Capacity Building Workshop for Small Island Developing States:

Leveraging Big Earth Data to Evaluate the SDGs Progress

Global SDG Products and Applications Based on Big Earth Data

Operation Manual

2025 年 9 月

Global SDG Products and Applications Based on Big Earth Data

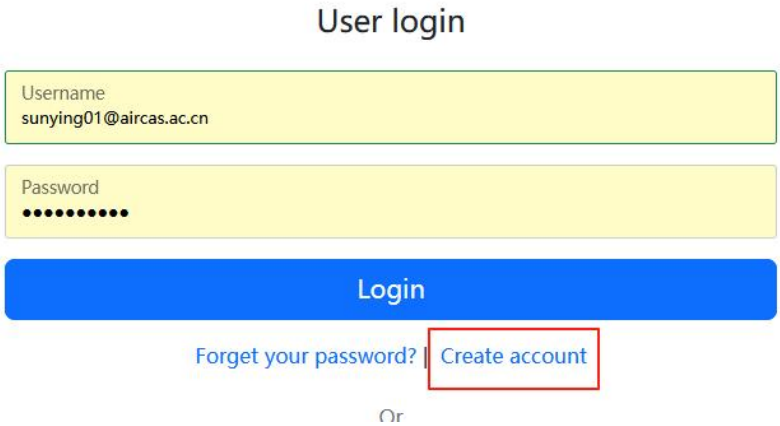
INDEX

1． Registration and Login of Website

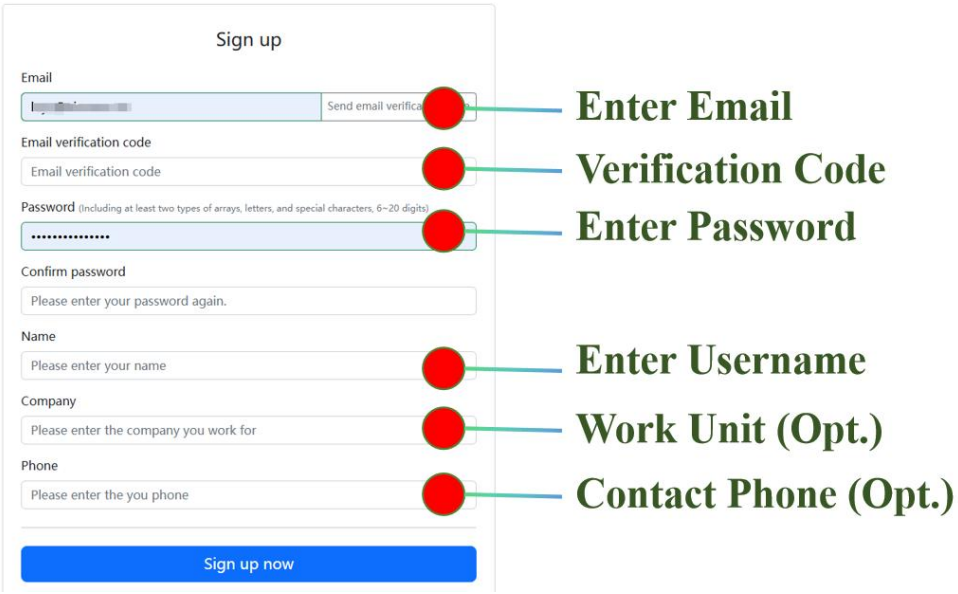
（1）The website of Data sharing service

https://data.casearth.cn/

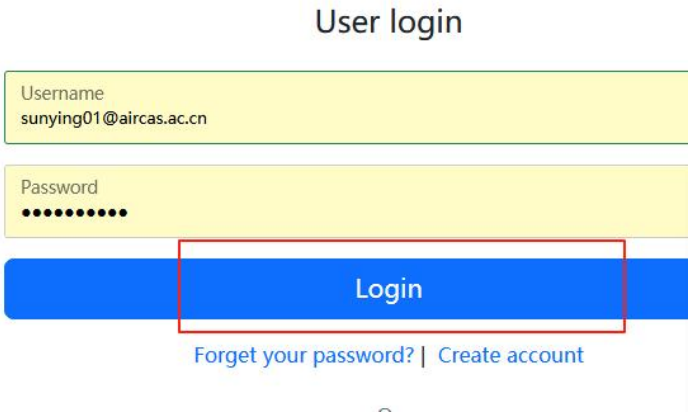
（2） Create account



Enter the information of the account

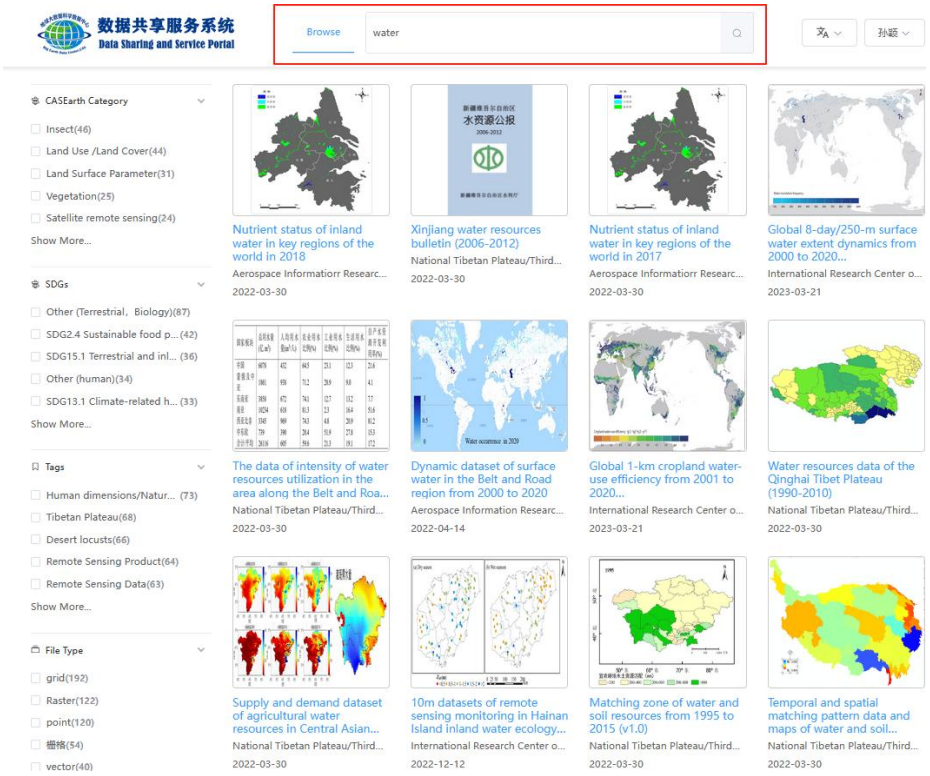

Sign up
Email
Send email verifica
Email verification code
Email verification code
Password (Including at least two types of arrays, letters, and special characters, 6~20 digits)
Confirm password
Please enter your password again.
Name
Please enter your name
Company
Please enter the company you work for
Phone
Please enter the you phone
Sign up now
Enter Email
Verification Code
Enter Password
Enter Username
Work Unit (Opt.)
Contact Phone (Opt.)

(3) Login in

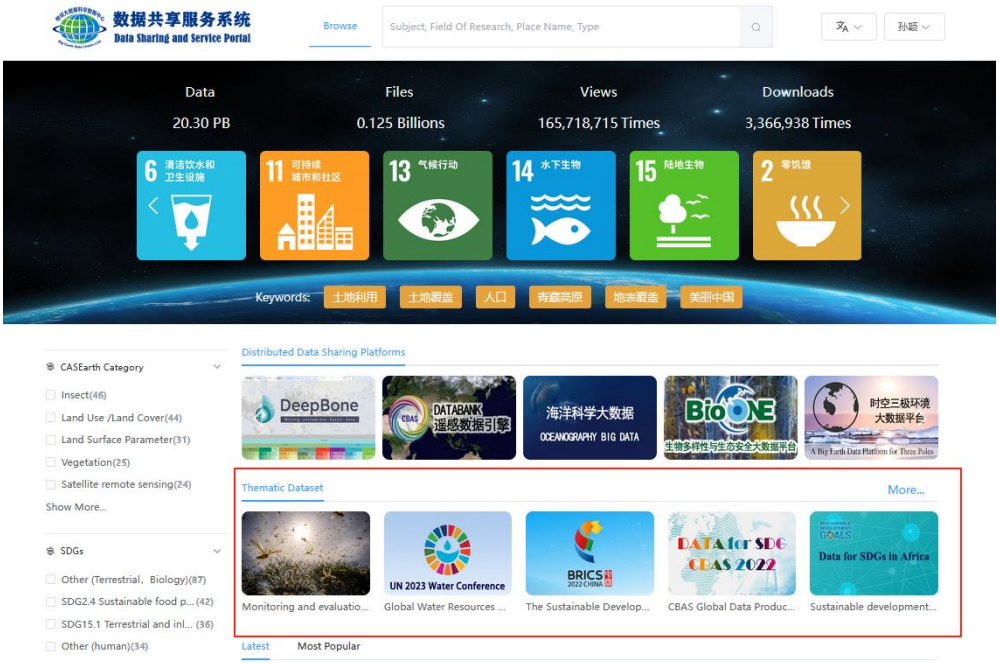

User login
Username
sunying01@aircas.ac.cn
Password
Login
Forget your password? | Create account

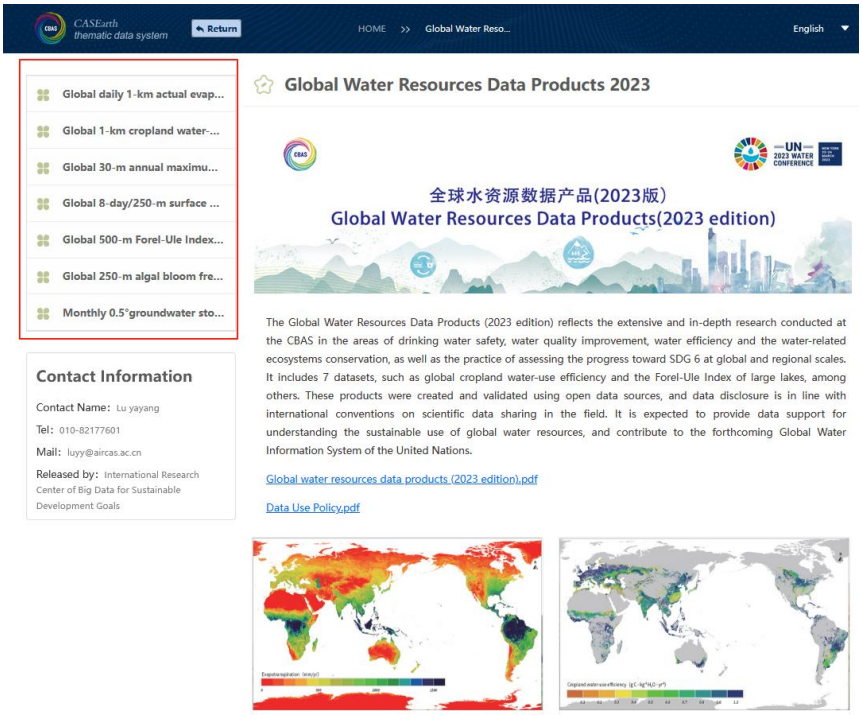
2. Search the products

(1) Search by “key words”

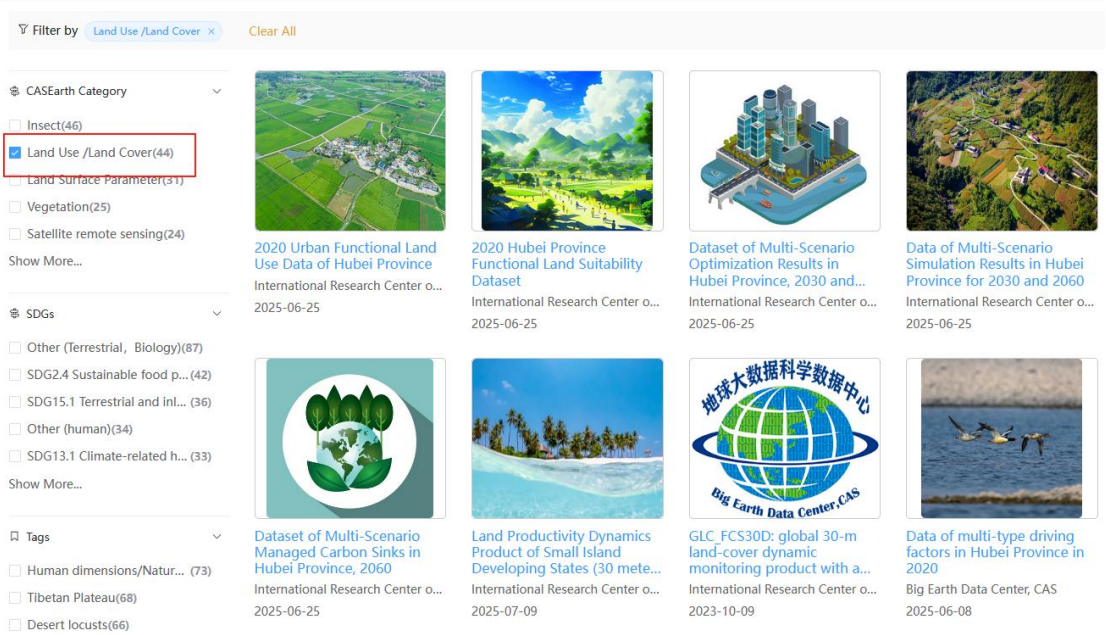


(2) Search by “The Thematic DataSet”

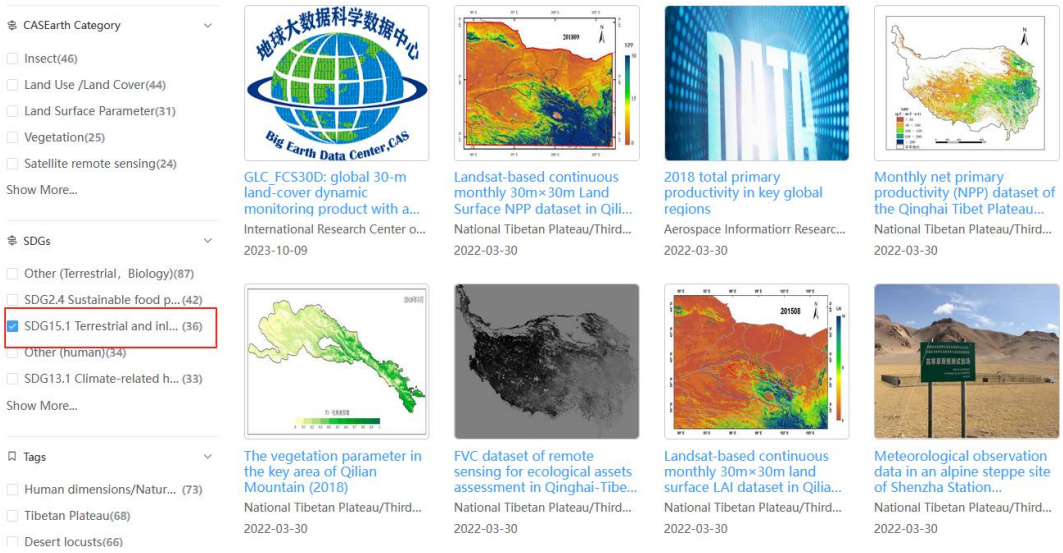




（3）Search by “ CASEarth Category”



（4） Search by “ SDGs”

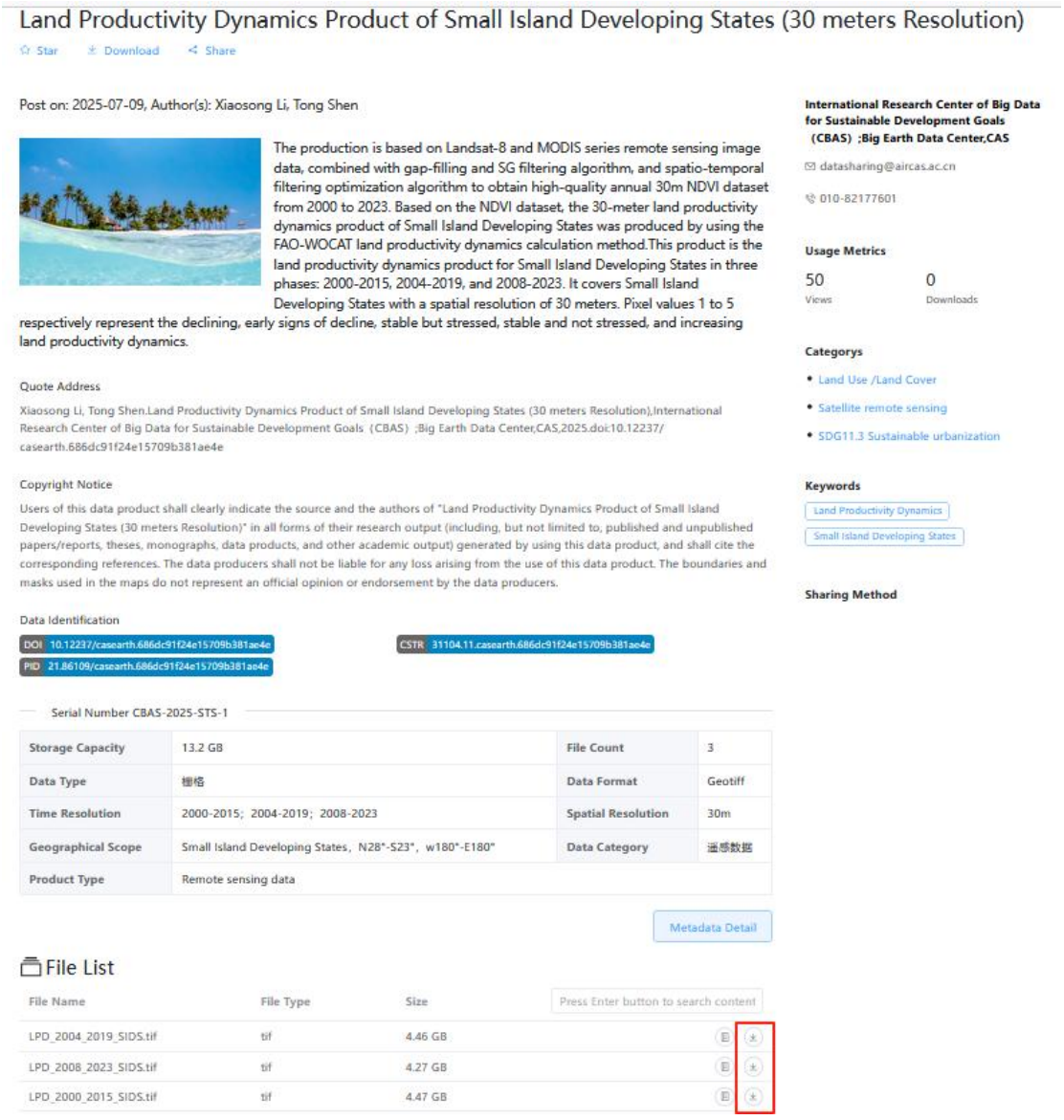


（5） Search by “ Most Popular” &Latest

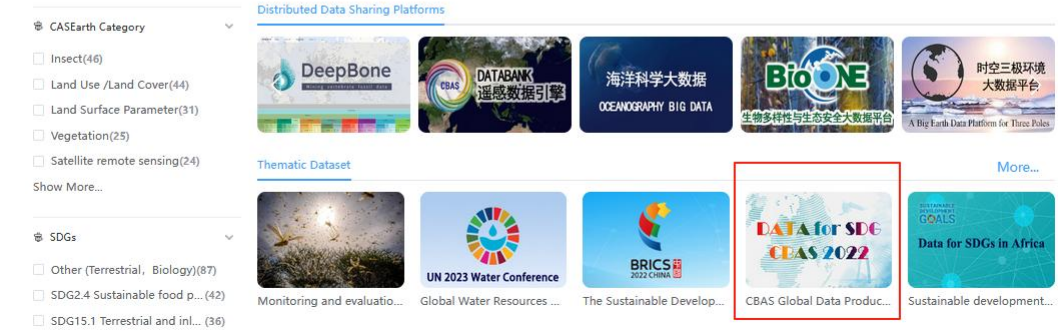
3. Download the products

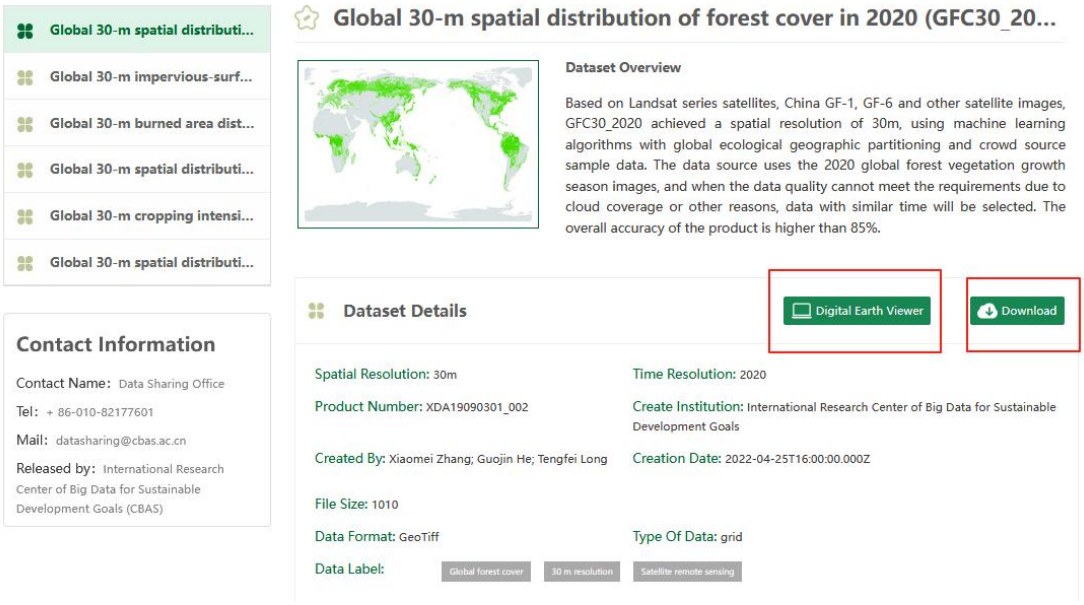
(1) Simple case

Use the button of download ,get the files.



(2) Select the aoi area,and download the corresponding files

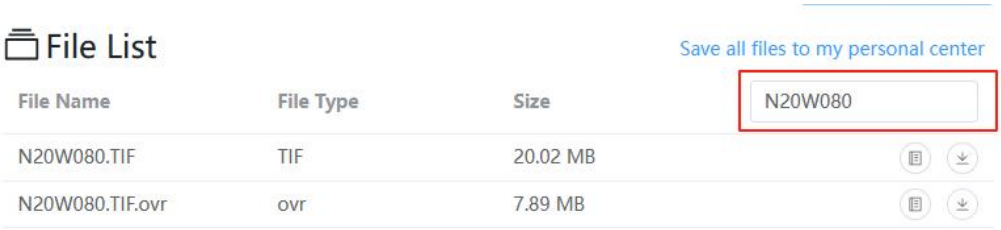




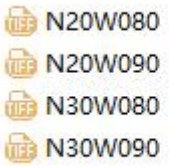
Naming Convention

The product was projected in a geographic (Lat/Long) projection at 0.00025o (approximately 30-m resolution), with the WGS84 horizontal datum and the EPSG:4326 vertical datum. The results consist of 504 tiles of 10°×10°, and each tile contains about 40,000×40,000 pixels. The data format is GeoTIFF. Each tile is coded according to the latitude and longitude shown in the upper left corner, with latitude in the front and longitude in the back. Latitude is two digits, with a prefix of N/S; longitude is three digits, with a prefix of E/W, where N is used at 0° latitude, and E is used at 0° longitude. Each tile file contains a layer in which the value of 1 represents forest and the value of 0 represents non-forest area.

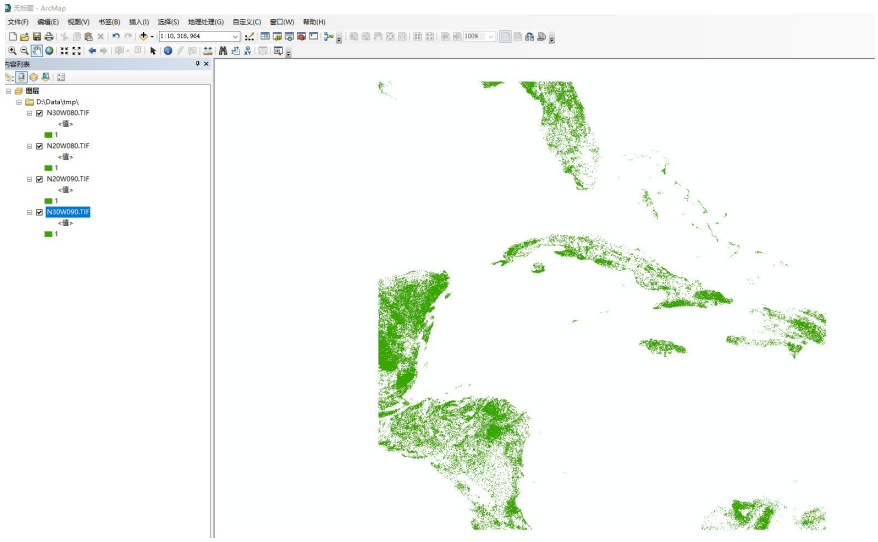
For example: Cuba
Latitude and longitude coordinates range :19°N to 23°N, 74°W to 85°W
We search N20W080



So the files we need just like this:



Open the files



（3）Download the data files in batches

Bulk downloads are available through API integration, using programming languages such as Python or Java. A sample Python code snippet is provided below.

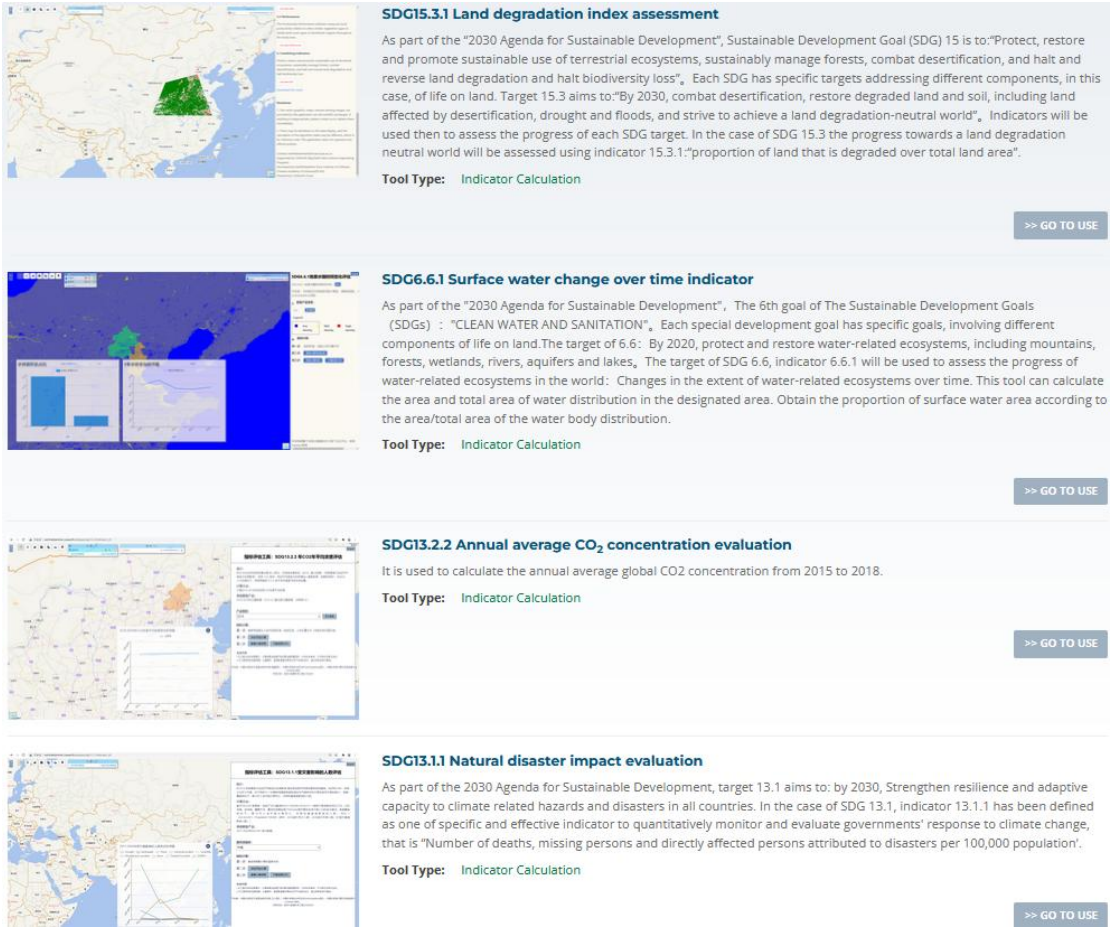
```
data= = requests.get(f'https://data.casearth.cn{Get File List By ID}').json()['data']

os.makedirs('./downloads', exist_ok=True)
```

4. SDGs Data Analysis

(1) Introduction

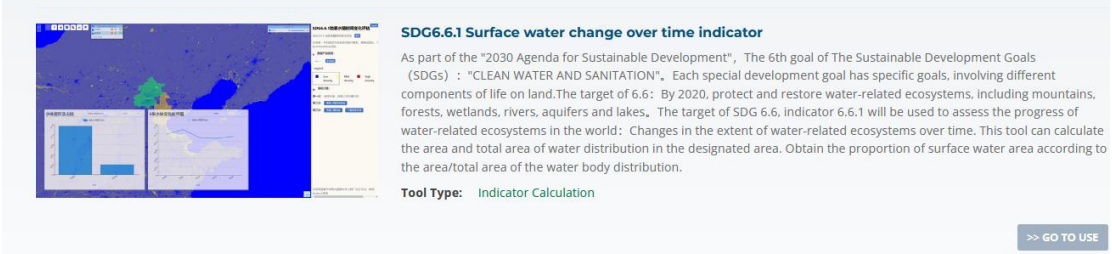
SDGs Data Analysis is an online code developing system for SDGs indicators data processing and analysis. Relying on the core technical framework driven by the Earth Data Miner, SDGs Data Analysis provides a compound online work environment for Python coding, with access to SDGs data products in the Databox, enabling migration and integration of SDGs indicator algorithms.

Website: https://sdg.casearth.cn/en/onlineTools/indicatorCalculate



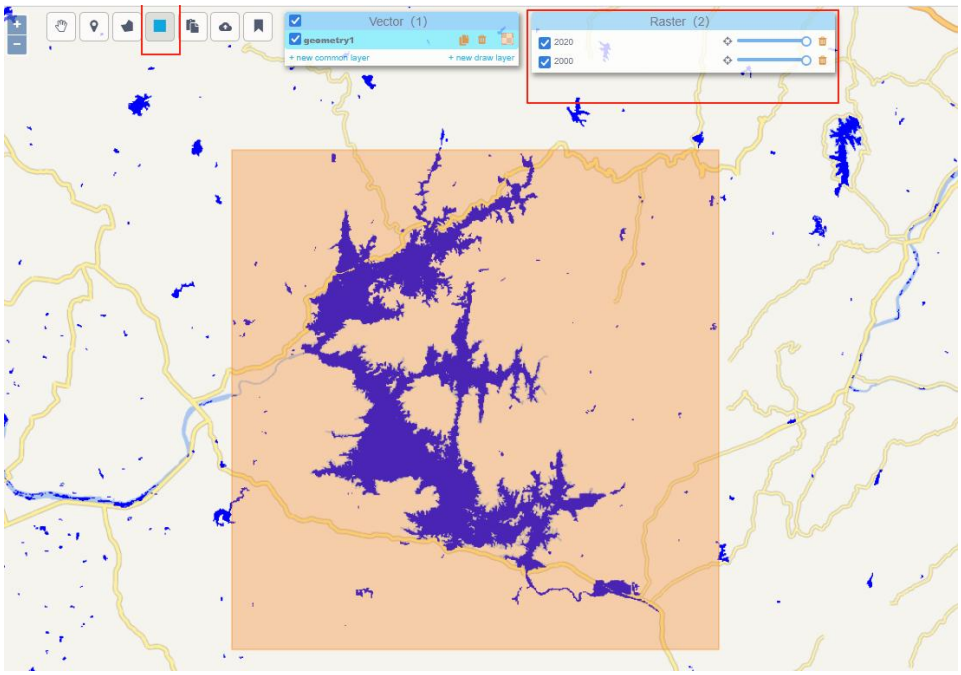
(2) surface water change over time indicator

For example: surface water change over time indicator

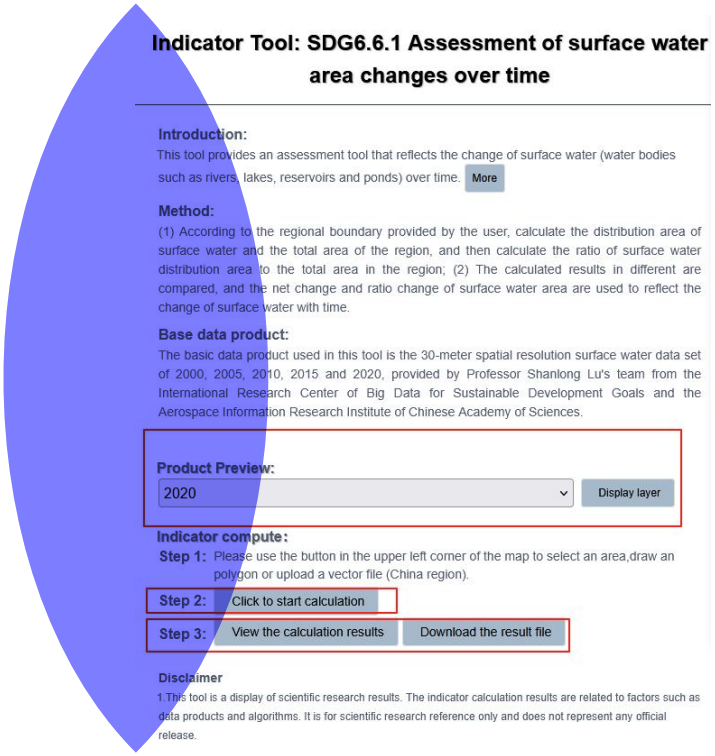


This tool provides an assessment tool that reflects the change of surface water (water bodies such as rivers, lakes, reservoirs and ponds) over time.
Method:
(1) According to the regional boundary provided by the user, calculate the distribution area of surface water and the total area of the region, and then calculate the ratio of surface water distribution area to the total area in the region; (2) The calculated results in different are compared, and the net change and ratio change of surface water area are used to reflect the change of surface water with time.
Base data product:
The basic data product used in this tool is the 30-meter spatial resolution surface water data set of 2000, 2005, 2010, 2015 and 2020, provided by Professor Shanlong Lu's team from the International Research Center of Big Data for Sustainable Development Goals and the Aerospace Information Research Institute of Chinese Academy of Sciences.

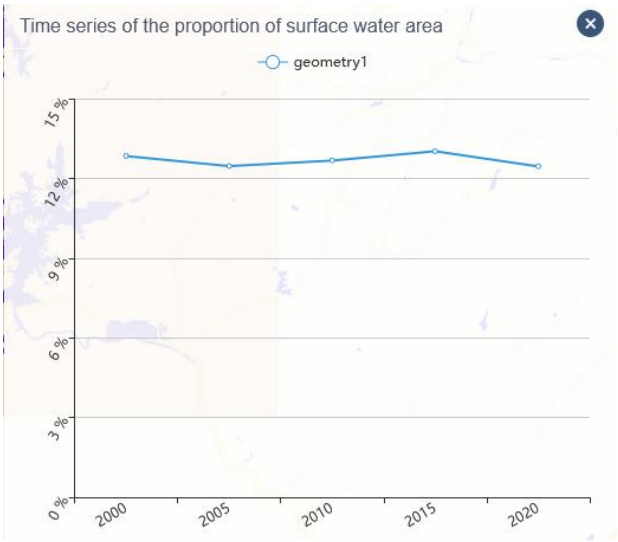
1） Select the AOI areas



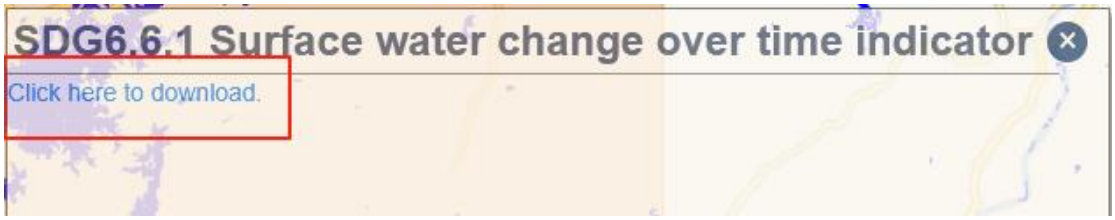
2）Indicator compute



3）View the calculation results



4）Download the result file



5）Open the result file

地点	年份	水体面积	总面积	地表水体面积占比
geometry1	2000	94.12320785537796	326.13903446568935	28.86
geometry1	2005	98.82232703934994	326.13903446568935	30.3
geometry1	2010	116.01929866100294	326.13903446568935	35.57
geometry1	2015	95.51718349137423	326.13903446568935	29.29
geometry1	2020	104.03259808284733	326.13903446568935	31.9