

1. Record Nr.	UNINA9911049103903321
Autore	Rolim da Paz Adriano
Titolo	Digital Elevation Models for Environmental Studies / / by Adriano Rolim da Paz
Pubbl/distr/stampa	Cham : , : Springer Nature Switzerland : , : Imprint : Springer, , 2025
ISBN	3-032-04523-1
Edizione	[1st ed. 2025.]
Descrizione fisica	1 online resource (XX, 386 p. 249 illus., 244 illus. in color.)
Disciplina	628
Soggetti	Environmental engineering Civil engineering Chemical engineering Environmental Civil Engineering Environmental Process Engineering
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Introduction -- Geographic data -- Basic operations with rasters -- DEM: concepts, data sources and preparation -- Basic characterisation of the relief -- Flow directions -- Drainage network -- Watershed -- Lake formed by constructing a reservoir -- Quality, uncertainties and errors associated with DEM processing.
Sommario/riassunto	This book offers a comprehensive examination of Digital Elevation Models (DEMs) and their applications in environmental analysis, combining foundational concepts with practical methodologies. It introduces key principles of geoprocessing and GIS, provides an in-depth overview of global DEMs and their limitations, and systematically explores techniques for terrain characterization, flow direction and drainage network extraction, basin delineation, flow path analysis, and inundation mapping for applications such as reservoir planning. Three dedicated chapters on topographic indices bridge theory and practice in hydrology, ecology, and wind exposure studies. The final chapter addresses the critical role of error and uncertainty in DEM processing, emphasizing quality assessment in hydrological modeling. Richly illustrated and grounded in current research, this resource equips students and professionals to effectively integrate DEMs into

environmental studies.

---