A Big Earth Data Platform for Three Poles

**Water vapor absorption and utilization data set of desert plants in Heihe River Basin (2012-2014)**

1、Description

All data in this data set are original data, including meteorological and soil moisture content, stem sap flow, water potential of plant tissue, isotope characteristics of atmospheric and humidified water vapor, fluorescence tracer image, plant photosynthetic fluorescence, and basic data of five desert plants, Tamarix chinensis, Haloxylon ammodendron, Bawang, Nitraria tangutorum and red sand, which are related to field and indoor control experiments Because of the data of expression regulation.  
1. Isotopic data of Tamarix chinensis. After humidifying for 1 hour, 2 hours and 3 hours, the tissue samples of indoor and outdoor plants of plexiglass were collected at the same time. The samples were put forward and processed by low-temperature vacuum distillation glass water extraction system, and then used euro The isotopic data were measured by ea3000 element analyzer and isoprime gas stability mass spectrometer. Tamarix Tamarix samples were collected from Sitan village, Jingtai County, including humidification and control samples. The variation data of isotopic composition can be used to determine the way and amount of water vapor absorbed by plant leaves.  
2. Fluorescence section photo data: all the data in this data set are original data, including the structural photos under high-power microscope of Tamarix, Haloxylon ammodendron, Nitraria, Bawang, Hongsha and other desert plant leaves in Sitan village of Jingtai County and Ejin Banner. The specific method is as follows: apply fluorescent dye to the surface of desert plant leaves before humidification, collect plant leaves and stems after humidification for 1 hour, 2 hours and 3 hours, put them in liquid nitrogen, take them back to the laboratory, observe and take photos with fluorescence microscope. It can be used to analyze the tissue and organs of water absorption by desert plant leaves and the direction and path of water migration in plants.  
3: Gene transcription and expression data: transcription and expression data of Tamarix chinensis, data collection time: May 25, 2014, location: Sitan village, Jingtai County, Gansu Province, data analysis platform: lllumina hisep TM 2000 platform, obtained by transcriptome analysis of baimaike company.  
4. Photosynthetic and fluorescence data: photosynthetic and fluorescence parameters measured by photosynthetic apparatus in the field (Sitan village and Ejin Banner, Jingtai County).  
5. Sap flow and environmental data: all data are original data. Sap flow data of desert plants measured by stem flow meter, including Tamarix chinensis, Haloxylon ammodendron, Nitraria tangutorum, red sand and other desert plants (Sitan village, Jingtai County and Ejin Banner), and environmental data monitored by automatic weather station, including temperature and humidity.

2、Keywords

Theme：Photosynthesis,Water consumption,Vegetation,Desert plants,Thermal dissipation sap flow velocity probe（TDP）,Physiological indexes  
Discipline：Terrestrial Surface  
Places：Heihe River Basin, Jingtai, Gansu Province  
Time：2012-2014

3、Data details

1.Scale：1

2.Projection：4326

3.Filesize：17.9MB

4.Data format：EXCEL

4、Space scope

|  |  |  |
| --- | --- | --- |
| - | north：42.0 | - |
| west：101.0 | - | east：104.0 |
| - | south：37.0 | - |

5、Time frame:2012-05-14 00:00:00+00:00--2015-01-13 00:00:00+00:00

6、Reference method

References to data:

XIAO Honglang. Water vapor absorption and utilization data set of desert plants in Heihe River Basin (2012-2014). A Big Earth Data Platform for Three Poles, doi:10.3972/heihe.072.2014.db2016

References to articles:

7、Supporting project information

8、Data resource provider

name: XIAO Honglang  
unit: Cold and Arid Regions Environmental and Engineering Research Institute, Chinese Academy of Sciences  
email: xhl@lzb.ac.cn