



# SMAPVEX08 Soil Texture Data, Version 1

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## USER GUIDE

### How to Cite These Data

As a condition of using these data, you must include a citation:

Cosh, M. 2015. *SMAPVEX08 Soil Texture Data, Version 1*. [Indicate subset used]. Boulder, Colorado USA. NASA National Snow and Ice Data Center Distributed Active Archive Center.  
<https://doi.org/10.5067/4R2T2E348XG4>. [Date Accessed].

FOR QUESTIONS ABOUT THESE DATA, CONTACT [NSIDC@NSIDC.ORG](mailto:NSIDC@NSIDC.ORG)

FOR CURRENT INFORMATION, VISIT <https://nsidc.org/data/SV08ST>



National Snow and Ice Data Center

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# 1 DETAILED DATA DESCRIPTION

This data set contains soil texture data that were extracted from a multi-layer soil characteristics database for the conterminous United States and generated for each regional study area. Data are representative of the conditions present in the regional study area during the general timeline of the Soil Moisture Active Passive Validation Experiment 2008 (SMAPVEX08) campaign.

## 1.1 Format

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Data are provided in flat binary files with associated Extensible Markup Language (XML) metadata files. The binary files are arranged as follows:

Columns: 920

Rows: 600

Pixel Size: 100 meters

Universal Transverse Mercator (UTM) Coordinates, Zone 18 N, North American Datum 1983 (NAD-83):

Easting Lower Left Corner: 377,0000 meters

Northing Lower Left Corner: 4,290,000 meters

## 1.2 File and Directory Structure

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Data files are available at: [https://n5e1l01u.ecs.nsidc.org/SMAP\\_VAL/SV08ST.001/](https://n5e1l01u.ecs.nsidc.org/SMAP_VAL/SV08ST.001/)

## 1.3 File Naming Convention

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Along with the data set ID and campaign name (SV08ST\_SMAPVEX08), file names contain an abbreviated parameter designation as follows:

Table 1. File Naming Convention

Parameter	Description
bd	bulk density
awc	available water capacity
poros	porosity
perm	permeability
sand	percent sand
clay	percent clay
rvol	rock fragment volume
dfc	rock fragment class

With the exception of available water capacity (awc), file names also include a number which designates one of four soil layers, as listed in Table 2. There is only one awc file; available water capacity was computed for the top 100 cm from the surface.

Table 2. Soil Layer Key

Variable	Description
1	0-5 cm
2	5-10 cm
3	10-20 cm
4	20-30 cm

## 1.4 File Size

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Files range in size from approximately 0.5 to 2.1 MB per file.

## 1.5 Volume

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The total volume for this data set is approximately 35 MB.

## 1.6 Spatial Coverage

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Southernmost Latitude: 38.93°N

Northernmost Latitude: 39.09°N

Westernmost Longitude: 76.25°W

Easternmost Longitude: 75.55°W

## 1.6.1 Spatial Resolution

100 m

## 1.6.2 Projection

UTM 18 N (NAD83)

## 1.6.3 Grid Description

Rectangular grid, 100 m by 100 m

## 1.7 Temporal Coverage and Resolution

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These data are representative of the conditions to be expected in the US regional study area during the approximate timeline of the SMAPVEX08 campaign, October 2008. Thus, temporal coverage and resolution varies by parameter. Data were obtained from a long-term database of soil texture for the conterminous United States called CONUS-Soil. Visit the Soil Information for Environmental Modeling and Ecosystem Management for more information.

## 1.8 Parameter or Variable

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**Available Water Capacity:** Values given as volumetric percent, computed for a column length of 100 cm, measured from the surface.

**Bulk Density:** Values given as mean bulk density.

**Permeability:** Values given as mean permeability rate, in cm/hr.

**Porosity:** Values given as mean porosity.

**Rock Fragment Classification:** Values given in code ranging from 0-15 that represent a fragment class:

0. No data
1. Bouldery
2. Cobbly
3. Channery
4. Cherty
5. Flaggy
6. Gravelly
7. Rubbly
8. Shaly

9. Stony
10. Slaty
11. Organic Materials
12. Water
13. Bedrock
14. No Rock Fragments
15. Other

**Rock Fragment Volume:** Values given as percent of rock by volume.

**Texture/Percent Sand:** Values given as percent sand.

**Texture/Percent Clay:** Values given as percent clay.

### 1.8.1 Parameter Ranges

Valid parameter ranges are as follows:

- Available Water Capacity: 0-100%
- Bulk Density: 0-3 g/cm<sup>3</sup>
- Permeability: 0-10 cm/hr
- Porosity: 0-1
- Rock Fragment Classification: 0-15
- Rock Fragment Volume: 0-100%
- Texture/Percent Sand: 0-100%
- Texture/Percent Clay: 0-100%

## 2 SOFTWARE AND TOOLS

ArcView, ENVI, or other similar software packages are appropriate tools for viewing the binary data.

## 3 DATA ACQUISITION AND PROCESSING

These soil data were retrieved from an online database hosted by the Earth System Science Center in the College of Earth and Mineral Sciences at The Pennsylvania State University, at <http://www.soilinfo.psu.edu>. The data are from CONUS-Soil, a multi-layer soil characteristics data set for the conterminous United States.

### 3.1.1 Errors Sources

The usage of two scenes, both acquired before the campaign, caused additional error to the classification.

### 3.1.2 Quality Assessment

The quality of the classifications is not high due to the effect of the error sources specified above.

## 4 VERSION HISTORY

Version 1 (June 2015)

## 5 CONTACTS AND ACKNOWLEDGMENTS

### 5.1 Investigators

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### 5.2 Acknowledgments

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Maryland and Delaware soil data were retrieved from an online database hosted by the Earth System Science Center in the College of Earth and Mineral Sciences at The Pennsylvania State University, at <http://www.soilinfo.psu.edu>. The data are from CONUS-SOIL, a multi-layer soil characteristics data set for the conterminous United States.

## 6 DOCUMENT INFORMATION

### 6.1 Publication Date

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June 2015

### 6.2 Date Last Updated

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