A Big Earth Data Platform for Three Poles

**WATER: Dataset of differential global position system (DGPS) measurements at the super site around the Dayekou Guantan forest station (2008)**

1、Description

The super sample plot is composed of 16 sub samples. In order to locate each tree in the sample plot and facilitate the location of the base station point for ground-based radar observation, it is necessary to measure the geodetic coordinates of the sub sample plot corner point and the preset base station point for ground-based radar. The location of these points and each tree is measured by total station. Because the total station measures relative coordinates, in order to obtain geodetic coordinates, it is necessary to use differential GPS (DGPS) to measure at least one reference point around the super sample plot with high precision. In addition, we also use DGPS to observe the geodetic coordinates of all corner points of the subsample, and the measurement results can form the verification of the total station measurement results. The data set is based on all the positioning results measured by DGPS, excluding the positioning results of total station.
The measurement time is from June 1 to 13, 2008, using the French Thales differential GPS measurement system, model z-max. The observation method is to use two GPS receivers for synchronous static measurement, one is the base station, which is set next to Gansu Water Conservation Forest Research Institute (the WGS geodetic coordinate of the base station is a first-class benchmark introduced from Zhangye City through multi station observation using z-max). The other is the mobile station, which is placed on the observation point of super sample plot. The observation time of each point varies from 10, 15, 20, 25, 30 minutes. The specific time depends on the satellite signal. The signal difference time is measured for several minutes more. Finally, the final positioning result is obtained by using the processing software of the instrument. WGS geodetic coordinate system is used for the positioning results.
Firstly, six temporary control points were measured in the open area next to the super sample plot, providing reference points for the total station to measure the position of trees in the super sample plot. Then, flow stations were set up on each corner of 16 sub plots of super plot, and the coordinates of corner points were measured, and 41 observation points were obtained. The dataset stores the positioning results of these 47 points.
This data is only for project use and not for external sharing.

2、Keywords

Theme：Gravity,differential global position system
Discipline：Solid earth
Places：Heihe River Basin, Dayekou watershed foci experimental areas, Forest and Hydrology Experimental Areas, Super Site around the Dayekou Guantan Forest Station
Time：2008

3、Data details

1.Scale：None

2.Projection：4326

3.Filesize：315.0MB

4.Data format：

4、Space scope

|  |  |  |
| --- | --- | --- |
| - | north：38.534361 | - |
| west：100.250212 | - | east：100.251297 |
| - | south：38.533171 | - |

5、Time frame:2008-06-12 16:00:00+00:00--2008-06-24 16:00:00+00:00

6、Reference method

References to data:

WATER: Dataset of differential global position system (DGPS) measurements at the super site around the Dayekou Guantan forest station (2008). A Big Earth Data Platform for Three Poles, doi:10.3972/water973.0152.db2010

References to articles:

Bao YF, Cao CX, Zhang H, Chen EX, He QS, Huang HB, Ll ZY, Ll XW, Gong P. Synchronous estimation of DTM and fractional vegetation cover in forested area from airborne LIDAR height and intensity data. Science in China Series E-technological Sciences, 2008, 52(Suppl. 2): 176-187. 10.1007/s11431-008-6018-x.

Liu QW, Li ZY, Chen EX, Pang Y, Li SM, Tian X. Feature analysis of LIDAR waveforms from forest canopies. Science China-earth Sciences, 2011, 54(8): 1206-1214. 10.1007/s11430-011-4212-3.

刘清旺, 李增元, 陈尔学, 庞勇, 田昕, 曹春香. 机载LIDAR点云数据估测单株木生物量. 高技术通讯, 2010, 20(7): 765–770.

刘清旺. 机载激光雷达森林参数估测方法研究. 北京: 中国林业科学研究院, 2009.

刘清旺, 李增元, 陈尔学, 庞勇, 李世明, 田昕. 森林冠层探测激光雷达的波形特征分析. 中国科学：地球科学, 2011, 41(11): 1670-1678.

刘清旺, 李增元, 陈尔学, 曹斌, 白黎娜. 青海云杉天然次生林区DGPS定位精度分析. 林业资源管理, 2009(06): 107–112.

7、Supporting project information

The CAS (Chinese Academy of Sciences) Action Plan for West Development Project
National Program on Key Basic Research Project (973 Program

8、Data resource provider