The What's What – NRCS Raster Soil Data Products

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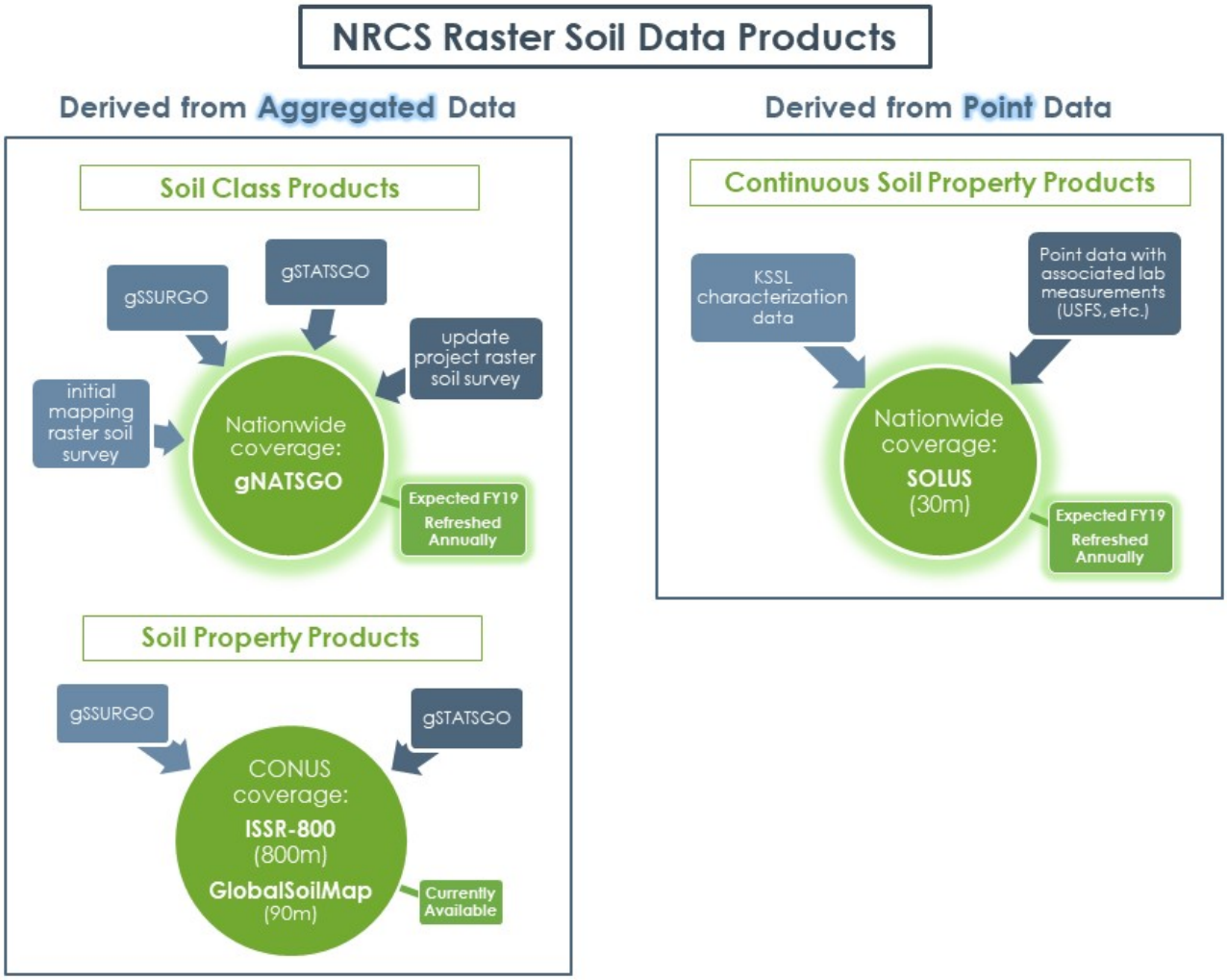
Raster products have been part of the suite of soil data products published by NRCS for several years now, and include gSSURGO and raster soil surveys for both update and initial mapping projects. Raster products are a priority for both the Database and Digital Soil Mapping Focus Teams, who are working together to expand the raster soil data products NRCS provides, effectively meeting a variety of user needs and achieve relevancy in the current environmental data atmosphere. Some of these raster products are new combinations of existing data and others are all-new-never-seen-here-before data products.

The diagram below illustrates which products are derived from aggregated data (SSURGO and STATSGO) versus from point data:



gNATSGO – Soil Class Data

This effort is being led by the Database Focus Team. The gNATSGO product will provide soils information for all areas of United States and Island Territories by filling in the not completed (NOTCOM) areas of SSURGO with STATSGO2, and incorporating new raster soil surveys. It will be delivered in the same format and on the same platform as gSSURGO. The gSSURGO tools developed by Steve Peaslee will work with gNATSGO, allowing users to generate on demand soil property and interpretation maps for any

areas on the United States. The first version of gNATSGO will be created sometime after the FY18 SSURGO refresh, with an expected delivery date of December 2018. This product will fulfill Tier 1 of Soils2026 and is intended to be refreshed annually as new SSURGO and raster soils surveys become available. The vision is that gNATSGO will be become the container for best available aggregated soils data, delivered in a gridded format. This product will also provide the base data for deriving soil property products such as the ISSR-800, until the SOLUS products are in full production.

ISSR-800 – Property and Interpretation Maps

These are a collection of raster maps for CONUS that provide selected soil properties at specified depths and interpretations at 800m pixel resolution using a blend of SSURGO and STATSGO (filled in for NOTCOM areas) as base data. These data were generated from SSURGO/STATSGO data using multiple aggregation methods depending on the specific property, depth interval used, and target interpretation. An Excel spreadsheet is available on this NCSS GitHub site or a Database Focus Team SharePoint page for examination of the different values and methods used. A separate raster layer is provided for each property and depth, and interpretation. This product is complete and awaiting approval to be delivered via the Geospatial Data Gateway. In the meantime, you can access the data in these ways:

- Review the maps online – this website will soon be pushed to the main SoilWeb Apps page: http://soilmap2-1.lawr.ucdavis.edu/soil-properties/
- Look at the maps in ArcMap - download the Geotiff files and associated raster attribute tables here: http://soilmap2-1.lawr.ucdavis.edu/dylan/grid/FY2018-800m-rasters.zip

GlobalSoilMap v05 – Property Maps

GSM v05 was also developed from SSURGO/STATSGO blend base data like the ISSR-800. This is the second iteration of the GSM products; the first being properties derived from STATSGO only. A selection of properties were predicted over specified depth intervals at 90m pixel resolution using map unit weighted averages for target properties from SSURGO and STATSGO. These initial versions (0.1 and 0.5) were developed to establish products that conform to the GSM data structure using the available polygon class maps for the US. Estimated soil properties from aggregated class maps was never meant to be the endpoint for the GSM project, but rather a step in the process to predicting truly continuous properties from point data with associated lab measurements for the target soil properties. Separate raster layers are currently available for each property as a web service:
https://nrcsgeoservices.sc.egov.usda.gov/arcgis/rest/services/GlobalSoilMap_v05

SOLUS – Soil Properties of the USA

The SOLUS products are currently in development and supported by the Soils2026 Property Maps initiative. This initiative is being led by the DSM Focus Team with the goal of predicting nationwide continuous soil properties from point data with associated lab measurements for target soil properties. These products will follow the new NCSS raster standards for continuous soil property products (NSSH Part 648), which closely mirror the GSM standards for key soil properties and depth intervals at a 30m pixel resolution rather than 90m. Product delivery will include interpretations for management and use along with the continuous property raster stack of key soil properties predicted at six depth intervals with associated uncertainty. The first iteration of these products is expected in FY19 and will fulfill Tier 3 for Soils2026. Delivery options are currently being explored. The vision is that SOLUS will be refreshed annually as point data quality and quantity, and modeling approaches continue to improve. The SOLUS products are intended to replace the ISSR-800 and earlier GSM products once available.