

## GEOVISUALIZATION

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### ABSTRACT

Geovisualization, the depiction of, and visual interaction with, geospatial data, is key to facilitating the generation of observational datasets through which Earth surface and solid-Earth processes may be understood. This article focuses upon the visualization of terrain morphology using satellite imagery and digital elevation models (DEMs), where manual interpretation remains prevalent in the study of geomorphological processes. Techniques to enhance satellite images and DEMs are covered in order to improve landform identification, as part of the manual mapping process, are presented. Visual interaction with geospatial data is also an important part of exploring and understanding landforms and geomorphological systems, and a variety of methods ranging from simple overlay, panning and zooming are discussed, along with 2.5D, 3D and temporal analyses. Visualization output products are outlined in the final section, which focuses on static and interactive methods of dissemination. Geomorphological mapping legends and the cartographic principles for map design are then introduced, followed by details of dynamic web-map systems that allow a greater immersive use by end users, as well as the dissemination of data and information.

**Keywords:** Augmented reality; Cartography; DEM; Filter; Globe; HCI; Interactivity; Kernel; Legend; Map; Symbol; Terrain; Virtual reality; Visualization