

# Digital Soil Mapping Without Traditional Imagery

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## Abstract:

One of the objectives of the National Cooperative Soil Survey program is to determine natural soil boundaries on the landscape. Mapping of natural boundaries related to geomorphic processes and landforms can become difficult under the influence of urbanization and surface modification. Natural soil boundaries, especially surface texture phases within these landform units are influenced by local features such as slope, vegetation, aspect, geology and hydrology. Upon examination of imagery media, digital or analog, apparent soil boundaries usually be drawn, especially under natural conditions.

However, as more of the natural landscapes are modified in urban areas, these natural distinctions become less obvious and difficult to identify using current surface imagery. The use of geographic data and information other than traditional aerial imagery is required more and more.

Aerial photography and paper topographic quads have been historically used to produce soil surveys. Recently, digital satellite imagery and digital elevation models have become the standard tools used in soil survey. Much like past reliance on the stereoscope and topographic maps, soil survey must rely on distinguishable elevation boundaries and physical resources to outline soil types and landscapes. These resources can include obvious differences in surface features but also include historical surveys, geology maps, irrigation maps, assessor maps, engineering plan maps and historical photographs. They also include alternative digital elevation models and aerial imagery that has or has not been re-sampled to accentuate natural surface features.

Keywords: Digital Soil Mapping, Aerial Photography, Disturbed Surfaces

Topic: A. Methodology for urban and disturbed soils

Sub-topic: A5. Soil survey and mapping

Presentation type: Poster

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