Water Resources NSDI Node

Area- and Depth-Weighted Averages of Selected SSURGO Variables for the Conterminous United States and District of Columbia

Metadata:

Water Ressource Maps and GIS Data
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Identification_Information:

Citation:

Citation_Information:

Originator: Michael E. Wieczorek, USGS-WRD MDWSC, Geographer
Publication_Date: 20140710
Title:
Area- and Depth-Weighted Averages of Selected SSURGO Variables for the Conterminous United States and District of Columbia
Geospatial_Data_Presentation_Form: tabular digital data
Series_Information:

Series_Name: U.S. Geological Survey Data Series
Issue_Identification: 866

Publication_Information:

Publication_Place: Reston, VA
Publisher: U.S. Geological Survey

Online_Linkage: https://water.usgs.gov/lookup/getspatial?ds866_ssurgo_variables

Description:

Abstract:

This digital data release consists of seven national data files of area- and depth-weighted averages of select soil attributes for every available county in the conterminous United States and the District of Columbia as of March 2014. The files are derived from Natural Resources Conservations Service's (NRCS) Soil Survey Geographic database (SSURGO). The data files can be linked to the raster datasets of soil mapping unit identifiers (MUKEY) available through the NRCS's Gridded Soil Survey Geographic (gSSURGO) database (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/survey/geo/?cid=nrcs142p2_053628).

The associated files, named DRAINAGECLASS, HYDRATING, HYDGRP, HYDRICCONDITION, LAYER, TEXT, and WTDEP are area- and depth-weighted average values for selected soil characteristics from the SSURGO database for the conterminous United States and the District of Columbia. The SSURGO tables were acquired from the NRCS on March 5, 2014. The soil characteristics in the DRAINAGE table are drainage class (DRNCLASS), which identifies the natural drainage conditions of the soil and refers to the frequency and duration of wet periods. The soil characteristics in the HYDRATING table are hydric rating (HYDRATE), a yes/no field that indicates whether or not a map unit component is classified as a "hydric soil". The soil characteristics in the HYDGRP table are the percentages for each hydrologic group per MUKEY. The soil characteristics in the HYDRICCONDITION table are hydric condition (HYDCON), which describes the natural condition of the soil component. The soil characteristics in the LAYER table are available water capacity (AVG_AWC), bulk density (AVG_BD), saturated hydraulic conductivity (AVG_KSAT), vertical saturated hydraulic conductivity (AVG_KV), soil erodibility factor (AVG_KFACT), porosity (AVG_POR), field capacity (AVG_FC), the soil fraction passing a number 4 sieve (AVG_NO4), the soil fraction passing a number 10 sieve (AVG_NO10), the soil fraction passing a number 200 sieve (AVG_NO200), and organic matter (AVG_OM). The soil characteristics in the TEXT table are percent sand, silt, and clay (AVG_SAND, AVG_SILT, and AVG_CLAY). The soil characteristics in the WTDEP table are the annual minimum water table depth (WTDEP_MIN), available water storage in the 0-25 cm soil horizon (AWS025), the minimum water table depth for the months April, May and June (WTDEPAMJ), the available water storage in the first 25 centimeters of the soil horizon (AWS25), the dominant drainage class (DRCLSD), the wettest drainage class (DRCLSWET), and the hydric classification (HYDCLASS), which is an indication of the proportion of the map unit, expressed as a class, that is "hydric", based on the hydric classification of a given MUKEY. (See Entity_Description for more detail).

The tables were created with a set of arc macro language (aml) and awk (awk was created at Bell Labsin the 1970s and its name is derived from the first letters of the last names of its authors – Alfred Aho, Peter Weinberger, and Brian Kernighan) scripts. Send an email to mewieczo@usgs.gov to obtain copies of the computer code (See Process_Description.)
The methods used are outlined in NRCS's "SSURGO Data Packaging and Use" (NRCS, 2011).

The tables can be related or joined to the gSSURGO rasters of MUKEYs by the item 'MUKEY.' Joining or relating the tables to a MUKEY grid allows the creation of grids of area- and depth-weighted soil characteristics. A 90-meter raster of MUKEYs is provided which can be used to produce rasters of soil attributes. More detailed resolution rasters are available through NRCS via the link above.

Purpose:

The data were derived for use in studies requiring estimates of soil characteristics. The georeferenced soil characteristics were intended to be averaged over large areas, such as over a river basin, and used for (1) watershed simulation models that require spatially lumped estimates of soil hydraulic parameters, and (2) as explanatory variables in regional and national water-quality assessment studies.

Time_Period_of_Content:

Time_Period_Information:

Range_of_Dates/Times:

Beginning_Date: 20140305
Ending_Date: 20140710

Currentness_Reference:
Data was processed from a March 2014 version of SSURGO. Updates will be made as new SSURGO county data becomes available.

Status:

Progress: Complete
Maintenance_and_Update_Frequency: As needed

Spatial_Domain:

Bounding_Coordinates:

West_Bounding_Coordinate: -129.4956
East_Bounding_Coordinate: -64.4393
North_Bounding_Coordinate: 48.6336
South_Bounding_Coordinate: 21.8079

Keywords:

Theme:

Theme_Keyword_Thesaurus: USGS Thesaurus
Theme_Keyword: environment
Theme_Keyword: geoscientific Information
Theme_Keyword: inlandWaters
Theme_Keyword: Soils
Theme_Keyword: SSURGO
Theme_Keyword: percent clay
Theme_Keyword: percent sand
Theme_Keyword: percent silt
Theme_Keyword: average water capacity
Theme_Keyword: organic material
Theme_Keyword: saturated hydraulic conductivity
Theme_Keyword: ksat
Theme_Keyword: vertical saturated hydraulic conductivity
Theme_Keyword: bulk density
Theme_Keyword: hydrologic groups
Theme_Keyword: soil erodibility factor
Theme_Keyword: kfact
Theme_Keyword: porosity
Theme_Keyword: drainage class
Theme_Keyword: hydric condition
Theme_Keyword: hydric rating
Theme_Keyword: annual minimum water table depth
Theme_Keyword: minimum water table depth for the months April, May and June
Theme_Keyword: available water storage in the first 25 centimeters of the soil horizon
Theme_Keyword: dominant drainage class
Theme_Keyword: wettest drainage class

Theme:

Theme_Keyword_Thesaurus: ISO 19115 Topic Categories
Theme_Keyword: environment
Theme_Keyword: geoscientificInformation
Theme_Keyword: inlandWaters

Place:

Place_Keyword_Thesaurus: Geographic Names Information System
Place_Keyword: United States
Place_Keyword: Alaska
Place_Keyword: Hawaii
Place_Keyword: Puerto Rico

Access_Constraints: None
Use_Constraints:
The U.S. Department of Agriculture, Natural Resources Conservation Service (NRCS, 2014), should be acknowledged as the data source in products derived from these data. This data is an interpretation of the SSURGO source data and users are cautioned to read all the meatdata and use it accordingly. This dataset is not designed for use as a primary regulatory tool in permitting or siting decisions, but may be used as a reference source. This is public information and may be interpreted by organizations, agencies, units of government, or others based on needs; however, they are responsible for the appropriate application. Federal, State, or local regulatory bodies are not to reassign to the Natural Resources Conservation Service any authority for the decisions that they make. The Natural Resources Conservation Service will not perform any evaluations of these maps for purposes related solely to State or local regulatory programs.Photographic or digital enlargement of these maps to scales greater than those at which they were originally mapped can cause misinterpretation of the data. If enlarged, maps do not show the small areas of contrasting soils that could have been shown at a larger scale. The depicted soil boundaries, interpretations, and analysis derived from them do not eliminate the need for onsite sampling, testing, and detailed study of specific sites for intensive uses. Thus, these data and their interpretations are intended for planning purposes only. Digital data files are periodically updated. Files are dated, and users are responsible for obtaining the latest version of the data.
Point_of_Contact: (Warning: Although accurate at the time of production, this information may have become obsolete.
See the ***Metadata_Reference_Information*** section for a current contact.)

Contact_Information:

Contact_Organization_Primary:

Contact_Organization: USGS-WRD MDWSC
Contact_Person: Michael E. Wieczorek

Contact_Position: Geographer
Contact_Address:

Address_Type: physical
Address:
5522 Research Park Drive
City: Baltimore
State_or_Province: MD
Postal_Code: 21228
Country: US

Contact_Voice_Telephone: 443-498-5550
Contact_Facsimile_Telephone: 443-498-5510
Contact_Electronic_Mail_Address: mewieczo@usgs.gov

Browse_Graphic:

Browse_Graphic_File_Name: https://water.usgs.gov/GIS/browse/SSURGOsand.jpg
Browse_Graphic_File_Description:
Illustration of data set
Browse_Graphic_File_Type: jpg

Data_Set_Credit:
I wish to acknowledge Roland Viger, Curtis Price and David Wolock for their assistance in coding and quality assurance of the data. I also would like to thank Andrew LaMotte and David Wolock for their peer reviews.
Native_Data_Set_Environment:
Microsoft Windows 7 Version 6.1 (Build 7601) Service Pack 1; Esri ArcGIS 10.2.1.3497

Back to Top

Data_Quality_Information:

Attribute_Accuracy:

Attribute_Accuracy_Report:
The values of the items were verified for computational accuracy by the author and reviewers.

Logical_Consistency_Report:
The values of the items were verified for computational accuracy by the author and reviewers.
Completeness_Report:
Current March 3, 2014.
Lineage:

Source_Information:

Source_Citation:

Citation_Information:

Originator: United States Department of Agriculture
Publication_Date: 20140305
Title:
Soil Survey Geographic (SSURGO) Database Accessed [03/05/2014]
Geospatial_Data_Presentation_Form: tabular digital data
Other_Citation_Details:
Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture. Web Soil Survey. Available online at http://websoilsurvey.nrcs.usda.gov/. Accessed [03/05/2014].
Online_Linkage: http://websoilsurvey.nrcs.usda.gov/

Type_of_Source_Media: None

Source_Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 2014

Source_Currentness_Reference:
2014

Source_Citation_Abbreviation:
Soil Survey Geographic (SSURGO) Database

Source_Contribution:
The SSURGO database contains information about soil as collected by the National Cooperative Soil Survey over the course of a century. The information can be displayed in tables or as maps and is available for most areas in the United States and the Territories, Commonwealths, and Island Nations served by the USDA-NRCS. The information was gathered by walking over the land and observing the soil. Many soil samples were analyzed in laboratories. The maps outline areas called map units. The map units describe soils and other components that have unique properties, interpretations, and productivity. The information was collected at scales ranging from 1:12,000 to 1:63,360. More details were gathered at a scale of 1:12,000 than at a scale of 1:63,360. The mapping is intended for natural resource planning and management by landowners, townships, and counties. Some knowledge of soils data and map scale is necessary to avoid misunderstandings. The maps are linked in the database to information about the component soils and their properties for each map unit. Each map unit may contain one to three major components and some minor components. The map units are typically named for the major components. Examples of information available from the database include available water capacity, soil reaction, electrical conductivity, and frequency of flooding; yields for cropland, woodland, rangeland, and pastureland; and limitations affecting recreational development, building site development, and other engineering uses. SSURGO datasets consist of map data, tabular data, and information about how the maps and tables were created. The extent of a SSURGO dataset is a soil survey area, which may consist of a single county, multiple counties, or parts of multiple counties. SSURGO map data can be viewed in the Web Soil Survey or downloaded in ESRI® Shapefile format. The coordinate systems are Geographic. Attribute data can be downloaded in text format that can be imported into a Microsoft® Access® database.

Process_Step:

Process_Description:

In order to process soil attributes by soil mapping unit (MUKEY) from the SSURGO database, at least three tables (mapunit, component, and CHORIZ

SSURGO map unit data are stored in the map unit table (MAPUNIT.TXT), and are referenced by the field MUKEY. Map units consist of multiple, u

Deriving MUKEY average values for permeability, available water capacity, bulk density, saturated hydraulic conductivity, soil erodibility, field cap

Each step of the two-step weighting process was done exactly as described above: first, the layer values were weighted by their thicknesses and

A weighted average of the soil property value for all components in the map unit is used to attribute the map unit for that soil property. Percent

Step 1. For each component, a weighted-average value for clay is calculated.
Clay = SUM (horizon thickness/total thickness X total clay) for all included soil horizons.

Table: component:

MUKEY (Mapping Unit)	COKEY (component key)	Percent of Component*
100017	100017:149541	60
100017	100017:149542	40

Table: CHORIZON

COKEY (component key)	Horizon Depth	Clay
100017:149541	20	9.5
100017:149541	56	12.5
100017:149541	76	1.5
100017:149542	20	9.5
100017:149542	10	11.5
100017:149542	122	3.5

100017:149541 [((20/152) *9.5) + ((56/152) * 12.5) + ((76/152) * 1.5)] = 6.60
100017:149542 [((20/152) *9.5) + ((10/152) * 11.5) + ((122/152) * 3.5)]= 4.82

Step 2. For each map unit, a weighted-average value for total clay in the upper 50 centimeters (cm) or less of the soil is calculated. Total Clay in the Upper 50 cm (or less) = SUM (percent composition* Total Clay in the Upper 50 cm (or less) for all components in the map unit mukey Total Clay in the Upper 50 cm (or less)
100017:149541 .60 * 6.60 = 3.96
100017:149542 .40 * 4.82 = 1.93

10017 = 3.96 + 1.93 = 5.89

* SSURGO is often an incomplete database and at times, the component percentages do not add up to 100 for a MUKEY. When components do not add up to 100, the following calculation is used to ensure that the components are treated as 100%
Table: component:

MUKEY (Mapping Unit)	COKEY (component key)	Percent of Component
100017	100017:149541	60
100017	100017:149542	30

100017:149541 60 / (60 + 30) = 66.66 Percent of Component
100017:149542 30 / (60 + 30) = 33.33 Percent of Component

MUKEYs where components did not add up to 100% were flagged accoding to the following criteria (NRCS, written communic. 3/2014):
95 - 105 data were deemed reliable.
Less than 95 data were deemed unreliable.
Greater than 105 data were deemed suspect.
Each soil attribute in this table was processed this way except for vertical saturated hydraulic conductivity (KV) and porosity (POR). Satura

conductivity (KV) was calculated the following way:

KV = d / sum (di / Ki)
where
KV is the vertical conductivity;
d is the total soil thickness = sum (di);
di is the thickness of layer i; and
Ki is the permeability of layer i (found in the SSURGO table CHORIZON; KSAT_R which is the saturated hydraulic conductivity).

Porosity (POR) was calculated the following way:

POR = 1 - [(bulk density) / (particle density)]
where
bulk density is the item wthirdbar_r found in the SSURGO table CHORIZON.
particledensity is the item partdensity found in the SSURGO table CHORIZON.

Process_Date: 20140305

Back to Top

Spatial_Data_Organization_Information:

Indirect_Spatial_Reference_Method:
These tabular data are meant to be used with the USDA's NRCS' rasters of soil Mapping Units found at http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/survey/geo/?cid=nrcs142p2_053628.

Back to Top

Spatial_Reference_Information:

Horizontal_Coordinate_System_Definition:

Planar:

Map_Projection:

Map_Projection_Name: Albers Conical Equal Area
Albers_Conical_Equal_Area:
Albers Conical Equal Area

Standard_Parallel: 29.5000
Standard_Parallel: 45.5000
Longitude_of_Central_Meridian: -96.000
Latitude_of_Projection_Origin: 37.5000
False_Easting: 0.0000
False_Northing: 0.0000

Planar_Coordinate_Information:

Planar_Coordinate_Encoding_Method: coordinate pair
Coordinate_Representation:

Abscissa_Resolution: 30.000000
Ordinate_Resolution: 30.000000

Planar_Distance_Units: Meters

Geodetic_Model:

Horizontal_Datum_Name: North American Datum of 1983
Ellipsoid_Name: Geodetic Reference System 80
Semi-major_Axis: 6378137.000000
Denominator_of_Flattening_Ratio: 298.257222

Back to Top

Entity_and_Attribute_Information:

Detailed_Description:

Entity_Type:

Entity_Type_Label: LAYER.dbf
Entity_Type_Definition:
Selected soil characteristics computed from SSURGO's CHORIZON tables.
Entity_Type_Definition_Source:
NRCS (SSURGO CHORIZON tables)

Attribute:

Attribute_Label: Rowid
Attribute_Definition:
Internal feature number.
Attribute_Definition_Source:
Esri
Attribute_Domain_Values:

Unrepresentable_Domain:
Sequential unique whole numbers that are automatically generated.

Attribute:

Attribute_Label: MUKEY
Attribute_Definition:
Map Unit key.
Attribute_Definition_Source:
NRCS
Attribute_Domain_Values:

Unrepresentable_Domain:
MUKEY id in numeric form

Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: Specific number generated by NRCS.
Enumerated_Domain_Value_Definition:
variable
Enumerated_Domain_Value_Definition_Source:
unrepresented domain

Attribute:

Attribute_Label: COMPPCT_R
Attribute_Definition:
Percentage of all components of a MUKEY used to compute the average
Attribute_Definition_Source:
NRCS
Attribute_Domain_Values:

Range_Domain:

Range_Domain_Minimum: 0
Range_Domain_Maximum: 100
Attribute_Units_of_Measure: percent

Attribute:

Attribute_Label: CONFIDENCE
Attribute_Definition:
Denotes quality of data based on component percentages, 95%- 100% denotes reliable data (R), less than 95% denotes unreliable data (U), greater than 105% denotes suspect data (S), and 0% denotes no data (ND).
Attribute_Definition_Source:
NRCS
Attribute_Domain_Values:

Range_Domain:

Range_Domain_Minimum: 0
Range_Domain_Maximum: 100
Attribute_Units_of_Measure: percent

Attribute:

Attribute_Label: AVG_AWC
Attribute_Definition:
Area- and depth-weighted available water capacity (cm/cm), -9999 denotes no data.
Attribute_Definition_Source:
USGS, processed from NRCS table CHORIZON item awc_r
Attribute_Domain_Values:

Range_Domain:

Range_Domain_Minimum: 0
Range_Domain_Maximum: 0.6
Attribute_Units_of_Measure: volume fraction (cm/cm).

Attribute:

Attribute_Label: AVG_OM
Attribute_Definition:
Area- and depth-weighted value of organic matter content (percent by weight), -9999 denotes no data.
Attribute_Definition_Source:
USGS, processed from NRCS table CHORIZON item om_r
Attribute_Domain_Values:

Range_Domain:

Range_Domain_Minimum: 0
Range_Domain_Maximum: 100
Attribute_Units_of_Measure: percent

Attribute:

Attribute_Label: AVG_KSAT
Attribute_Definition:

Area- and depth-weighted saturated hydraulic conductivity value in micrometers per second, -9999 denotes no data.
Attribute_Definition_Source:
USGS, processed from NRCS table CHORIZON item ksat_r
Attribute_Domain_Values:

Range_Domain:

Range_Domain_Minimum: 0
Range_Domain_Maximum: 648.966
Attribute_Units_of_Measure: micrometers per second

Attribute:

Attribute_Label: AVG_BD
Attribute_Definition:
Area- and depth-weighted value for bulk density (grams per cubic centimeter), -9999 denotes no data.
Attribute_Definition_Source:
USGS, processed from NRCS table CHORIZON item bd_r
Attribute_Domain_Values:

Range_Domain:

Range_Domain_Minimum: 0
Range_Domain_Maximum: 2.52
Attribute_Units_of_Measure: grams per cubic centimeter

Attribute:

Attribute_Label: AVG_FC
Attribute_Definition:
The volumetric content of soil water retained at a tension of 1/3 bar (33 kPa), expressed as a percentage of the whole soil, -9999 denotes no data.
Attribute_Definition_Source:
USGS, processed from NRCS table CHORIZON item wthirdbar_r
Attribute_Domain_Values:

Range_Domain:

Range_Domain_Minimum: 0
Range_Domain_Maximum: 100
Attribute_Units_of_Measure: percent

Attribute:

Attribute_Label: AVG_POR
Attribute_Definition:
Porosity = 100(1 - (moist bulk density/particle density)), -9999 denotes no data
Attribute_Definition_Source:
USGS, processed from NRCS table CHORIZON items bd_r and partdensity
Attribute_Domain_Values:

Range_Domain:

Range_Domain_Minimum: 0
Range_Domain_Maximum: 100
Attribute_Units_of_Measure: percent

Attribute:

Attribute_Label: AVG_KFACT
Attribute_Definition:
Area- and depth-weighted for soil erodibility factor (unitless), -9999 denotes no data.
Attribute_Definition_Source:
USGS, processed from NRCS table CHORIZON item kfact_r
Attribute_Domain_Values:

Range_Domain:

Range_Domain_Minimum: 0
Range_Domain_Maximum: .64
Attribute_Units_of_Measure: unitless

Attribute:

Attribute_Label: AVG_NO4
Attribute_Definition:
Area- and depth-weighted percentage of the soil fraction passing a number 4 sieve, -9999 denotes no data.
Attribute_Definition_Source:
USGS, processed from NRCS table CHORIZON item sieveno4.
Attribute_Domain_Values:

Range_Domain:

Range_Domain_Minimum: 0
Range_Domain_Maximum: 100
Attribute_Units_of_Measure: percent

Attribute:

Attribute_Label: AVG_NO10
Attribute_Definition:

Area- and depth-weighted percentage of the soil fraction passing a number 10 sieve, -9999 denotes no data.
Attribute_Definition_Source:
USGS, processed from NRCS table CHORIZON item sieveno10.
Attribute_Domain_Values:

Range_Domain:

Range_Domain_Minimum: 0
Range_Domain_Maximum: 100
Attribute_Units_of_Measure: percent

Attribute:

Attribute_Label: AVG_NO200
Attribute_Definition:
Area- and depth-weighted Area- and depth-weighted percentage of the soil fraction passing a number 200 sieve, -9999 denotes no data.
Attribute_Definition_Source:
USGS, processed from NRCS table CHORIZON item sieveno200.
Attribute_Domain_Values:

Range_Domain:

Range_Domain_Minimum: 0
Range_Domain_Maximum: 100
Attribute_Units_of_Measure: percent

Attribute:

Attribute_Label: AVG_KV
Attribute_Definition:
vertical saturated conductivity calculated the following way: KV = d / sum (di / Ki) where KV is the vertical conductivity; d is the total soil thickness = sum (di); di is the thickness of layer i; and Ki is the permeability of layer i (found in the SSURGO table CHORIZON item KSAT_R, which is the saturated hydraulic conductivity), -9999 denotes no data.
Attribute_Definition_Source:
USGS, processed from NRCS table CHORIZON items KSAT_R and HZTHK_R
Attribute_Domain_Values:

Range_Domain:

Range_Domain_Minimum: 0
Range_Domain_Maximum: 125.53
Attribute_Units_of_Measure: micrometers per second

Detailed_Description:

Entity_Type:

Entity_Type_Label: TEXT.dbf
Entity_Type_Definition:
Selected soil characteristics computed from SSURGO's CHORIZON tables.
Entity_Type_Definition_Source:
NRCS (SSURGO CHORIZON tables)

Attribute:

Attribute_Label: MUKEY
Attribute_Definition:
Map Unit key.
Attribute_Definition_Source:
NRCS
Attribute_Domain_Values:

Unrepresentable_Domain:
MUKEY id in numeric form

Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: Specific number generated by NRCS.
Enumerated_Domain_Value_Definition:
variable
Enumerated_Domain_Value_Definition_Source:
unrepresented domain

Attribute:

Attribute_Label: COMPPCT_R
Attribute_Definition:
Percentage of all components of a MUKEY used to compute the average
Attribute_Definition_Source:
NRCS
Attribute_Domain_Values:

Range_Domain:

Range_Domain_Minimum: 0
Range_Domain_Maximum: 100
Attribute_Units_of_Measure: percent

Attribute:

Attribute_Label: CONFIDENCE
Attribute_Definition:
Denotes quality of data based on component percentages, 95%- 100% denotes reliable data (R), less than 95% denotes unreliable data (U), greater than 105% denotes suspect data (S), and 0% denotes no data (ND).
Attribute_Definition_Source:
NRCS
Attribute_Domain_Values:

Range_Domain:

Range_Domain_Minimum: 0
Range_Domain_Maximum: 100
Attribute_Units_of_Measure: percent

Attribute:

Attribute_Label: AVG_SAND
Attribute_Definition:
Area- and depth-weighted average percent sand, -9999 denotes no data available.
Attribute_Definition_Source:
USGS, processed from NRCS table CHORIZON item sandtotal_r
Attribute_Domain_Values:

Range_Domain:

Range_Domain_Minimum: 0
Range_Domain_Maximum: 100
Attribute_Units_of_Measure: percent

Attribute:

Attribute_Label: AVG_SILT
Attribute_Definition:
Area- and depth-weighted average percent silt, -9999 denotes no data available.
Attribute_Definition_Source:
USGS, processed from NRCS table CHORIZON item silttotal_r
Attribute_Domain_Values:

Range_Domain:

Range_Domain_Minimum: 0
Range_Domain_Maximum: 100
Attribute_Units_of_Measure: percent

Attribute:

Attribute_Label: AVG_CLAY
Attribute_Definition:
Area- and depth-weighted average percent clay.
Attribute_Definition_Source:
USGS, processed from NRCS table CHORIZON item claytotal_r
Attribute_Domain_Values:

Range_Domain:

Range_Domain_Minimum: 0
Range_Domain_Maximum: 100
Attribute_Units_of_Measure: percent

Detailed_Description:

Entity_Type:

Entity_Type_Label: HYDGRP.dbf
Entity_Type_Definition:
Selected soil characteristics computed from SSURGO's CHORIZON tables.
Entity_Type_Definition_Source:
NRCS (SSURGO CHORIZON tables)

Attribute:

Attribute_Label: MUKEY
Attribute_Definition:
Map Unit key.
Attribute_Definition_Source:
NRCS
Attribute_Domain_Values:

Unrepresentable_Domain:
Specific number generated by NRCS.

Attribute:

Attribute_Label: HYDGRP_A
Attribute_Definition:
Percentage of a MUKEY with NRCS' designation of Hydrologic Group A, -9999 denotes no data available.
Attribute_Definition_Source:
USGS, processed from NRCS component (COMP) table's item HYDGRP.

Attribute_Domain_Values:

Range_Domain:

Range_Domain_Minimum: 0
Range_Domain_Maximum: 100
Attribute_Units_of_Measure: percent

Attribute:

Attribute_Label: HYDGRP_AD
Attribute_Definition:
Percentage of a MUKEY with NRCS' designation of Hydrologic Group AD, -9999 denotes no data available.
Attribute_Definition_Source:
USGS, processed from NRCS component (COMP) table's item HYDGRP.
Attribute_Domain_Values:

Range_Domain:

Range_Domain_Minimum: 0
Range_Domain_Maximum: 100
Attribute_Units_of_Measure: percent

Attribute:

Attribute_Label: HYDGRP_B
Attribute_Definition:
Percentage of a MUKEY with NRCS' designation of Hydrologic Group B, -9999 denotes no data available.
Attribute_Definition_Source:
USGS, processed from NRCS component (COMP) table's item HYDGRP.
Attribute_Domain_Values:

Range_Domain:

Range_Domain_Minimum: 0
Range_Domain_Maximum: 100
Attribute_Units_of_Measure: percent

Attribute:

Attribute_Label: HYDGRP_BD
Attribute_Definition:
Percentage of a MUKEY with NRCS' designation of Hydrologic Group BD, -9999 denotes no data available.
Attribute_Definition_Source:
USGS, processed from NRCS component (COMP) table's item HYDGRP.
Attribute_Domain_Values:

Range_Domain:

Range_Domain_Minimum: 0
Range_Domain_Maximum: 100
Attribute_Units_of_Measure: percent

Attribute:

Attribute_Label: HYDGRP_C
Attribute_Definition:
Percentage of a MUKEY with NRCS' designation of Hydrologic Group C, -9999 denotes no data available.
Attribute_Definition_Source:
USGS, processed from NRCS component (COMP) table's item HYDGRP.
Attribute_Domain_Values:

Range_Domain:

Range_Domain_Minimum: 0
Range_Domain_Maximum: 100
Attribute_Units_of_Measure: percent

Attribute:

Attribute_Label: HYDGRP_CD
Attribute_Definition:
Percentage of a MUKEY with NRCS' designation of Hydrologic Group CD, -9999 denotes no data available.
Attribute_Definition_Source:
USGS, processed from NRCS component (COMP) table's item HYDGRP.
Attribute_Domain_Values:

Range_Domain:

Range_Domain_Minimum: 0
Range_Domain_Maximum: 100
Attribute_Units_of_Measure: percent

Attribute:

Attribute_Label: HYDGRP_D
Attribute_Definition:
Percentage of a MUKEY with NRCS' designation of Hydrologic Group D, -9999 denotes no data available.
Attribute_Definition_Source:
USGS, processed from NRCS component (COMP) table's item HYDGRP.

Attribute_Domain_Values:

Range_Domain:

Range_Domain_Minimum: 0
Range_Domain_Maximum: 100
Attribute_Units_of_Measure: percent

Attribute:

Attribute_Label: HYDGRP_NA
Attribute_Definition:
Percentage of a MUKEY with NRCS' designation of "not applicable" Hydrologic Group, -9999 denotes no data available.
Attribute_Definition_Source:
USGS, processed from NRCS component (COMP) table's item HYDGRP.
Attribute_Domain_Values:

Range_Domain:

Range_Domain_Minimum: 0
Range_Domain_Maximum: 100
Attribute_Units_of_Measure: percent

Detailed_Description:

Entity_Type:

Entity_Type_Label: DRAINCLASS.dbf
Entity_Type_Definition:
Selected soil characteristics computed from SSURGO's COMPONENT table item DRAINAGECL.
Entity_Type_Definition_Source:
NRCS (SSURGO CHORIZON tables)

Attribute:

Attribute_Label: MUKEY
Attribute_Definition:
Map Unit key.
Attribute_Definition_Source:
NRCS
Attribute_Domain_Values:

Unrepresentable_Domain:
MUKEY id in numeric form

Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: Specific number generated by NRCS.
Enumerated_Domain_Value_Definition:
variable
Enumerated_Domain_Value_Definition_Source:
unrepresented domain

Attribute:

Attribute_Label: COMPPCT_R
Attribute_Definition:
Percentage of all components of a MUKEY used to compute the average
Attribute_Definition_Source:
NRCS
Attribute_Domain_Values:

Range_Domain:

Range_Domain_Minimum: 0
Range_Domain_Maximum: 100
Attribute_Units_of_Measure: percent

Attribute:

Attribute_Label: CONFIDENCE
Attribute_Definition:
Denotes quality of data based on component percentages, 95%- 100% denotes reliable data (R), less than 95% denotes unreliable data (U), greater than 105% denotes suspect data (S), and 0% denotes no data (ND).
Attribute_Definition_Source:
NRCS
Attribute_Domain_Values:

Range_Domain:

Range_Domain_Minimum: 0
Range_Domain_Maximum: 100
Attribute_Units_of_Measure: percent

Attribute:

Attribute_Label: DRNCLASS0
Attribute_Definition:

The soil drainage classes identify the natural drainage condition as not reported or filed is NULL in the SSURGO source data, also -9999 denotes no data available.
Attribute_Definition_Source:
USGS, processed from NRCS component (COMP) table's item DRAINAGECL.
Attribute_Domain_Values:

Range_Domain:

Range_Domain_Minimum: 0
Range_Domain_Maximum: 100
Attribute_Units_of_Measure: percent

Attribute:

Attribute_Label: DRNCLASS1
Attribute_Definition:
Percent of MUKEY with soil drainage class identifying the natural drainage condition of the soil as excessively drained.
Attribute_Definition_Source:
USGS, processed from NRCS component (COMP) table's item DRAINAGECL.
Attribute_Domain_Values:

Range_Domain:

Range_Domain_Minimum: 0
Range_Domain_Maximum: 100
Attribute_Units_of_Measure: percent

Attribute:

Attribute_Label: DRNCLASS2
Attribute_Definition:
Percent of MUKEY with soil drainage class identifying the natural drainage condition of the soil as moderately well drained, -9999 denotes no data available.
Attribute_Definition_Source:
USGS, processed from NRCS component (COMP) table's item DRAINAGECL.
Attribute_Domain_Values:

Range_Domain:

Range_Domain_Minimum: 0
Range_Domain_Maximum: 100
Attribute_Units_of_Measure: percent

Attribute:

Attribute_Label: DRNCLASS3
Attribute_Definition:
Percent of MUKEY with soil drainage class identifying the natural drainage condition of the soil as not appllicable, -9999 denotes no data available.
Attribute_Definition_Source:
USGS, processed from NRCS component (COMP) table's item DRAINAGECL.
Attribute_Domain_Values:

Range_Domain:

Range_Domain_Minimum: 0
Range_Domain_Maximum: 100
Attribute_Units_of_Measure: percent

Attribute:

Attribute_Label: DRNCLASS4
Attribute_Definition:
Percent of MUKEY with soil drainage class identifying the natural drainage condition of the soil as poorly drained, -9999 denotes no data available.
Attribute_Definition_Source:
USGS, processed from NRCS component (COMP) table's item DRAINAGECL.
Attribute_Domain_Values:

Range_Domain:

Range_Domain_Minimum: 0
Range_Domain_Maximum: 100
Attribute_Units_of_Measure: percent

Attribute:

Attribute_Label: DRNCLASS5
Attribute_Definition:
Percent of MUKEY with soil drainage class identifying the natural drainage condition of the soil as somewhat excessively drained, -9999 denotes no data available.
Attribute_Definition_Source:
USGS, processed from NRCS component (COMP) table's item DRAINAGECL.
Attribute_Domain_Values:

Range_Domain:

Range_Domain_Minimum: 0
Range_Domain_Maximum: 100
Attribute_Units_of_Measure: percent

Attribute:

Attribute_Label: DRNCLASS6
Attribute_Definition:
Percent of MUKEY with soil drainage class identifying the natural drainage condition of the soil as somewhat poorly drained, -9999 denotes no data available.
Attribute_Definition_Source:
USGS, processed from NRCS component (COMP) table's item DRAINAGECL.
Attribute_Domain_Values:

Range_Domain:

Range_Domain_Minimum: 0
Range_Domain_Maximum: 100
Attribute_Units_of_Measure: percent

Attribute:

Attribute_Label: DRNCLASS7
Attribute_Definition:
Percent of MUKEY with soil drainage class identifying the natural drainage condition of the soil as subaqueous, -9999 denotes no data available.
Attribute_Definition_Source:
USGS, processed from NRCS component (COMP) table's item DRAINAGECL.
Attribute_Domain_Values:

Range_Domain:

Range_Domain_Minimum: 0
Range_Domain_Maximum: 100
Attribute_Units_of_Measure: percent

Attribute:

Attribute_Label: DRNCLASS8
Attribute_Definition:
Percent of MUKEY with soil drainage class identifying the natural drainage condition of the soil as very poorly drained, -9999 denotes no data available.
Attribute_Definition_Source:
USGS, processed from NRCS component (COMP) table's item DRAINAGECL.
Attribute_Domain_Values:

Range_Domain:

Range_Domain_Minimum: 0
Range_Domain_Maximum: 100
Attribute_Units_of_Measure: percent

Attribute:

Attribute_Label: DRNCLASS9
Attribute_Definition:
Percent of MUKEY with soil drainage class identifying the natural drainage condition of the soil as well drained, -9999 denotes no data available.
Attribute_Definition_Source:
USGS, processed from NRCS component (COMP) table's item DRAINAGECL.
Attribute_Domain_Values:

Range_Domain:

Range_Domain_Minimum: 0
Range_Domain_Maximum: 100
Attribute_Units_of_Measure: percent

Detailed_Description:

Entity_Type:

Entity_Type_Label: HYDRATING.dbf
Entity_Type_Definition:
Selected soil characteristics computed from SSURGO's COMPONENT table item HYDRATING.
Entity_Type_Definition_Source:
NRCS (SSURGO CHORIZON tables)

Attribute:

Attribute_Label: MUKEY
Attribute_Definition:
Map Unit key.
Attribute_Definition_Source:
NRCS
Attribute_Domain_Values:

Unrepresentable_Domain:
MUKEY id in numeric form

Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: Specific number generated by NRCS.
Enumerated_Domain_Value_Definition:
variable
Enumerated_Domain_Value_Definition_Source:
unrepresented domain

Attribute:

Attribute_Label: COMPPCT_R
Attribute_Definition:
Percentage of all components of a MUKEY used to compute the average
Attribute_Definition_Source:
NRCS
Attribute_Domain_Values:

Range_Domain:

Range_Domain_Minimum: 0
Range_Domain_Maximum: 100
Attribute_Units_of_Measure: percent

Attribute:

Attribute_Label: CONFIDENCE
Attribute_Definition:
Denotes quality of data based on component percentages, 95%- 100% denotes reliable data (R), less than 95% denotes unreliable data (U), greater than 105% denotes suspect data (S), and 0% denotes no data (ND).
Attribute_Definition_Source:
NRCS
Attribute_Domain_Values:

Range_Domain:

Range_Domain_Minimum: 0
Range_Domain_Maximum: 100
Attribute_Units_of_Measure: percent

Attribute:

Attribute_Label: Hydrate_Y
Attribute_Definition:
Percent of MUKEY that has "yes" in its field that indicates whether or not a map unit component is classified as a "hydric soil", -9999 denotes no data available.
Attribute_Definition_Source:
USGS, processed from NRCS component (COMP) table’s item HYDRICRATING.
Attribute_Domain_Values:

Range_Domain:

Range_Domain_Minimum: 0
Range_Domain_Maximum: 100
Attribute_Units_of_Measure: percent

Attribute:

Attribute_Label: Hydrate_N
Attribute_Definition:
Percent of MUKEY that has "no" in its field that indicates whether or not a map unit component is classified as a "hydric soil", -9999 denotes no data available.
Attribute_Definition_Source:
USGS, processed from NRCS component (COMP) table’s item HYDRICRATING.
Attribute_Domain_Values:

Range_Domain:

Range_Domain_Minimum: 0
Range_Domain_Maximum: 100
Attribute_Units_of_Measure: percent

Attribute:

Attribute_Label: Hydrate_NA
Attribute_Definition:
Percent of MUKEY that has "NA" (not applicable) in its field that indicates whether or not a map unit component is classified as a "hydric soil", -9999 denotes no data available.
Attribute_Definition_Source:
USGS, processed from NRCS component (COMP) table’s item HYDRICRATING.
Attribute_Domain_Values:

Range_Domain:

Range_Domain_Minimum: 0
Range_Domain_Maximum: 100
Attribute_Units_of_Measure: percent

Attribute:

Attribute_Label: Hydrate_U
Attribute_Definition:
Percent of MUKEY that has "unranked" in its field that indicates whether or not a map unit component is classified as a "hydric soil", -9999 denotes no data available.
Attribute_Definition_Source:
USGS, processed from NRCS component (COMP) table’s item HYDRICRATING.
Attribute_Domain_Values:

Range_Domain:

Range_Domain_Minimum: 0
Range_Domain_Maximum: 100
Attribute_Units_of_Measure: percent

Detailed_Description:

Entity_Type:

Entity_Type_Label: HYDRICCONDITION.dbf
Entity_Type_Definition:
Selected soil characteristics computed from SSURGO's COMPONENT table item HYDRICON.
Entity_Type_Definition_Source:
NRCS (SSURGO CHORIZON tables)

Attribute:

Attribute_Label: MUKEY
Attribute_Definition:
Map Unit key.
Attribute_Definition_Source:
NRCS
Attribute_Domain_Values:

Unrepresentable_Domain:
MUKEY id in numeric form

Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: Specific number generated by NRCS.
Enumerated_Domain_Value_Definition:
variable
Enumerated_Domain_Value_Definition_Source:
unrepresented domain

Attribute:

Attribute_Label: COMPPCT_R
Attribute_Definition:
Percentage of all components of a MUKEY used to compute the average
Attribute_Definition_Source:
NRCS
Attribute_Domain_Values:

Range_Domain:

Range_Domain_Minimum: 0
Range_Domain_Maximum: 100
Attribute_Units_of_Measure: percent

Attribute:

Attribute_Label: CONFIDENCE
Attribute_Definition:
Denotes quality of data based on component percentages, 95%- 100% denotes reliable data (R), less than 95% denotes unreliable data (U), greater than 105% denotes suspect data (S), and 0% denotes no data (ND).
Attribute_Definition_Source:
NRCS
Attribute_Domain_Values:

Range_Domain:

Range_Domain_Minimum: 0
Range_Domain_Maximum: 100
Attribute_Units_of_Measure: percent

Attribute:

Attribute_Label: HYDCON_1
Attribute_Definition:
Percent of MUKEY with the natural condition of the soil component being "farmable under natural conditions", -9999 denotes no data available.
Attribute_Definition_Source:
USGS, processed from NRCS component (COMP) table's item DRAINAGECL.
Attribute_Domain_Values:

Range_Domain:

Range_Domain_Minimum: 0
Range_Domain_Maximum: 100
Attribute_Units_of_Measure: percent

Attribute:

Attribute_Label: HYDCON_2
Attribute_Definition:
Percent of MUKEY with the natural condition of the soil component being "not applicable", -9999 denotes no data available.
Attribute_Definition_Source:

USGS, processed from NRCS component (COMP) table's item DRAINAGECL.
Attribute_Domain_Values:

Range_Domain:

Range_Domain_Minimum: 0
Range_Domain_Maximum: 100
Attribute_Units_of_Measure: percent

Attribute:

Attribute_Label: HYDCON_3
Attribute_Definition:
Percent of MUKEY with the natural condition of the soil component being "neither wooded nor farmable under natural conditions", -9999 denotes no data available.
Attribute_Definition_Source:
USGS, processed from NRCS component (COMP) table's item DRAINAGECL.
Attribute_Domain_Values:

Range_Domain:

Range_Domain_Minimum: 0
Range_Domain_Maximum: 100
Attribute_Units_of_Measure: percent

Attribute:

Attribute_Label: HYDCON4
Attribute_Definition:
Percent of MUKEY with the natural condition of the soil component being "no" or no hydric condition present, -9999 denotes no data available.
Attribute_Definition_Source:
USGS, processed from NRCS component (COMP) table's item DRAINAGECL.
Attribute_Domain_Values:

Range_Domain:

Range_Domain_Minimum: 0
Range_Domain_Maximum: 100
Attribute_Units_of_Measure: percent

Attribute:

Attribute_Label: HYDCON_5
Attribute_Definition:
Percent of MUKEY with the natural condition of the soil component being "unranked", -9999 denotes no data available.
Attribute_Definition_Source:
USGS, processed from NRCS component (COMP) table's item DRAINAGECL.
Attribute_Domain_Values:

Range_Domain:

Range_Domain_Minimum: 0
Range_Domain_Maximum: 100
Attribute_Units_of_Measure: percent

Attribute:

Attribute_Label: HYDCON_6
Attribute_Definition:
Percent of MUKEY with the natural condition of the soil component being "wooded under natural condition, -9999 denotes no data available.
Attribute_Definition_Source:
USGS, processed from NRCS component (COMP) table's item DRAINAGECL.
Attribute_Domain_Values:

Range_Domain:

Range_Domain_Minimum: 0
Range_Domain_Maximum: 100
Attribute_Units_of_Measure: percent

Attribute:

Attribute_Label: HYDCON_7
Attribute_Definition:
Percent of MUKEY with the natural condition of the soil component being "yes", hydric conditions exist, -9999 denotes no data available, -9999 denotes no data available.
Attribute_Definition_Source:
USGS, processed from NRCS component (COMP) table's item DRAINAGECL.
Attribute_Domain_Values:

Range_Domain:

Range_Domain_Minimum: 0
Range_Domain_Maximum: 100
Attribute_Units_of_Measure: percent

Detailed_Description:

Entity_Type:

Entity_Type_Label: WTDEP.dbf
Entity_Type_Definition:
Selected soil characteristics computed from SSURGO's MUAGGATT table.
Entity_Type_Definition_Source:
NRCS (SSURGO CHORIZON tables)

Attribute:

Attribute_Label: MUKEY
Attribute_Definition:
Map Unit key.
Attribute_Definition_Source:
NRCS
Attribute_Domain_Values:

Unrepresentable_Domain:
MUKEY id in numeric form

Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: Specific number generated by NRCS.
Enumerated_Domain_Value_Definition:
variable
Enumerated_Domain_Value_Definition_Source:
unrepresented domain

Attribute:

Attribute_Label: COMPPCT_R
Attribute_Definition:
Percentage of all components of a MUKEY used to compute the average
Attribute_Definition_Source:
NRCS
Attribute_Domain_Values:

Range_Domain:

Range_Domain_Minimum: 0
Range_Domain_Maximum: 100
Attribute_Units_of_Measure: percent

Attribute:

Attribute_Label: CONFIDENCE
Attribute_Definition:
Denotes quality of data based on component percentages, 95%- 100% denotes reliable data (R), less than 95% denotes unreliable data (U), greater than 105% denotes suspect data (S), and 0% denotes no data (ND).
Attribute_Definition_Source:
NRCS
Attribute_Domain_Values:

Range_Domain:

Range_Domain_Minimum: 0
Range_Domain_Maximum: 100
Attribute_Units_of_Measure: percent

Attribute:

Attribute_Label: WTDEP_MIN
Attribute_Definition:
The shallowest depth to a wet soil layer (water table) at any time during the year expressed as centimeters from the soil surface, for components whose composition in the map unit is equal to or exceeds 15%.
Attribute_Definition_Source:
USGS, processed from NRCS's MUAGGATT table’s item WTDEPANNMIN.
Attribute_Domain_Values:

Range_Domain:

Range_Domain_Minimum: 0
Range_Domain_Maximum: 98
Attribute_Units_of_Measure: centimeters

Attribute:

Attribute_Label: WTDEPAMJ
Attribute_Definition:
Percent of MUKEY with the natural condition of the soil component being "not applicable", -9999 denotes no data available.
Attribute_Definition_Source:
USGS, processed from NRCS's MUAGGATT table’s item WTDEPAPRJUNMIN.
Attribute_Domain_Values:

Range_Domain:

Range_Domain_Minimum: 0
Range_Domain_Maximum: 281
Attribute_Units_of_Measure: centimeters

Attribute:

Attribute_Label: AWS25
Attribute_Definition:
Available water storage (AWS). The volume of water that the soil, to a depth of 25 centimeters, can store that is available to plants. It is reported as the weighted average of all components in the map unit, and is expressed as centimeters of water, -9999 denotes no data available.
Attribute_Definition_Source:
USGS, processed from NRCS's MUAGGATT table's item AWS025WTA.
Attribute_Domain_Values:

Range_Domain:

Range_Domain_Minimum: 0
Range_Domain_Maximum: 15
Attribute_Units_of_Measure: centimters

Attribute:

Attribute_Label: DRCLSD
Attribute_Definition:
The natural drainage condition of the soil refers to the frequency and duration of wet periods. This column displays the dominant drainage class for the map unit, based on composition percentage of each map unit component, -9999 denotes no data available.
Attribute_Definition_Source:
USGS, processed from NRCS's MUAGGATT table's item DRCLASSCD.
Attribute_Domain_Values:

Range_Domain:

Range_Domain_Minimum: 0
Range_Domain_Maximum: 100

Attribute:

Attribute_Label: DRCLSWET
Attribute_Definition:
The natural wettest drainage class, -9999 denotes no data available.
Attribute_Definition_Source:
USGS, processed from NRCS's MUAGGATT table's item DRCLASSWETTEST.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: Specific definition generated by NRCS.
Enumerated_Domain_Value_Definition:
variable
Enumerated_Domain_Value_Definition_Source:
unrepresented domain

Attribute:

Attribute_Label: HYDCLASS
Attribute_Definition:
Percent of MUKEY with a the presence of a hydric classification, -9999 denotes no data available.
Attribute_Definition_Source:
USGS, processed from NRCS's MUAGGATT table's item HYDCLPRS.
Attribute_Domain_Values:

Range_Domain:

Range_Domain_Minimum: 0
Range_Domain_Maximum: 100
Attribute_Units_of_Measure: percent

Overview_Description:

Entity_and_Attribute_Overview:

The entity and attribute information provided here describes the tabular data associated with the data set. Please review the detailed descriptions that are p

The entity and attribute information provided here describes the tabular data associated with the data set. Please review the detailed descriptions that are provided (the individual attribute descriptions) for information on the values that appear as fields/table entries of the data set.

Entity_and_Attribute_Detail_Citation:
The entity and attribute information was generated by the individual and/or agency identified as the originator of the data set. Please review the rest of the metadata record for additional details and information.

Back to Top

Distribution_Information:

Distributor:

Contact_Information:

Contact_Organization_Primary:

Contact_Organization: U.S. Geological Survey

Contact_Position: Ask USGS - - Water Webserver Team
Contact_Address:

Address_Type: mailing
Address:
445 National Center
City: Reston
State_or_Province: Virginia
Postal_Code: 20192
Country: US

Contact_Voice_Telephone: 1-888-275-8487 (1-888-ASK-USGS)
Contact_Electronic_Mail_Address: https://water.usgs.gov/user_feedback_form.html

Resource_Description: Raster data representing aquifer vulnerability for Colorado and New Mexico
Distribution_Liability:

Any use of trade, firm, or product names is for descriptive purposes only and does not imply endorsement by the U.S. Government.

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Although these data have been processed successfully on a computer system at the U.S. Geological Survey, no warranty expressed or implied is made regarding t

Standard_Order_Process:

How To Get the Data

Standard_Order_Process describes the file formats that are available for downloading. One or more data downloads may be available.

For best results download files by right-click/save to disk in your browser. (See guidance on file formats.)

Save this file to a disk.

Digital_Form:

Digital_Transfer_Information:

Format_Name: DRAINAGECLASSS.zip
Format_Version_Number: ESRI ArcGIS, Version 102 (dbf files)
File_Decompression_Technique: Zip Archive (unzip with WinZip, GNUzip, 7zip, or similar program)
Transfer_Size: 3534

Digital_Transfer_Option:

Online_Option:

Computer_Contact_Information:

Network_Address:

Network_Resource_Name: https://water.usgs.gov/GIS/dsdl/DrainageClass.zip

Digital_Form:

Digital_Transfer_Information:

Format_Name: HydGrp.zip
Format_Version_Number: ESRI ArcGIS, Version 102 (dbf files)
File_Decompression_Technique: Zip Archive (unzip with WinZip, GNUzip, 7zip, or similar program)
Transfer_Size: 3329

Digital_Transfer_Option:

Online_Option:

Computer_Contact_Information:

Network_Address:

Network_Resource_Name: https://water.usgs.gov/GIS/dsdl/HydGrp.zip

Digital_Form:

Digital_Transfer_Information:

Format_Name: Hydrating.zip
Format_Version_Number: ESRI ArcGIS, Version 102 (dbf files)
File_Decompression_Technique: Zip Archive (unzip with WinZip, GNUzip, 7zip, or similar program)
Transfer_Size: 2433

Digital_Transfer_Option:

Online_Option:

Computer_Contact_Information:

Network_Address:

Network_Resource_Name: https://water.usgs.gov/GIS/dsdl/Hydrating.zip

Digital_Form:

Digital_Transfer_Information:

Format_Name: HydricCondition.zip
Format_Version_Number: ESRI ArcGIS, Version 102 (dbf files)
File_Decompression_Technique: Zip Archive (unzip with WinZip, GNUzip, 7zip, or similar program)
Transfer_Size: 3987

Digital_Transfer_Option:

Online_Option:

Computer_Contact_Information:

Network_Address:

Network_Resource_Name: https://water.usgs.gov/GIS/dsdl/HydricCondition.zip

Digital_Form:

Digital_Transfer_Information:

Format_Name: Layer.zip
Format_Version_Number: ESRI ArcGIS, Version 102 (dbf files)
File_Decompression_Technique: Zip Archive (unzip with WinZip, GNUzip, 7zip, or similar program)
Transfer_Size: 18030

Digital_Transfer_Option:

Online_Option:

Computer_Contact_Information:

Network_Address:

Network_Resource_Name: https://water.usgs.gov/GIS/dsdl/Layer.zip

Digital_Form:

Digital_Transfer_Information:

Format_Name: Text.zip
Format_Version_Number: ESRI ArcGIS, Version 102 (dbf files)
File_Decompression_Technique: Zip Archive (unzip with WinZip, GNUzip, 7zip, or similar program)
Transfer_Size: 6583

Digital_Transfer_Option:

Online_Option:

Computer_Contact_Information:

Network_Address:

Network_Resource_Name: https://water.usgs.gov/GIS/dsdl/Text.zip

Digital_Form:

Digital_Transfer_Information:

Format_Name: WtDep.zip
Format_Version_Number: ESRI ArcGIS, Version 102
File_Decompression_Technique: Zip Archive (unzip with WinZip, GNUzip, 7zip, or similar program)
Transfer_Size: 2572

Digital_Transfer_Option:

Online_Option:

Computer_Contact_Information:

Network_Address:

Network_Resource_Name: https://water.usgs.gov/GIS/dsdl/WtDep.zip

Digital_Form:

Digital_Transfer_Information:

Format_Name: MUKEY90m.zip
Format_Version_Number: GeoTiff
File_Decompression_Technique: Zip Archive (unzip with WinZip, GNUzip, 7zip, or similar program)
Transfer_Size: 720

Digital_Transfer_Option:

Online_Option:

Computer_Contact_Information:

Network_Address:

Network_Resource_Name: https://water.usgs.gov/GIS/dsdl/MUKEY90m.zip

Fees: None.

Back to Top

Metadata_Reference_Information:

Metadata_Date: 20140818
Metadata_Contact:

Contact_Information:

Contact_Organization_Primary:

Contact_Organization: US Geological Survey

Contact_Position: Ask USGS -- Water Webserver Team
Contact_Address:

Address_Type: mailing
Address:
445 National Center
City: Reston
State_or_Province: Virginia
Postal_Code: 20192
Country: US

Contact_Voice_Telephone: 1-888-275-8487 (1-888-ASK-USGS)
Contact_Electronic_Mail_Address: https://answers.usgs.gov/cgi-bin/gsanswers?pemail=h2oteam&subject=GIS+Dataset+ds866_ssurgo_variables

Metadata_Standard_Name: FGDC Content Standard for Digital Geospatial Metadata
Metadata_Standard_Version: FGDC-STD-001-1998

Back to Top