A Big Earth Data Platform for Three Poles

**Simulation results of eco hydrological model in the middle and lower reaches of Heihe river v1.0 (2001-2012)**

1、Description

This project use distributed HEIFLOW Ecological hydrology model (Hydrological - Ecological Integrated watershed - scale FLOW model) of heihe river middle and lower reaches of the eco Hydrological process simulation.The model USES the dynamic land use function, and adopts the land use data of the three phases of 2000, 2007 and 2011 provided by hu xiaoli et al.
The space-time range and accuracy of simulation are as follows:
Simulation period: 2000-2012, of which 2000 is the model warm-up period
Analog step size: day by day
Simulation space range: the middle and lower reaches of heihe river, model area 90589 square kilometers
Spatial accuracy of the simulation: 1km×1km grid was used on both the surface and underground, and there were 90589 hydrological response units on the surface.Underground is divided into 5 layers, each layer 90589 mobile grid
The data set of HEIFLOW model simulation results includes the following variables:
(1) precipitation (unit: mm/month)
(2) observed values of main outbound runoff in the upper reaches of heihe river (unit: m3 / s)
(3) evapotranspiration (unit: mm/month)
(4) soil infiltration amount (unit: mm/month)
(5) surface yield flow (unit: mm/month)
(6) shallow groundwater head (unit: m)
(7) groundwater evaporation (unit: m3 / month)
(8) supply of shallow groundwater (unit: m3 / month)
(9) groundwater exposure (unit: m3 / month)
(10) river-groundwater exchange (unit: m3 / month)
(11) simulated river flow value of four hydrological stations of heihe main stream (gaoya, zhengyi gorge, senmaying, langxin mountain) (unit: cubic meter/second)
The first two variables above are model-driven data, and the rest are model simulation quantities.The time range of all variables is 2001-2012, and the time scale is month.The spatial distributed data precision is 1km×1km, and the data format is tif.
In the above variables, if the negative value is encountered, it represents the groundwater excretion (such as groundwater evaporation, groundwater exposure, groundwater recharge channel, etc.).If groundwater depth is required, the groundwater head data can be subtracted from the surface elevation data of the model. In some areas, the groundwater head may be higher than the surface, indicating the presence of groundwater exposure.
In addition, the dataset provides:
Middle and downstream model modeling scope (format:.shp)
Surface elevation of the middle and downstream model (in the format of. Tif)
All the above data are in the frame of WGS\_1984\_UTM\_Zone\_47N.
Take heiflow\_v1\_et\_2001m01.tif as an example to illustrate the naming rules of data files:
HEIFLOW: model name
V1: data set version 1.0
ET: variable name
2001M01: January 2000, where M represents month

2、Keywords

Theme：Stage height,Precipitation,Evapotranspiration,Surface Water,Hydrology
Discipline：Terrestrial Surface
Places：Heihe River Basin, The middle and lower of Heihe
Time：2001.01-2012.12

3、Data details

1.Scale：None

2.Projection：None

3.Filesize：9758.7MB

4.Data format：TIF

4、Space scope

|  |  |  |
| --- | --- | --- |
| - | north：42.67 | - |
| west：97.8 | - | east：102.14 |
| - | south：38.04 | - |

5、Time frame:2001-01-10 08:00:00+00:00--2013-01-09 08:00:00+00:00

6、Reference method

References to data:

ZHENG Chunmiao. Simulation results of eco hydrological model in the middle and lower reaches of Heihe river v1.0 (2001-2012). A Big Earth Data Platform for Three Poles, doi:10.11888/Hydro.tpdc.2708442017

References to articles:

Tian, Y., Zheng, Y., Zheng, C., et al (2015). Exploring scale‐dependent ecohydrological responses in a large endorheic river basin through integrated surface water‐groundwater modeling. Water Resources Research, 51(6): 4065-4085.

7、Supporting project information

8、Data resource provider

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