

1. Record Nr.	UNINA9911019794403321
Titolo	Geomorphic analysis of river systems : an approach to reading the landscape / / Kirstie A. Fryirs, Gary J. Brierley
Pubbl/distr/stampa	Chichester, West Sussex, UK ; ; Hoboken, NJ, : Wiley, 2012
ISBN	9781118305454 1283644436 1118305450 1118305426
Descrizione fisica	1 online resource (345 pages) : illustrations (black and white)
Classificazione	454.54 551.48/3011
Altri autori (Persone)	BrierleyGary J
Disciplina	551.48/3011
Soggetti	Watersheds Fluvial geomorphology Conques hidrogràfiques Geomorfologia fluvial Llibres electrònics
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Title page; Copyright page; Contents; Preface; Acknowledgements; CHAPTER ONE: Geomorphic analysis of river systems: an approach to reading the landscape; Introduction; How is geomorphology useful?; Geomorphic analysis of river systems: our approach to reading the landscape; Key messages from this chapter; CHAPTER TWO: Key concepts in river geomorphology; Introduction; Spatial considerations in reading the landscape; Catchments as nested hierarchies: the spatial configuration of landscapes; Imposed and flux boundary conditions; Heterogeneity and homogeneity of landscapes Catchment linkages and (dis)connectivityConceptualisation of time; Timeframes of river analysis; Davisian cycle of landscape erosion; Equilibrium notions in river systems; Differentiating behaviour from change; Disturbance events; Magnitude-frequency relationships in river systems; River sensitivity and resilience; Catchment-specific analysis of river systems: combining spatial and temporal concepts; Conclusion;

Key messages from this chapter; CHAPTER THREE: Catchment-scale controls on river geomorphology; Introduction: what is a catchment? Process zones in catchments: sediment source, transfer and accumulation zones; Longitudinal profiles of rivers; Geomorphic transitions along river longitudinal profiles; Catchment morphometrics as controls on river character and behaviour; Catchment shape; Catchment relief; Drainage density and network extension; Drainage pattern; Geologic controls on drainage network form, and river character and behaviour; Lithologic controls upon sediment calibre and volume; Tributary-trunk stream relationships; Stream order; The influence of catchment configuration upon flow and sediment flux; Conclusion

Key messages from this chapter; CHAPTER FOUR: Catchment hydrology; Introduction: what is hydrology?; The hydrological cycle; Operation of the hydrological cycle; Runoff generation; Groundwater flows; Catchment-scale runoff and discharge generation models; Channel initiation; Gully and channel formation; Flow regimes of perennial, intermittent and ephemeral rivers; Discharge and the magnitude/frequency of flow in river systems; Flood stages and hydrographs; Analysis of hydrograph shape; Discharge measurement; Direct measurements in the field; Slope-area method; Stage-discharge relationships

Catchment area-discharge relationships; Retrospective analysis of high flow stage; Flow frequency; Flow variability; Conclusion; Key messages from this chapter; CHAPTER FIVE: Impelling and resisting forces in river systems; Introduction; Impelling and resisting forces and Lane's balance of erosion and deposition in channels; Mechanics of fluid flow; Impelling forces in river channels; Total, specific and critical stream power; Mean boundary shear stress; Resisting forces in channels; Valley-scale resistance; Channel-scale resistance; Boundary resistance; Fluid resistance (Reynolds and Froude numbers)

Sommario/riassunto

Filling a niche in the geomorphology teaching market, this introductory book is built around a 12 week course in fluvial geomorphology. 'Reading the landscape' entails making sense of what a riverscape looks like, how it works, how it has evolved over time, and how alterations to one part of a catchment may have secondary consequences elsewhere, over different timeframes. These place-based field analyses are framed within their topographic, climatic and environmental context. Issues and principles presented in the first part of this book provide foundational understandings tha
