

Title: A discussion on soils datasets Rev. 2
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This document is presented as a brief addendum to the protocol for merging SSURGO and SCD data. The following is a brief discussion of potential benefits, problems, or alternatives to the method described in the aforementioned protocol.

The protocol for merging SSURGO and SCD data was written to reflect a method used to append NRCS Soil Survey Laboratory, Soil Characteristics Data (SCD) to an existing SSURGO database. The rationale for this method, as was discussed at some detail in the protocol, arose from a need to create a more concise soils dataset for use in regional ecosystem model. The SSURGO database did not contain all necessary soil properties, thus SCD was required to fill in the gaps. Despite issues with the SCD dataset, we felt this was the best approach in an attempt to construct a single, concise soils dataset.

The main issue with this method is that it is qualitative in nature. Unfortunately, due to the differences in horizon depths and names between the SSURGO and SCD datasets, this was the only real option for consolidating these two data sources. This qualitative aspect can introduce human error into the dataset, and results may vary between researchers. That said, it is likely that by using this method they will be at least representative of a particular soil type.

For the specific purposes of our modeling needs there are a few alternative methods that if possible, may help to increase “accuracy”. First, if the entirety of the SSURGO database could be loaded into the model, specific fields called, and all soil data for a series be considered, it may be a more accurate representation of the series as a

whole. Our approach required that the SSURGO database be skimmed down to its essentials. It also required that only one soil type from each series be considered, although there are often more than one soil type in a series, which may have impacts on physical or chemical traits. By using the “most representative” of the soil types in a series (based on the SSURGO component percent variable), we hope to minimize the issue of accuracy.

The issues of the SCD are largely due to its incompleteness, not just matching SSURGO. If one wanted, they could create a separate spatial dataset based on SSURGO and reflecting the primary soil type for each series. The SCD could then be joined to that database creating a stand alone spatial SCD dataset. This would be a good idea in theory, however if it were to be compared against SSURGO data at some point the main issue of horizon differences (depths and names) would still exist.

Given the alternatives, our approach is a reasonably easy method to implement given the constraints of the data. Although not perfect, our approach is a means for merging these two datasets to provide an adequate representation of combined soil attributes.