A Big Earth Data Platform for Three Poles

**HiWATER: 2m DEM data production in Dayekou watershed**

1、Description

Trough the select tasking, we obtained the WorldView-2 stereo image data in Dayekou Basin production in mid-May 2012. In the same year from July to August, 27 GPS ground control points (GCP) and checkpoints were measured based on the watershed differential GPS control network. Based on the full-field GCPs, the rational polynomial coefficients (RPC) files of WorldView-2 images were corrected in the digital photogrammetry software system. In the stereo model, 60 high-precision tie points evenly distributed were got through image matching technology, and the 1-m and 2-m resolution digital elevation model (DEM) were rapid extracted. Moreover, the DEM was edited in some key areas, such as the shady forest coverage and Dayekou reservoir. The terrain feature points and line data were added to improve the accuracy of the results in large variation of terrain feature. Check points were composed of GPS points and model confidential points, which used for quantitative validation. And they root mean square errors RMSE were 1.9 meters and 1.2 meters respectively, which achieve the requirements of two degree accuracy of 2.0 m at a scale of 1:2000 in high mountains.

2、Keywords

Theme：Digital elevation model(DEM),Terrestrial Surface Remote Sensing
Discipline：Terrestrial Surface
Places：Heihe River Basin, Dayekou Basin, the cold region hydrology experimental area in the upper reaches
Time：2012

3、Data details

1.Scale：None

2.Projection：WGS84 +CGCS2000

3.Filesize：595.0MB

4.Data format：\*.img

4、Space scope

|  |  |  |
| --- | --- | --- |
| - | north：38.575 | - |
| west：100.215 | - | east：100.307 |
| - | south：38.445 | - |

5、Time frame:2012-04-14 12:04:00+00:00--2012-05-14 12:04:00+00:00

6、Reference method

References to data:

MA Mingguo. HiWATER: 2m DEM data production in Dayekou watershed. A Big Earth Data Platform for Three Poles, doi:10.3972/hiwater.139.2013.db2017

References to articles:

张彦丽, 李丑荣, 王秀琴, 张鹏吉. (2013). 基于WorldView-2制备大野口流域高分辨率DEM及精度分析. 遥感技术与应用. 28(3): 431-436.

Che, T., Li, X., Liu, S., Li, H., Xu, Z., Tan, J., Zhang, Y., Ren, Z., Xiao, L., Deng, J., Jin, R., Ma, M., Wang, J., & Yang, X. (2019). Integrated hydrometeorological, snow and frozen-ground observations in the alpine region of the Heihe River Basin, China. Earth System Science Data, 11, 1483-1499

7、Supporting project information

Heihe Watershed Allied Telemetry Experimental Research (HiWATER)

8、Data resource provider

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