



A statistical technique for identifying channels of different steepness in transient landscapes

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In eroding landscapes, channel steepness, normalized for drainage area, has been frequently used to estimate erosion rates and infer spatially variable uplift rates. Here we present a statistical method for identifying channels with different steepness that uses the integral approach to channel profile analysis. The integral approach suffers less from topographic noise than more traditional slope-area methods, and our technique also quantifies the uncertainty in channel steepness and the location of distinct channel segments. We demonstrate the technique in a series of field sites spanning the North America, Europe and the Himalayas.