# National Cooperative Soil Survey Soil Characterization Data

## Links:

1. [New Lab Databases](https://new.cloudvault.usda.gov/index.php/s/eSoPYbWDBQNX2HP)
2. [Draft Documentation](https://new.cloudvault.usda.gov/index.php/s/eSoPYbWDBQNX2HP)

## Background:

Several years ago, NRCS decided to create a set of NCSS Soil Characterization Tables that are easier to use than the current Microsoft ACCESS data base.

## The concerns that the NRCS tried to address were:

1. Reduce the numbers of tables and joins users have to make to use the data.
2. Clear up any confusion between “measured data” and results of calculations that may use default values for bulk density 1/3 bar in the calculations.

## Additional objectives of the project are:

1. To make it easier to reconcile differences in rock fragment measurements and estimates recorded in the Laboratory Database and NASIS.
2. To make the tables available as a Web Feature Service as well as a Microsoft Access Database

## Future objectives may be:

1. Management of University Laboratory data in a way that allows for local owners of the data to correct any date entry mistakes that may have crept into the database.
2. More data tables to be added to NASIS to increase the ease of use of the data by NASIS users.

## Accomplishments:

The goal is to deliver the same data that is in the current Microsoft ACCESS database. The difference is that we wish to provide better metadata to the user to include:

1. Less cryptic column headers
2. Better attribute definitions
3. A clear indication as to which results of calculations are from measured values and which are from estimates or default
4. Automate and streamline the process
   1. making the original 6-8 queries much more efficient (1 week and crashing to a few minutes)
5. Refresh data more frequently
6. Provide users data in many different formats and services
   1. SQL Lite Database
   2. Soil Data Access Services
   3. Microsoft Access Database
      1. Morphological
      2. Characterization
   4. ArcGIS file geodatabase
   5. Open Source file geodatabase
   6. R web-service that is used by fetchKSSL()
   7. Interactive Web Base Map

## List of tables:

The Attachment includes the metadata for the new tables and the attributes included in the table.

1. lab\_analysis\_procedure
2. lab\_calculations\_including\_estimates\_and\_default\_values
3. lab\_chemical\_properties
4. lab\_major\_and\_trace\_elements\_and\_oxides
5. lab\_method\_code
6. lab\_mineralogy\_glass\_count
7. lab\_physical\_properties
8. lab\_webmap
9. lab\_xray\_and\_thermal
10. lab\_layer
11. lab\_pedon
12. lab\_preparation
13. lab\_rosetta\_Key
14. lab\_site
15. lab\_analyte
16. lab\_combine\_nasis\_ncss
17. lab\_area

## Additional Information:

1. Code, documentation, models, related to processing the KSSL DB snapshot <https://github.com/dylanbeaudette/process-kssl-snapshot>
2. Re-working the LIMS + NASIS data integration process for snapshot and future web-service based delivery. <https://github.com/ncss-tech/lab-data-delivery>
3. This repository contains ArcGIS Tools that query soil pedons from the National Soils Information System (NASIS) and compiles a spatial dataset from them. <https://github.com/ncss-tech/NASIS-Pedons>
4. Lab Data Mart Database Automation <https://github.com/jneme910/Lab_Data_Mart>
5. The New NRCS Characterization (Lab Data Map): Soil Data at Your Fingertips <https://www.nrcs.usda.gov/wps/portal/nrcs/detail/wi/newsroom/features/?cid=nrcseprd1495251>
6. Draft tutorial on downloading characterization data for a selection of points, using R and the soilDB package <https://ncss-tech.github.io/AQP/soilDB/NCSS-interactive-map.html>
7. Project Pieces
   1. <https://github.com/ncss-tech/lab-data-delivery>
   2. <https://github.com/ncss-tech/NASIS-Pedons>
8. QC <https://github.com/ncss-tech/lab-data-delivery/tree/master/code/snapshot-preparation/data-distributions>
9. <https://github.com/dylanbeaudette/process-kssl-snapshot/tree/master/QC>