

ISLSCP II Global Gridded Soil Characteristics

Revision date: April 6, 2011

Summary:

This data set provides gridded data for selected soil parameters derived from data and methods developed by the Global Soil Data Task, an international collaborative project with the objective of making accurate and appropriate data relating to soil properties accessible to the global change research community. The task was coordinated by the International Geosphere-Biosphere Programme (IGBP-DIS). The data in this data set were produced by the International Satellite Land-Surface Climatology Project, Initiative II (ISLSCP II) staff from data obtained from the Oak Ridge National Laboratory Distributed Active Archive Center (ORNL DAAC, <http://daac.ornl.gov/>). See **the related data sets** section below. Two-dimensional gridded maps of selected soil parameters, including soil texture, at a 1.0 by 1.0 degree spatial resolution and for two soil depths are provided. All data layers have been adjusted to match the ISLSCP II land/water mask. There are 36 data files with this data set.

Additional Documentation:

This data set is one of the products of the International Satellite Land-Surface Climatology Project, Initiative II (ISLSCP II) data collection which contains 50 global time series data sets for the ten-year period 1986 to 1995. A complete description of the data, its derivation, acknowledgements, and references provided by the ISLSCP II Data Management Staff is included with this data set as a companion file named [1 islscp2 soils doc.pdf](#).

ISLSCP II is a consistent collection of data sets that were compiled from existing data sources and algorithms, and were designed to satisfy the needs of modelers and investigators of the global carbon, water and energy cycle. The data were acquired from a number of U.S. and international agencies, universities, and institutions. The data and documentation have undergone two peer reviews.

ISLSCP is one of several projects of Global Energy and Water Cycle Experiment (GEWEX) (<http://www.gewex.org/>) and has the lead role in addressing land-atmosphere interactions -- process modeling, data retrieval algorithms, field experiment design and execution, and the development of global data sets.

Related Data Sets:

- Additional [ISLSCP II](#) data sets as well as data sets from [Soil Collections](#) are available from the Oak Ridge National Laboratory Distributed Active Archive Center ([ORNL DAAC](#)).
- [Global Soil Data Task Group. 2000. Global Gridded Surfaces of Selected Soil Characteristics \(IGBP-DIS\)](#).

Data Citation:

Cite this data set as follows:

Scholes, R. J., and E. Brown de Colstoun. 2011. ISLSCP II Global Gridded Soil Characteristics. In Hall, Forrest G., G. Collatz, B. Meeson, S. Los, E. Brown de Colstoun, and D. Landis (eds.). ISLSCP Initiative II Collection. Data set. Available on-line [<http://daac.ornl.gov/>] from Oak Ridge National Laboratory Distributed Active Archive Center, Oak Ridge, Tennessee, U.S.A. [doi:10.3334/ORNLDAAC/1004](https://doi.org/10.3334/ORNLDAAC/1004)

File Information:

The archived data sets for ISLSCP II have been organized by categories. This data set is in the Hydrology, Soils, and Topography category---- a collection of hydroclimatology and surface elevation data sets.

Data Set Spatial Extent: Global gridded

Westernmost Longitude: -180 W

Easternmost Longitude: 180 E

Northernmost Latitude: 90 N

Southernmost Latitude: -90 S

Projection: Geographic

Data Set Spatial Resolution: 1.0 degree in both latitude and longitude

Data Set Temporal Extent: 1986 through 1995

Data File Format

All of the data files in each data set within the ISLSCP Initiative II data collection are in ASCII GRID format. The file format consists of numerical fields of varying length, which are delimited by a single space and arranged in columns and rows.

There are 36 data files with the following naming convention:

soil_parameterdepth_1d.asc Example: **soil_bulk_dens0-150_1d.asc**

where:

parameter is the particular soil parameter (see Section 3.2 and 8.2 for a list of parameters and descriptions).

depth is the soil depth in cm for the estimated soil parameter (i.e. 0-30 or 0-150).

1d identifies the spatial resolution of the data as 1 degree in both latitude and longitude.

.asc identifies the format of the data as ASCII, or text format.

*****NOTE:** The files for soil thermal capacity are named **soil_therm_capWC_depth_1d.asc**, where WC is the percent water content of the soil: 0, 10, 50 or 100 percent.

Selected soil parameters investigated:

Parameter Name	Units	Description
bulk_dens	g/cm ³	Bulk Density.
clay_perc	% w/w	% Clay Content.
field_cap	mm	Field Capacity (FC), with FC water potential = -10 kPa
ksat	cm/day	Saturated Hydraulic Conductivity or Ksat
nitrogen_dens	g/m ²	Soil Nitrogen Density
org_carb_dens	kg/m ²	Soil Carbon Density
org_carb_perc	%	Percent Soil Organic Carbon Content
pawc	mm	Profile Available Water Content (PAWC), with: FC water potential = -10 kPa WP water potential = -1500 kPa
res_wat_cont	cm ³ /cm ³	Residual Water Content
sand_perc	% w/w	% Sand Content
sat_wat_cont	cm ³ /cm ³	Saturated Water Content or Porosity
silt_perc	% w/w	% Silt Content
texture	N/A	12 Soil Texture Classes after USDA soil texture classes.
therm_cap	J/m ³ /K	Thermal Capacity, with 0, 10, 50 and 100 % volumetric soil-water fraction (i.e. four data files for each soil depth).
wilting_point	mm	Wilting Point (WP), with WP water potential = -1500 kPa

Please refer to [1_islscp2_soils_doc.pdf](#) and [0_islscp2_soils_readme.txt](#) for a more complete description of the data files and naming conventions.

Data Access:

These data are available through the Oak Ridge National Laboratory (ORNL) Distributed Active Archive Center (DAAC) [<http://daac.ornl.gov>].

Data Archive Contact Information:

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