

# GIS Assessment and Modeling to Support Soil Landscape Correlation

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## ABSTRACT

A review of GIS methods for modeling and performing MLRA-wide landscape assessments that support soil landscape correlation decision making is presented. These methods include use of the USDA-NRCS Soil Survey Program Core Data Layers in ArcGIS File Geodatabase format to conduct various spatial and attribute queries. Examples of spatial queries include the intersection of MLRA / MLRA Soil Survey Area perimeters with Soil Survey Geographic Database (SSURGO) polygons to create selected sets for the purpose of interrogating the published Soil Data Mart (SSURGO) attributes. Examples of attribute queries include dominant component queries for specific soil series within the US General Soil Map (GSM) map and the SSURGO map layers. In addition, summed component percentage queries for a given soil series plus selected soil taxonomic queries are demonstrated. Emphasis is given to recognizing soil landscape scaling relationships when viewing SSURGO queries at various map extents in the context of General Soil Map Unit polygons and MLRA Region polygons.

An example of Digital Soil Mapping (DSM) modeling called soil map unit disaggregation is examined for Alaska landscapes. Gridded landform metrics are modeled to predict the "un-mappable" SSURGO vector map unit components. The result is the mapping of the "un-mappable" SSURGO vector map unit polygon components in a raster map layer. Revised polygon level SSURGO vector map unit components are summarized to enhance overall map unit composition for the study area.

The described GIS methods are recommended for use during evaluation of the existing published digital soil survey or historic record to assist in soil landscape correlation decision making during MLRA Update soil survey project. This process is outlined in the newly developed Management of Soil Survey by MLRA course.

## REFERENCES

National Cooperative Soil Survey Training web site  
<http://www.soils.usda.gov/education/training/>

NGDC ArcGIS Tools and Data-Working with SSURGO Relationship Classes in File Geodatabases web site  
<http://www.ngdc.wvu.edu/software>

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