825–1833.

- Matin A, Mukul M (2010) Phases of deformation from cross-cutting structural relationships in external thrust sheets: insights from small-scale structures in the Ramgarh thrust sheet, Darjeeling Himalaya, West Bengal. *Curr. Sci.* 99, 1369e1377.
- Meigs AJ, Burbank DW, Beck RA (1995) Middle- Late Miocene (>10 Ma) formation of the main boundary thrust in the western Himalaya. *Geology*, 23, 423e426.
- Mérigoux S, Lamouroux N, Olivier JM, Dolédec S (2009) Invertebrate hydraulic preferences and predicted impacts of changes in discharge in a large river. *Freshw. Biol.*, 54(6), 1343-1356pp.
- Mesa LM (2006) Morphometric analysis of a subtropical Andean basin (Tucumán, Argentina). *Environmental Geology*, v. 50, pp. 1235–1242.
- Midha N, Mathur PK (2014) Channel characteristics and planform dynamics in the Indian terai, Sharda River. *Environmental Management*, v. 53, pp. 120–134.
- Miller VC (1953) A quantitative geomorphologic study of drainage basin characteristics in the Clinch Mountain area, Virginia and Tennessee, Project NR 389042, Tech Report 3. Columbia University Department of Geology, ONR Geography Branch, New York.
- Mishra A, Dubey DP, Tiwari RN (2011) Morphometric analysis of Tons basin, Rewa District, Madhya Pradesh, based on watershed approach. *Earth Science India*, v. 4, pp. 171–180.
- Mitra D, Tangri AK, Singh IB (2005) Channel avulsion of the Sarda River system, Ganga plain. *International Journal of Remote Sensing* 26 (5), 929–936.
- Mitra G, Bhattacharya K, Mukul M (2010) The Lesser Himalayan Duplex in Sikkim: Implications for variations in Himalayan shortening. *Journal Geological Society of India*, Vol.-75, PP. 289-301.
- Molin P, Pazzaglia FJ, Dramis F (2004) Geomorphic expression of active tectonics in a rapidly-deforming forearc, Sila massif, Calabria, southern Italy. *American Journal of Science*, 304, 559–589.
- Morgan JP, McIntire WG (1959) Quaternary Geology of the Bengal Basin, East Pakistan and India. *Geological Society of America Bulletin* 70(3):319.

- Morisawa M (1968) *Streams: Their Dynamics and Morphology* (McGraw-Hill, New York) 210.
- Morisawa ME (1963). Distribution of stream-flow direction in drainage patterns, *Jour. Geol.*, 71(4), 528-29pp.
- Morisawa M (1985) *Rivers: Forms and Process*. Longman Inc. New York.
- Mukhopadhyay SC (2014) Aspects of hydro-geomorphology of north Bengal drainage, India and surroundings with emphasis on the Torsa basin. *Indian Journal of Landscape Systems and Ecological Studies*, 37(2): 163–176.
- Mukul M (2000) The geometry and kinematics of the Main Boundary Thrust and related neotectonics in the Darjiling Himalayan fold-and-thrust belt, West Bengal, India. *Journal of Structural Geology* 22,1261-1283.
- Mukul M (2010) First-order kinematics of wedge-scale active Himalayan deformation: insights from Darjiling-Sikkim-Tibet (DaSiT) wedge. *J. Asian Earth Sci.* 39, 645e657. <http://dx.doi.org/10.1016/j.jseaes.2010.04.029>.
- Mukul M, Srivastava V, Mukul M (2017) Out-of-sequence reactivation of the Munsiri thrust in the Relli River basin, Darjiling Himalaya, India: Insights from Shuttle Radar Topography Mission digital elevation model-based geomorphic indices. *Geomorphology*, 284, 229–237. <http://dx.doi.org/10.1016/j.geomorph.2016.10.029>.
- Muller JE (1968) An introduction to the hydraulic and topographic sinuosity indexes. *Ann. Assoc. Am. Geogr.*, v. 58, pp. 371–38.
- Nag S K, Chakraborty S (2003) Influence of rock types and structures in the development of drainage network in hard rock area. *Jour. Indian Society of Remote Sensing*, v. 31, pp. 25–35.
- Naiman RJ, Decamps H, Pollock M (1993) The role of riparian corridors in maintaining regional Biodiversity. *Ecological Applications*, 3(2), pp. 209-212.
- Nakata T (1972) Geomorphic history and crustal movements of the Foot-hills of the Himalayas', *The Science Reports of the Tohoku University*, VII series, *Geography*, 22 (1), 39-177.

- Nakata T (1989) Active faults of the Himalaya of India and Nepal, Geological Society of America, Special Paper, 232, p. 243–264.
- Nicoll TJ, Hickin EJ (2010) Planform geometry and channel migration of confined meandering rivers on the Canadian prairies. *Geomorphology*, v. 116, 37–47.
- Obi Reddy GE, Maji AK, Gajbhiye KS (2002) GIS for morphometric analysis of drainage basins. *GIS India*, v. 4(11), pp. 9–14.
- Oguchi T (1997) Drainage density and relative relief in humid steep mountains with frequent slope failure. *Earth Surf. Processes*, v. 22, pp. 107–120.
- Olivera F, Valenzuela M, Srinivasan R, Choi H, Koka K, Agrawal A (2006) ArcGIS-SWAT: A geodata model and GIS interface for SWAT. *Journal of the American water resources association*, 42(2), pp. 295-309.
- Ollero A (2010) Channel changes and floodplain management in the meandering middle Ebro River, Spain. *Geomorphology* 117:247–260.
- Özkaymak C, Sözbilir H (2012). Tectonic Geomorphology of the Spildağı High Ranges, Western Anatolia. *Geomorphology*, 173–174: 128–140.
- Pareta K, Pareta U (2012) Quantitative geomorphological analysis of a watershed of Ravi River Basin, H.P. India. *International Journal of Remote Sensing and GIS*, v. 1, pp. 41–56.
- Pareta K and Goswami D (2021). Prediction of Short-Term Morphological Change in Rapti River System Using ARIMA Model and Multi-Temporal Landsat Satellite Imageries. *American Journal of Geophysics, Geochemistry and Geosystems* Vol. 7, No. 1, 2021, pp. 1-21.
- Parker G (1978) Self-formed straight rivers with equilibrium banks and mobile bed. Part 1: The sand-silt river. *J. Fluid Mech.*, 89(1), 109-125pp.
- Patton PC, Baker VR (1976) Morphometry and floods in small drainage basins subject to diverse hydrogeomorphic controls. *Water Resources Research*, v. 12, pp. 941–952.

- Perez- Arlucea M, Smith ND (1999) Depositional patterns following the 1870s avulsion of the Saskatchewan River (Cumberland Marshes, Saskatchewan, Canada). *Journal of Sedimentary Research*, 69(1): 62–73. <https://doi.org/10.2110/jsr.69.62>.
- Petts GE, Amoros C (1996) *Fluvial hydrosystems*. London: Chapman & Hall. Rinaldi, M., 2003. Recent channel adjustments in alluvial rivers of Tuscany, Central Italy. *Earth Surface Processes and Landforms*, 28 (6), 587–608.
- Petts GE, Gurnell AM (2005) Dams and geomorphology: Research progress and future directions. *Geomorphology*, v. 71, pp. 27-47.
- Pike RJ, Wilson SE (1971) Elevation-Relief Ratio, Hypsometric Integral and Geomorphic Area-Altitude Analysis. *Geological Society of America Bulletin*, 82: 1079-1084. [http://dx.doi.org/10.1130/00167606\(1971\)82\[1079:ERHIAG\]2.0.CO;2](http://dx.doi.org/10.1130/00167606(1971)82[1079:ERHIAG]2.0.CO;2).
- Prokop, P, Sarkar, S (2012) Natural and human impact on land use change of the Sikkimese-Bhutanese Himalayan piedmont, India. *Quaestiones Geogr* 31(3):63–75
- Rai PK, Mohan K, Mishra S, Ahmad A, Mishra V (2014) A GIS-Based Approach in Drainage Morphometric Analysis of Kanhar River Basin, India. *Applied Water Science*. v. 7, pp 217–232. <http://dx.doi.org/10.1007/s13201-014-0238-y>.
- Ramirez- Herrera MT (1998) Geomorphic Assessment of Active Tectonics in the Acambay Graben, Mexican Volcanic Belt. *Earth Surface Processes and Landforms*, Vol.23,317-332.
- Rana N, Singh S, Sundriyal YP, Rawat GS, Juyal N (2016) Interpreting the geomorphometric indices for neotectonic implications: An example of Alaknanda Valley, Garhwal Himalaya, India. *Journal of Earth system science*. doi:10.1007/s12040- 016-0696-8.
- Rao NK, Swarna LP, Kumar AP, Krishna HM (2010) Morphometric analysis of Gostani River Basin in Andhra Pradesh State, India using spatial information technology. *Int. J. Geomat. Geosci.*, v. 1(2), pp. 179–187.
- Rawee J (2020) Automated detection of river morphodynamics for large multithreaded rivers with satellite imagery- A case study on the Ayeyarwady river. (MTech. thesis) University of Twente.

- Ray PC (1932) Life and Experience of a Bengali Chemist, II. pp 159–160, Reprinted by Asiatic Society(1996), Kolkata.
- Ray, S (2002) Transformations on the Bengal Frontier: Jalpaiguri, 1765-1948. Routledge Curzon, London.
- Reddy OGP, Maji AK, Gajbhiye SK (2004) Drainage morphometry and its influence on landform characteristics in a basaltic terrain, Central India—a remote sensing and GIS approach. *Int. J. Appl. Earth Obs. Geoinformatics*, v. 6, pp. 1–16.
- Rennell J (1780) A Bengal Atlas (edited by Kalyan Rudra (2016) and published by Sahitya Samsad, Kolkata). London.
- Richards K, Chandra S, Friend P (1993) Avulsive channel systems: characteristics and examples. In: Best, J.L., Bristow, C.S. (Eds.), “Braided Rivers”. Geological Society Special Publication, vol. 75, pp. 195–203.
- Richards KS (1973) Hydraulic geometry and channel roughness – a non- linear system. *American Journal of Science*, 273, 877-96pp.
- Richard G, Julien PY, Baird DC (2005) Statistical analysis of lateral migration of the Rio Grande, New Mexico. *Geomorphology* 71:139–155
- Rinaldi M (2003) Recent channel adjustments in alluvial rivers of Tuscany, Central Italy. *Earth Surface Processes and Landforms*, 28 (6), 587–608.
- Rinaldi M, Wyzga B, Surian N (2005) Sediment mining in alluvial channels: physical effects and management perspectives. *River Research and Applications*, 21, 805–828.
- Ritter DF, Kochel RC, Miller IR (2002) Process geomorphology. McGraw Hill, Boston, 652p.
- Rockwell TK, Keller EA, Johnson DL(1985) Tectonic geomorphology of alluvial fans and mountain fronts near Ventura, California. In: Morisawa, M. (ed.). *Tectonic Geomorphology. Proceedings of the 15th Annual Geomorphology Symposium*. Allen and Unwin Publishers, Boston, MA, pp. 183–207.
- Rosenfeld JS, Campbell K, Leung ES, Bernhardt J, Post J (2011) Habitat effects on depth and velocity frequency distributions: Implications for modeling hydraulic

- variation and fish habitat suitability in streams. *Geomorphology.*, 130(3-4), 127-135pp.
- Roy N, Sinha R (2005) Alluvial geomorphology and confluences dynamics in the Gangetic plains, Farrukhabad–Kannauj area, Uttar Pradesh, India. *Current Science* 88 (12), 2000–2006.
- Roy N, Sinha R (2007) Understanding confluence dynamics in the alluvial Ganga–Ramganga valley, India: An integrated approach using geomorphology and hydrology. *Geomorphology* 92, 182–197 pp.
- Rozo MG, Nogueira ACR, Castro CS (2014) Remote sensing-based analysis of the planform changes in the upper Amazon River over the period 1986–2006. *J. S. Am. Earth.* DOI. [10.1016/j.jsames.2013.12.004](https://doi.org/10.1016/j.jsames.2013.12.004)
- Rudra K (2018) Rivers of the Ganga-Brahmaputra-Meghna Delta. A Fluvial Account of Bengal. *Geography of the Physical Environment Series.* Springer. <https://doi.org/10.1007/978-3-319-76544-0>.
- Rudraiah M, Govindaiah S, Vittala SS (2008) Morphometry using remote sensing and GIS techniques in the sub-basins of Kagna river basin, Gulbarga district, Karnataka, India. *Jour. Indian Society of Remote Sensing*, v. 36, pp. 351–360.
- Saha MN (1933) ‘Need for a Hydraulic Research Laboratory’, Reprinted (1987) in *Collected Works of Meghnad Saha.* Orient Longman, Calcutta.
- Saha UD, Bhattacharya S (2019) Reconstructing the channel shifting pattern of the Torsa River on the Himalayan Foreland Basin over the last 250 years. *Bulletin of Geography. Physical Geography Series*, No. 16 (2019): 99–114. <http://dx.doi.org/10.2478/bgeo-2019-0007>.
- Sarangi A, Bhattacharya AK, Singh A, Singh AK (2001) Use of Geographic Information System (GIS) in assessing the erosion status of watersheds. *Indian J. Soil Cons.*, v. 29, pp. 190-195.
- Sarkar A, Patel PP (2011) Topographic Analysis of Dulung River Basin. *The Indian Journal of Spatial Science*, v. 2, pp. 2–19.

- Sarkar S (2004) Effects of the 1993 Extreme Flood on the Channel Morphology of Jainti River, India, Bandopadhyay (Ed.), Landform Processes and Environment Management, Acb Publication, Kolkata, India.
- Sarkar S (2008) Flood Hazard in the Sub-Himalayan North Bengal, India, (In :) Singh S, Starkel L Syiemlieh HJ (Eds.), Environmental Changes and Geomorphic Hazard 247–262, Bookwell, New Delhi, Shillong.
- Scheidegger AE (1965) The Algebra of stream order number. U.S. Geological Survey Professional Paper, 525B, B1, pp. 87-89.
- Schumm SA (1956) Evolution of drainage systems and slopes in badlands at Perth Amboy, New Jersey. Geological Society of America Bulletin, 1956;67, no. 5;597-646. doi: 10.1130/0016-7606(1956)67[597: EODSAS]2.0.CO;2
- Schumm SA (1960) The shape of alluvial channels in relation to sediment type, US Geol. Survey Prof. Paper, 352-D.
- Schumm SA (1963) A tentative classification of alluvial river channels, US Geol. Survey Circular, 477pp.
- Schumm SA (1974) Geomorphic thresholds and complex response of drainage systems, Geomorphology, Morisawa, M.E. (ed.) Geomorphology, SUNY. Binghamton, 299-310pp.
- Schumm, S. (1985). Patterns of alluvial rivers. Annual Review of Earth and Planetary Sciences, 13, 5-27.
- Sethupathi AS, Lakshmi Narasimhan C, Vasanthamohan V, Mohan SP (2011) Prioritization of mini-watersheds based on morphometric analysis using remote sensing and GIS in a drought prone Bargur Mathur sub-watersheds, Ponnaiyar river basin, India. Int. J. Geomat. Geosci., v. 2(2), pp. 403–414.
- Shreve RW (1969) Stream lengths and basin areas in topologically random channel networks. J. Geol., v. 77, pp. 97–114.
- Silva PG, Goy JL, Zazo C, Bardajm T (2003) Fault generated mountain fronts in Southeast Spain: geomorphologic assessment of tectonic and earthquake activity. Geomorphology, 250, 203–226.

- Singh IB (1987) Sedimentological history of Quaternary deposits in Gangetic Plain. *Indian Journal of Earth Sciences* 14 (3–4), 272–282.
- Singh O, Sarangi A, Sharma MC (2008) Hypsometric integral estimation methods and its relevance on erosion status of northwestern Lesser Himalayan Watersheds. *Water Res. Mgt.*, v. 22, pp. 1545-1560.
- Singh P, Thakur JK, Singh UC (2012) Morphometric analysis of Morar River Basin, Madhya Pradesh, India, using remote sensing and GIS techniques. *Environmental Earth Science*, v. 68, pp. 1967–1977.
- Sinha R (1996) Channel avulsion and floodplain structure in the Gandak-Kosi interfan, north Bihar plains, India. *Zeitschrift für Geomorphologie, Supplementbände*, 103: 249–268.
- Sinha R, Ghosh S (2012) Understanding dynamics of large rivers aided by satellite remote sensing: a case study from Lower Ganga plains, India, *Geocarto International*, 27:3, 207-219.
- Sinha R, Jain V, Prasad Babu G, Ghosh S (2005) Geomorphic characterisation and diversity of the fluvial systems of the Gangetic plains. *Geomorphology* 70, 207–225.
- Sinha R, Sripriyanka K, Jain V, Mukul M (2014) Geomorphology Avulsion threshold and planform dynamics of the Kosi River in north Bihar (India) and Nepal : A GIS framework. *Geomorphology*, 216: 157–170. <https://doi.org/10.1016/j.geomorph.2014.03.035>.
- Smith KG (1950) Standards for grading texture of erosional topography. *Am. J. Sci.*, v. 248, pp. 655–668.
- Soja R, Starkel L (2007) Extreme Rainfalls in Eastern Himalaya and Southern Slope of Meghalaya Plateau and their Geomorphological Impacts. *Geomorphology* 84:170–180.
- Sreedevi PD, Subrahmanyam K, Ahmed S (2005) The significance of morphometric analysis for obtaining groundwater potential zones in a structurally controlled terrain. *Environmental Geology*, v. 47, pp. 412–420.

- Sreenu MTL, Teja T (2015) Control of brushless DC motor with direct torque and indirect flux using SVPWM technique. *Indian J Sci Technol* 8(November):507–515
- Srivastava V, Mukul M, Mukul M (2017) Quaternary deformation in the Gorubathan recess: Insights on the structural and landscape evolution in the frontal Darjiling Himalaya, *Quaternary International*.
- Starkel L (1972) The role of catastrophic rainfall in the shaping of the relief of the lower Himalaya (Darjeeling Hills). *Geogr Pol* 21:103–147
- Starkel L (2004) Temporal Clustering of Extreme Rainfall Events in Relief Transformation *Journal Geological Society of India* 64:517–523.
- Starkel, L, Basu, S (2000) Rains, Landslides and Floods in the Darjeeling Himalaya. INSA, New Delhi
- Starkel L, Sarkar S (2002) Different frequency of threshold rainfalls transforming the margin of Sikkimese and Bhutanese Himalaya, *Studia Geomorphologica Carpatho-Balcanica*, 36, p. 51–67.
- Starkel L, Sarkar S, Soja R, Prokop P (2008) Present-Day Evolution of the Sikkimese-Bhutanese Himalayan Piedmont, *Polska Akademia Nauk, Instytut Geografii I Przestrzennego Zagospodarowania, Warszawa*.
- Štěpančíková P, Stemberk J, Vilímek V, Košťák B.(2008) Neotectonic development of drainage networks in the East Sudeten Mountains and monitoring of recent fault displacements (Czech Republic). *Geomorphology* 102 (2008) 68–8. doi:10.1016/j.geomorph.2007.06.016
- Stevaux JC, Franco AA, Etchebehere de Carlos ML and Fujita RH (2009). Flow structure and dynamics in large tropical river confluence: example of Ivai and Parana Rivers, Southern Brazil, São Paulo, UNESP, *Geociências*, v. 28, n. 1, p. 5-13.
- Stevens, M. A., Simons, D. B., and Richardson, E. V. (1975) Nonequilibrium river form. *Journal of the Hydraulics Division, Proceedings of the American Society of Civil Engineers*, Vol. 101 (HY5), 557-566.

- Słowik, M. (2018). The formation of an anabranching planform in a sandy floodplain by increased flows and sediment load. *Earth Surface Processes and Landforms*, 43, 623-638.
- Strahler A N (1964) Quantitative geomorphology of drainage and channel networks. *Handbook of Applied Hydrology*. (Ed. By Ven Te Chow) Me Graw Hill Book Company. New York. pp 4–39-4-76.Strahler,1964.
- Strahler AN (1952) Hypsometric analysis of erosional topography. *Geological Society of America Bulletin*, v. 63, 1117–1142.
- Strahler AN (1957) Quantitative analysis of watershed geomorphology. *Transactions of American Geophysics Union*, v. 38, 913–920.
- Strahler AN (1964) Quantitative geomorphology of drainage basin and channel networks. *In: V. T. Chow (ed.) Handbook of applied hydrology*, McGrawHill, NewYork, NY, USA, pp. 439-476.
- Surian N (1999) Channel changes due to river regulation: the case of the Piave River, Italy. *Earth Surface Processes and Landforms*, v. 24, pp. 1135–1151.
- Surian N, Rinaldi M (2003) Morphological response to river engineering a management in alluvial channels in Italy. *Geomorphology*. v. 50, pp. 307–326.
- Suwendu R (2013) The effect of road crossing on river morphology and riverine aquatic life: a case study in Kunur River basin, West Bengal. *Ethiop J Environ Stud Manag* 6:835–845.
- Tangri AK (1986) Understanding the dynamics of Ghaghra river system in Uttar Pradesh, India, using satellite remote sensing. *Proceedings of the Seventh Asian Conference on Remote Sensing*. Korean Society of Remote Sensing. Asian Association on Remote Sensing, Seoul, Korea, pp. 1–6.
- Thomas J, Joseph S, Thrivikramji KP, Abe G (2011) Morphometric analysis of the drainage system and its hydrological implications in the rain shadow regions, Kerala, India. *Jour. Geographical Sciences*, v. 21, pp. 1077–1088.
- Thomas W Jr (1956) *Man's role in changing the face of the earth*. University of Chicago Press, Chicago.

- Tiegs SD, Pohl M (2005) Planform channel dynamics of the lower Colorado River: 1976–2000. *Geomorphology*, v. 69, pp. 14– 27.
- Tiwari, PC (2000) Land-use changes in Himalaya and their impact on the plains ecosystem: need for sustainable land use. *Land Use Policy* 17:101-111
- Toudeshki VH ,Arian M (2011) Morphotectonic Analysis in the Ghezel Ozan River Basin, NW Iran. *Journal of Geography and Geology*. 31: 258–265.
- Troiani F, Della Seta M (2008) The use of the stream length-gradient index in morphotectonic analysis of small catchments: a case study from central Italy. *Geomorphology*, 102, 159–168.
- Van den Berg, J. (1995). Prediction of alluvial channel pattern of perennial rivers. *Geomorphology*,12,279.
- Vanacker V, Molina A , Govers G, Poesen J, Dercon G, Deckers S (2005) River channel response to short-term human-induced change in landscape connectivity in Andean ecosystems. *Geomorphology*, v. 72, pp. 340–353.
- Verstappen H (1983) The applied geomorphology. In: International Institute for Aerial Survey and Earth Science (ITC) Enschede.
- Vijith H, Prasannakumar V, Ninu Krishnan MV, Pratheesh P (2015) Morphotectonics of a small river basin in the South Indian granulite terrain: An assessment through spatially derived geomorphic indices, *Georisk: Assessment and Management of Risk for Engineered Systems and Geohazards*. DOI:10.1080/17499518.2015.1074251.
- Vijith H, Sateesh R (2006) GIS based morphometric analysis of two major upland sub-watersheds of Meenachil river in Kerala. *Jour. Indian Society of Remote Sensing*, v. 34, pp. 181–185.
- Vittala SS, Govindaih S, Gowda HH (2004) Morphometric analysis of sub-watershed in the Pavada area of Tumkur district, South India, using remote sensing and GIS techniques. *Jour. Indian Society of Remote Sensing*, v. 32, pp. 351–362.
- Wakode H B, Dutta D, Desai VR, Baier K, Azzam R (2011) Morphometric analysis of the upper catchment of Kosi River using GIS techniques. *Arabian Journal of Geosciences*, v. 6, pp. 395–408.

- Wallace, R. E. (ed.), *Active Tectonics, Studies in Geophysics*, National Academy Press, Washington, DC, 136–147.
- Ward, J.O. (1994). The Niger River: geomorphic considerations for future development. In S.A. Schumm, & B.R. Winkley, *The variability of large alluvial rivers* (pp. 423-439). New York: ASCE Press.
- Ward JV, Tockner K, Schiemer F (1999) Biodiversity of floodplain river ecosystems: ecotones and connectivity. *Regul. Rivers: Res. Mgmt.*, v. 15, pp. 125–139.
- Wiejaczka Ł (2016) Riverbeds Level Changes in the Margin and Foreland of the Darjeeling Himalaya During the Years with a Normal Monsoon Rainfall. R.B. Singh, P. Prokop (eds.), *Environmental Geography of South Asia, Advances in Geographical and Environmental Sciences*, DOI 10.1007/978-4-431-55741-8_5.
- Wellmeyer JL, Slattery MC, Phillips JD (2005) Quantifying downstream impacts of impoundment on flow regime and channel planform, lower Trinity River, Texas. *Geomorphology*, v. 69, pp. 1–13.
- Wells SG, Bullard TF, Menges TM, Ritter JB, Wesling JR (1988). Regional variations in tectonic geomorphology along segmented convergent plate boundary, Pacific coast of Costa Rica. *Geomorphology* 1, 239–265.
- Williams MAJ, Clarke MF (1984) Late Quaternary environments in north-central India. *Nature* 308, 633–635.
- Williams MAJ, Clarke MF (1995) Quaternary geology and prehistoric environments in the Son and Belan valleys, north central India. *Memoir Geological Society of India* 32, 282–307.
- Williams PW (1972) Morphometric analysis of polygonal karst in New Guinea. *Geological Society of America Bulletin*, v. 83, pp. 761–796.
- Williams, G.P. (1986). River meanders and channel size. *Journal of Hydrology*, 88, 147-64pp.
- Winterbottom SJ (2000) Medium and short-term channel planform changes on the Rivers Tay and Tummel, Scotland. *Geomorphology*, v. 34, pp.195-208.

- Winterbottom SJ, Gilvear DJ (2000) A GIS-based approach to mapping probabilities of river bank erosion: Regulated River Tummel, Scotland. *Regul Rivers Res Manag* 16:127–140
- Wolman MG, Gerson R (1978). Relative scales of time and effectiveness of climate in watershed geomorphology. *Earth Surface Processes and Landforms* 3, 189–208pp.
- Yang X, Damen MCJ, Zuidam RAV (1999) Satellite remote sensing and GIS for the analysis of channel migration changes in the active Yellow River Delta, China. *International Journal of Applied Earth Observation and Geoinformation*, v.1(2), pp. 146–157.
- Yao Z, Ta W, Jia X, Xiao J (2011) Bank erosion and accretion along the Ningxia–Inner Mongolia reaches of the Yellow River from 1958 to 2008. *Geomorphology*, v. 127, pp. 99–106.
- Zhang G. P.,2003. Time series forecasting using a hybrid ARIMA and neural network model, *Neurocomputing* 50 (2003) 159 – 175.
- Zovoili E, Konstantinidi E, Koukouvelas IK (2004) Tectonic geomorphology of escarpments: the cases of Kompotades and Nea Anchialos faults. *Bull. Geol. Soc. Greece*. 36, 1716–1725. <http://dx.doi.org/10.12681/bgsg.16579>.