A Big Earth Data Platform for Three Poles

**Siol map based Harmonized World Soil Database (v1.2)**

1、Description

Soil data is important both on a global scale and on a local scale, and due to the lack of reliable soil data, land degradation assessments, environmental impact studies, and sustainable land management interventions have received significant bottlenecks . Affected by the urgent need for soil information data around the world, especially in the context of the Climate Change Convention, the International Institute for Applied Systems Analysis (IIASA) and the Food and Agriculture Organization of the United Nations (FAO) and the Kyoto Protocol for Soil Carbon Measurement and FAO/International The Global Agroecological Assessment Study (GAEZ v3.0) jointly established the Harmonized World Soil Database version 1.2 (HWSD V1.2). Among them, the data source in China is the second national land in 1995. Investigate 1:1,000,000 soil data provided by Nanjing Soil. The resolution is 30 seconds (about 0.083 degrees, 1km). The soil classification system used is mainly FAO-90.

The core soil system unit unique verification identifier:
MU\_GLOBAL-HWSD database soil mapping unit identifier, connected to the GIS layer.
MU\_SOURCE1 and MU\_SOURCE2 source database drawing unit identifiers
SEQ-soil unit sequence in the composition of the soil mapping unit;
The soil classification system utilizes the FAO-7 classification system or the FAO-90 classification system (SU\_SYM74 resp. SU\_SYM90) or FAO-85 (SU\_SYM85).
The main fields of the soil property sheet include:
ID (database ID)
MU\_GLOBAL (Soil Unit Identifier) ​​(Global)
SU\_SYMBOL soil drawing unit
SU\_SYM74 (FAO74 classification);
SU\_SYM85 (FAO85 classification);
SU\_SYM90 (name of soil in the FAO90 soil classification system);
SU\_CODE soil charting unit code
SU\_CODE74 soil unit name
SU\_CODE85 soil unit name
SU\_CODE90 soil unit name
DRAINAGE (19.5);
REF\_DEPTH (soil reference depth);
AWC\_CLASS(19.5);
AWC\_CLASS (effective soil water content);
PHASE1: Real (soil phase);
PHASE2: String (soil phase);
ROOTS: String (depth classification to the bottom of the soil);
SWR: String (soil moisture content);
ADD\_PROP: Real (specific soil type in the soil unit related to agricultural use);
T\_TEXTURE (top soil texture);
T\_GRAVEL: Real (top gravel volume percentage); (unit: %vol.)
T\_SAND: Real (top sand content); (unit: % wt.)
T\_SILT: Real (surface layer sand content); (unit: % wt.)
T\_CLAY: Real (top clay content); (unit: % wt.)
T\_USDA\_TEX: Real (top layer USDA soil texture classification); (unit: name)
T\_REF\_BULK: Real (top soil bulk density); (unit: kg/dm3.)
T\_OC: Real (top organic carbon content); (unit: % weight)
T\_PH\_H2O: Real (top pH) (unit: -log(H+))
T\_CEC\_CLAY: Real (cation exchange capacity of the top adhesive layer soil); (unit: cmol/kg)
T\_CEC\_SOIL: Real (cation exchange capacity of top soil) (unit: cmol/kg)
T\_BS: Real (top level basic saturation); (unit: %)
T\_TEB: Real (top exchangeable base); (unit: cmol/kg)
T\_CACO3: Real (top carbonate or lime content) (unit: % weight)
T\_CASO4: Real (top sulfate content); (unit: % weight)
T\_ESP: Real (top exchangeable sodium salt); (unit: %)
T\_ECE: Real (top conductivity). (Unit: dS/m)
S\_GRAVEL: Real (bottom crushed stone volume percentage); (unit: %vol.)
S\_SAND: Real (bottom sand content); (unit: % wt.)
S\_SILT: Real (bottom sludge content); (unit: % wt.)
S\_CLAY: Real (bottom clay content); (unit: % wt.)
S\_USDA\_TEX: Real (bottom USDA soil texture classification); (unit: name)
S\_REF\_BULK: Real (bottom soil bulk density); (unit: kg/dm3.)
S\_OC: Real (underlying organic carbon content); (unit: % weight)
S\_PH\_H2O: Real (bottom pH) (unit: -log(H+))
S\_CEC\_CLAY: Real (cation exchange capacity of the underlying adhesive layer soil); (unit: cmol/kg)
S\_CEC\_SOIL: Real (cation exchange capacity of the bottom soil) (unit: cmol/kg)
S\_BS: Real (underlying basic saturation); (unit: %)
S\_TEB: Real (underlying exchangeable base); (unit: cmol/kg)
S\_CACO3: Real (bottom carbonate or lime content) (unit: % weight)
S\_CASO4: Real (bottom sulfate content); (unit: % weight)
S\_ESP: Real (underlying exchangeable sodium salt); (unit: %)
S\_ECE: Real (underlying conductivity). (Unit: dS/m)
The database is divided into two layers, with the top layer (T) soil thickness (0-30 cm) and the bottom layer (S) soil thickness (30-100 cm).
For other attribute values, please refer to the HWSD1.2\_documentation documentation.pdf, The Harmonized World Soil Database (HWSD V1.2) Viewer-Chinese description and HWSD.mdb.

2、Keywords

Theme：Soil,Soil depth,Soil moisture/Water content,Soil classification
Discipline：Terrestrial Surface
Places：world
Time：1995

3、Data details

1.Scale：None

2.Projection：

3.Filesize：89.1MB

4.Data format：ENVI Image

4、Space scope

|  |  |  |
| --- | --- | --- |
| - | north：90.0 | - |
| west：-180.0 | - | east：180.0 |
| - | south：-60.0 | - |

5、Time frame:None--None

6、Reference method

References to data:

Wang Hao, Meng Xianyong. Siol map based Harmonized World Soil Database (v1.2). A Big Earth Data Platform for Three Poles, 2018

References to articles:

Wieder, W.R., J. Boehnert, G.B. Bonan, and M. Langseth. 2014. Regridded Harmonized World Soil Database v1.2. Data set. Available on-line [http://daac.ornl.gov] from Oak Ridge National Laboratory Distributed Active Archive Center, Oak Ridge, Tennessee, USA. http://dx.doi.org/10.3334/ORNLDAAC/1247 .

7、Supporting project information

8、Data resource provider

name: Meng Xianyong
unit: College of Resources and Environment Sciences, China Agricultural University
email: xymeng@cau.edu.cn

name: Wang Hao
unit: China Institute of Water Resources and Hydropower Research
email: None