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The critical zone and remote sensing applications to soil degradation and land use

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Critical pedological, lithological and topographical surfaces exist within the landscape where certain episodic processes could be triggered within a spatial-temporal framework. Severe soil erosion forms, shallow and deep landslides, surface wetness conditions and other land surface hazards do have preferential zones where they occur within the landscape. Spatially explicit topographically driven models have been developed to identify such critical zones using remote sensing techniques and Digital Elevation Models (DEMs). According to Pelletier (2008), DEMs should be a part of every geoscientist's toolkit! They provide baseline data for quantifying landscape morphology and enable modelling pathways of mass and energy transport through the landscape. This short course serves as an introduction to the TOPMODEL from which indices to a range of critical zones are developed.

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