3-D Landscape Visualization and Mapping for Soil Inventory. (S05-burt105038-Oral)

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Abstract:
Traditional soil mapping involves delineation of polygons on stereo aerial photography, followed by transfer of linework to map sheets for scanning and digital compilation. The process has a number of disadvantages that adversely affect map accuracy and cost, most of which revolve around the use of stereo photography as the starting point. This paper demonstrates a software alternative that provides on-screen visualization and mapping using a perspective 3-d view of the landscape. The PC program, available at http://solim.geography.wisc.edu, allows arbitrary view positions with overlay of multiple raster, line and point coverages. Landscape metrics (e.g., slope, aspect, curvature) are computed on the fly and displayed as desired. Extensive digitizing/editing capabilities are present, all in the 3-d view. Standard file formats are supported, with output saved in digital form easily read by other GIS/mapping programs. As a mapping tool, the program has many advantages over the traditional approach: it is much faster, it displays all environmental data on a common base (users can quickly cross-check interpretations made from different layers), it is highly interactive, and there is no need for post-map compilation.

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