A Big Earth Data Platform for Three Poles

**Field soil survey and analysis data in the upper reaches of Heihe River Basin (2013-2014)**

1、Description

The dataset is the field soil measurement and analysis data of the upstream of Heihe River Basin from 2013 to 2014, including soil particle analysis, water characteristic curve, saturated water conductivity, soil porosity, infiltration analysis, and soil bulk density  
I. Soil particle analysis  
1. The soil particle size data were measured in the particle size laboratory of the Key Laboratory of the Ministry of Education, West Ministry of Lanzhou University.The measuring instrument is Marvin laser particle size meter MS2000.  
2. Particle size data were measured by laser particle size analyzer.As a result, sample points with large particles cannot be measured, such as D23 and D25 cannot be measured without data.Plus partial sample missing.  
Ii. Soil moisture characteristic curve  
1. Centrifuge method: The unaltered soil of the ring-cutter collected in the field was put into the centrifuge, and the rotor weight of each time was measured with the rotation speed of 0, 310, 980, 1700, 2190, 2770, 3100, 5370, 6930, 8200 and 11600 respectively.  
2. The ring cutter is numbered from 1 to the back according to the number. Since three groups are sampled at different places at the same time, in order to avoid repeated numbering, the first group is numbered from 1, the second group is numbered from 500, and the third group is numbered from 1000.It's consistent with the number of the sampling point.You can find the corresponding number in the two Excel.  
3. The soil bulk density data in 2013 is supplementary to the sampling in 2012, so the data are not available at every point.At the same time, the soil layer of some sample points is not up to 70 cm thick, so the data of 5 layers cannot be taken. At the same time, a large part of data is missing due to transportation and recording problems.At the same time, only one layer of data is selected by random points.  
4. Weight after drying: The drying weight of some samples was not measured due to problems with the oven during the experiment.  
3. Saturated water conductivity of soil  
1. Description of measurement method: The measurement method is based on the self-made instrument of Yiyanli (2009) for fixing water hair.The mariot bottle was used to keep the constant water head during the experiment.At the same time, the measured Ks was finally converted to the Ks value at 10℃ for analysis and calculation.Detailed measurement record table refer to saturation conductivity measurement description.K10℃ is the data of saturated water conductivity after conversion to 10℃.Unit: cm/min.  
2. Data loss explanation: The data of saturated water conductivity is partly due to the lack of soil samples and the insufficient depth of the soil layer to obtain the data of the 4th or 5th layer  
3. Sampling time: July 2014  
4. Soil porosity  
1. Use bulk density method to deduce: according to the relationship between soil bulk density and soil porosity.  
2. The data in 2014 is supplementary to the sampling in 2012, so the data are not available at every point.At the same time, the soil layer of some sample points is not up to 70 cm thick, so the data of 5 layers cannot be taken. At the same time, a large part of data is missing due to transportation and recording problems.At the same time, only one layer of data is selected by random points.  
5. Soil infiltration analysis  
1. The infiltration data were measured by the "MINI DISK PORTABLE specific vector INFILTROMETER".The approximate saturation water conductivity under a certain negative pressure is obtained.The instrument is detailed in website: http://www.decagon.com/products/hydrology/hydraulic-conductivity/mini-disk-portable-tension-infiltrometer/  
2.D7 infiltration tests were not measured at that time because of rain.  
Vi. Soil bulk density  
1. The bulk density of soil in 2014 refers to the undisturbed soil taken by ring cutter based on the basis of 2012.  
2. The soil bulk density is dry soil bulk density, which is measured by drying method.The undisturbed ring-knife soil samples collected in the field were kept in an oven at 105℃ for 24 hours, and the dry weight of the soil was divided by the soil volume (100 cubic centimeters).  
3. Unit: G /cm3

2、Keywords

Theme：Soil,Soil moisture characteristic curve,Soil particles,Soil bulk density,Saturated hydraulic conductivity,Soil infiltration,Soil porosity  
Discipline：Terrestrial Surface  
Places：Upper Reaches of Heihe Basin  
Time：2013-2014

3、Data details

1.Scale：None

2.Projection：4326

3.Filesize：6.05MB

4.Data format：栅格

4、Space scope

|  |  |  |
| --- | --- | --- |
| - | north：39.6 | - |
| west：97.5 | - | east：101.5 |
| - | south：37.7 | - |

5、Time frame:2013-01-12 10:47:17+00:00--2015-01-11 10:47:17+00:00

6、Reference method

References to data:

HE Chansheng. Field soil survey and analysis data in the upper reaches of Heihe River Basin (2013-2014). A Big Earth Data Platform for Three Poles, doi:10.3972/westdc.x.2013.db2016

References to articles:

贺缠生，张兰慧，田杰，金鑫，李金麟，赵琛，王忠富，白晓，蒋忆文，杨礼箫，张喜风，吴维臻.黑河上游土壤饱和导水率数据. 寒区旱区科学数据中心, 2014

7、Supporting project information

8、Data resource provider

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