



# DDE OnePetrology Igneous Rock Database

## USER MANUAL

(V 0.45)

DDE-OnePetrology Team  
Institute of Geology, Chinese Academy of  
Geological Sciences

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# 1. Introduction

## 1.1. Purpose of writing

This document is used to introduce the construction progress, functions, usage methods and development directions of DDE Igneous Rocks Database (DDE-OnePetrology), for the reference of scientific researchers, and warmly welcome the majority of peers and researchers to criticize and correct and join in the construction of DDE Igneous Rocks Database.

## 1.2. Project background

DDE Igneous Rocks Database (DDE-OnePetrology) is a part of the DDE Big Science Program, led by the Institute of Geology of the Chinese Academy of Geological Sciences, and jointly built by the Development Research Center of the China Geological Survey, China University of Geosciences, Shanghai Jiao Tong University, Tsinghua University and other units.

The Deep-time Digital Earth (DDE) will reconstruct the evolution of life, geography, matter and climate on Earth driven by big data, so as to accurately reconstruct the history of the Earth and life evolution and identify the macroscopic distribution of global mineral resources and energy. Through this program, millions of researchers and technology professionals around the world will be provided with a virtual research environment that spans scientific fields and countries, enabling them to store, share and use scientific data.

"Deep Time Digital Earth" will carry out big scientific research, build the largest basic database of geoscience, and build a "Google of Geoscience", so as to integrate global data on Earth evolution and share global geoscience knowledge. In other words, after the completion of the geoscience database, the scientific research on the evolution of the earth and life will no longer be a

"paper geological map", but a "deep-time digital earth" supported by big data. Known as the Google of Geoscience, the DDE aims to reconstruct the evolution of life, geography, matter and climate on earth driven by big data, so as to accurately reconstruct the history of the evolution of the earth and life, and identify the macroscopic distribution of global mineral resources and energy.

The plan will focus on the major basic frontiers of Earth digital science, establish an international collaborative ecological chain of Earth digital science, promote the integration of the Earth information industry chain, innovation chain and service chain, promote the cluster development of R&D and application of the Earth information industry, and provide a virtual scientific research environment across scientific fields and countries for millions of researchers and professional users of science and technology around the world, realize the storage, sharing and application of cross-field scientific research data, and provide a strong scientific research foundation for solving the problems of energy resources in global economic and social development. After the scientific idea of DDE was put forward by Chinese scientists, it quickly received a wide response from the international community. Jointly initiated by the National Geological Survey of the United Kingdom, Russia, China, Germany and other countries, as well as nine international academic organizations including the International Commission on Stratigraphy, the International Association of Sedimentologists, the International Paleontological Association, the International Association for Mathematical Geosciences, and the American Petroleum Geology Society, the "Deep Time Digital Earth" voted by the International Union of Geosciences has become its first major scientific project, with an implementation period of 10 years (2019-2028). (The above information is quoted from Baidu: <https://zhidao.baidu.com/question/1677448205780778947.html>)

The DDE Igneous Rocks Database is constructed with the concept of "data" + "mapping" + "research", and promotes the further development of

magmatic science research by introducing relevant computer technologies (AI, NLP, OCR, Big data, etc.).

Igneous Rocks Data comes from field measurements, laboratory analysis, datasets shared by professional institutions, scientific and technological literature, etc. In order to build a Igneous Rocks database, firstly, the database structure and intermediate data exchange template are established according to the requirements, covering sample information, age data, geochemical data (major/trace elements), isotopes, zircon dating, etc.; Then, the fixed structured data such as field measurements, laboratory analysis, and datasets shared by professional institutions are converted through a unified data exchange template (excel format), and automatically stored in the database through the process of filtering duplicate data and automatic sample numbering. Another kind of scientific and technological literature data has the characteristics of diversified formats and complex data types, and the workload of manual sorting is large and the efficiency is low, so the scientific and technological literature data extraction software is developed by using computer software technology, which assists in realizing the data files of literature collection, data extraction, data cleaning and proofreading, and data normalization to form a unified data exchange template, and then realizes automatic storage. At the same time, each sample data is associated with the source (field measurement, laboratory analysis, data set shared by professional institutions, and scientific literature), which is convenient for manual proofreading and approval at any time. In order to store such related scientific literature and other data, the open-source DSpace data repository is introduced, which is used to provide a unique handle ID for each data source and the retrieval of specific data source files at any time. See Figure 1 for the

specific workflow. Among them, extracting data from scientific literature and normalizing it is a difficult point in the whole work, and the main problems that need to be solved are: 1) the layout and file format diversification of scientific and technological literature; 2) the spread of pages and layouts of tables; 3) the inconsistency of descriptive terms (Chinese/English/abbreviation, etc.); 4) key information hidden in text paragraphs (such as workspace location, the background of the times, etc.); 5) some information hidden in maps (such as the latitude and longitude information of the survey points in the distribution map of the survey points); 6) the accuracy of extraction is difficult to reach 100%; 7) the early scanned version of scientific and technological literature needs to be digitized by OCR technology before it can be extracted, which further reduces the accuracy. In order to solve the above problems, the normalization of the file format was first realized in the work, that is, the CAJ series files were converted to PDF format, and the data extraction of the table was realized on the basis of the PDF format (for the extracted table, if there are words such as the Continued Table \*/Talbe\* Continued, it is considered to be a table spread, which can be automatically merged through the software); Then, for the problem of inconsistent descriptive terms, a synonym system was established through the graph database neo4j, and the common description methods were collected and sorted into the synonym system to achieve automatic conversion. For newly emerged words, they are automatically matched into the synonym system through similarity calculation (new words need to be manually verified). Through the synonym system, the automatic conversion of different tables to unified data template tables is realized. For the information hidden in the text paragraph, the NLP information is extracted

according to the constructed ontology and geological thesaurus, and if the effective information can be extracted, the report file is formed and then manually verified. For the longitude and latitude information hidden in the picture, the current practice is to form a coordinate list by manually selecting the measurement point of the picture through the gadget. For the earlier scanned version of the document, the OCR recognition is performed by abbyy's FineReader before extraction. In order to solve the problem of extraction accuracy, the proofreading algorithm was used to align the rows and columns, and the data was automatically filled in and other technologies were gradually improved.

The Igneous Rocks Database is built based on the PostGIS database system, and the collected and sorted data is stored through the automatic storage program (automatic filtering in the process), and then enters the Postgresql database, forms a GIS layer through professional analysis, and the magma rock map is edited through GIS software (QGis/ArcGIS, etc.). Meanwhile, the edited result drawings are incorporated into the data processing process, and are displayed on the same interface as GIS base maps and data, which is convenient for researchers to check and correct data.

To sum up, in the process of establishing the Igneous Rocks database, the field measurement data from the project team, the laboratory analysis result data, the data set shared by professional institutions and the multi-source data of various scientific and technological literature are integrated, and the technical system of rapid construction of Igneous Rocks large data set is basically realized through technical means, which is helpful for the continuous development of Igneous Rocks research.

## Definition of terms

DDE: Deep Time Digital Earth Big Science Program, see <http://www.ddeworld.org/> for details.

DDE Igneous Rocks Database (DDE-OnePetrology): The Igneous Rocks database, which belongs to DDE, is composed of a back-end database, a website, a research platform, desktop software, and a Igneous Rocks knowledge base.

Magma Rock Database Website: The website is <https://petrology.deep-time.org/>, which belongs to the DDE Igneous Rocks Database (hereinafter referred to as the website), which is used to release and display data, drawings, research progress, scientific research results, etc., and is the portal of the Magma Rock Database.

Magma Rock Database Scientific Research Platform Software: A desktop program, belonging to the DDE Magma Rock Database, used to integrate various tools and software in scientific research (hereinafter referred to as scientific research platform), including knowledge system management, literature management, data extraction, data import, duplicate checking, professional mapping (geochemical/isotope and other professional drawings), etc., and will continue to integrate functions such as intelligent mapping based on data in the future. This software can be downloaded via a link on the Magma Rock Database website.

Magma Rock Institution Knowledge Base: The website is <http://39.106.68.244:4000/>, which belongs to the DDE Igneous Rocks Database (hereinafter referred to as Knowledge Base), and is the back-end support system of the scientific research platform, and also has a front-end web management page. It is used for permanent storage and release of Igneous Rocks-related literature, phased data achievements, scientists' achievement associations, large-scale geological maps, etc., with permanent URL, OAI-PMH, RESTful, version management, request copy and other

functions. It is also used for scientists to self-manage and publish their own research results and data, and provides permanent address access for data citations in published literature.

OGC: Open GIS Alliance, includes a series of technical specifications, wms/wfs/wmts/wcs/csw... Wait.

Metadata: Data descriptions that follow ISO 19115, DD2006, and DDE-related metadata standards to describe data sets, outcomes, and software systems.

Open source software: software with open source code, used for scientific research and other purposes, and subject to relevant open source licenses in the process of use, including all kinds of tools, software and libraries.

Java: a programming language used for the development of back-end services for websites and knowledge bases.

Python: a programming language used for the development of desktop software for scientific research platforms, mostly used in scientific computing and AI and other fields, and the desktop software is built with many open source components such as Pyqt and pandas.

Angular: A front-end programming language for building a front-end UI for building a knowledge base(Baidu Encyclopedia: <https://baike.baidu.com/item/AngularJS/7140293?fromtitle=Angular&fromid=9056478&fr=aladdin>).

PublicCMS: A Java-based CMS system for building magma database websites. For details, see: <https://www.publiccms.com/>.

FreeMarker: A templating engine, i.e. a general-purpose tool that generates output text (HTML web pages, emails, configuration files, source code, etc.) based on the template and the data to be changed. It is not intended for end users, but rather a Java library, a component that programmers can embed into the products they are developing (Baidu Encyclopedia: <https://baike.baidu.com/item/freemarker/9489366?>)

fr=aladdin )

PostGIS: An open-source spatial database, built on Postgresql for the storage of structured and spatial data, provides retrieval and query services.

ArangoDB: A multimodal database that stores unstructured data and provides search and query services. The Magma Rock Database uses the Community Edition of ArangoDB.

Solr: Full-text search engine. Solr is an independent enterprise-level search application server that provides an API interface similar to Web-service. You can submit an XML file in a certain format to the search engine server through an http request to generate an index, or submit a search request through the Http Get operation and get the return result in XML format. (Baidu Encyclopedia)

IIIF: IIF is a set of open standards for delivering high-quality, attributed digital objects online at scale. It is also an international group that develops and implements IIIF APIs. The IIF is supported by a consortium of leading cultural institutions. The IIF standard is used in the knowledge base to publish large geological maps. (See: <https://iiif.io/>)

Knowledge Tree: A knowledge tree, a way to organize knowledge in a subject area. In the Igneous Rocks knowledge base, the knowledge system/knowledge tree is associated with the data, and the integrated storage of knowledge and data is realized, which is conducive to mining knowledge from the data. For specific functions, please refer to the relevant functions in the scientific research platform.

Geopytool: A professional open-source mapping software, created by teachers from the University of Geosciences, has been integrated into the scientific research platform.

Data mailroom: used to organize data when the team is working together. When multiple people collect and organize data at the same time, upload the results of collection and collation to the data mailroom, and the special person will review and continue to the next step of processing.



PDF data extraction: From scientific research literature, achievement reports and other materials, the structured tables, as well as other information such as latitude and longitude scattered in the text, are automatically extracted through the program, and finally an excel table is formed. This function assists in data collection and collation.

Spatial query: Obtain data within the range by selecting a spatial range on the basemap (or directly entering the coordinate string of geojson).

Thematic Library: Specialized research areas further divided within the field of Igneous Rockss.

Spatial query: Obtain data within the range by selecting a spatial range on the basemap (or directly entering the coordinate string of geojson).

Thematic library: Specialized research areas further divided within the field of Igneous Rockss.

### 1.3. References and references to open source software

Name	Version	Open-source protocol	remark
Arangodb	v3.84	Apache License 2.0	Use the community edition to store unstructured data
Postgressql	v13.1	PostgreSQL License,	Store relational data
DSpace	V7.2	BSD	As an IR infrastructure
Solr	V8.11.1	Apache License 2.0	Full-text search engine
cantaloupe	V5.0.4	Illinois/NCSA Open Source License	IIIF server
Geopytool	V2018.08.001	GPL V3	China University of Geosciences(Beijing)
PublicCMS	V4	MIT	Purchased a

			commercial license, Java
Pyqt5	V5.15.4	GPL V3	UI interface
Pandas	V1.5.0		Data processing
Openpyxl	v3.0.10		Read the xlsx file
Geopandas	V0.9		Maps
Opencv-python	V4.5.1.48		Visual processing
Pandasgui	V0.2.13		GUI of Pyqt
Plotly	V5.9.0		Interactive graphing
Matplotlib	V3.5.2		2D mapping
Numpy	V1.22.4		Data processing
Pillow	V9.2.0		Image processing
Pyarango	V2.0.1		Connect to the database
Pyecharts	V1.9.1		Mapping
Pyinstaller	V5.2		Installer production
Pypdf2	V2.5.0		Pdf processing
Pyqtwebengine	V.15.6		Browser
scikit-learn	V1.8.1		Data processing
Shapely	V1.7.1		Work with shape files
Tensorflow	V2.9.1		Data processing
Xlsxwriter	V3.0.3		Write an excel file
Xmind	V1.2.0		Mind mapping
Camelot-py	V0.0.1		PDF extract excel sheet
.....			

Others omitted.

## 2. Overview of the Igneous Rocks Database

Technical system and composition of Igneous Rocks Database

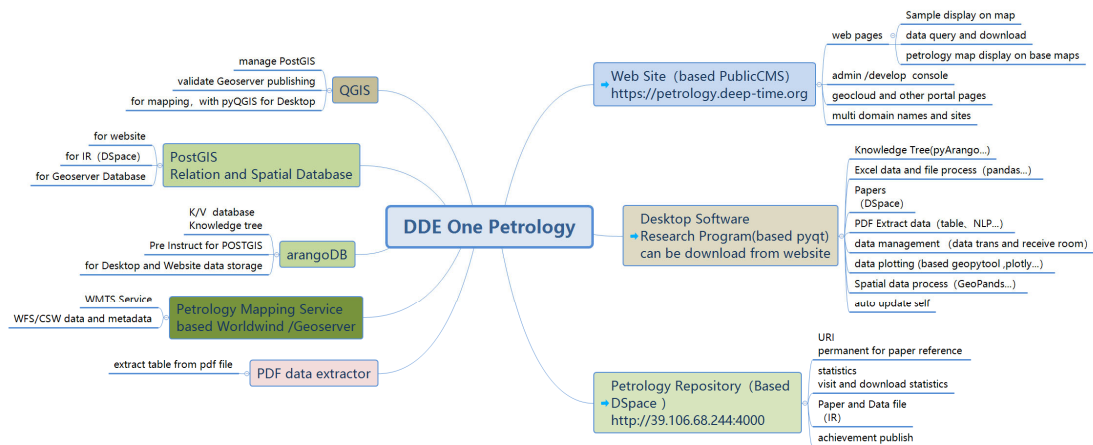


Figure 1 Composition and technical system of Igneous Rocks database

As shown in Figure 1, the back-end supporting software and modules used in the Magma Rock Database are on the left, and the three front-end display parts of the Magma Rock Database are on the right: the website (web), the scientific research platform (desktop software) and the knowledge base (web). The QGIS on the left is the desktop software (GIS data processing and mapping) that is also used.

The website mainly carries the public results of the Magma Rock Database, including the results of mapping (drawings), data (currently mainly sample data, zircon data and thematic database data), and provides spatial query and data download.

The scientific research platform (desktop software) mainly provides functions such as knowledge tree management, data mailroom, data import, data duplicate checking, data mapping, and intelligent mapping (to be added), and provides more efficient processing methods and more powerful data processing capabilities through desktop software. At the same time, some AI

processing algorithms and modules are provided for scientific researchers to use.

The knowledge base mainly displays the personal information of scientists and related scientific and technological achievements, and provides background data storage for the data receiving room of the scientific research platform. It has functions such as version management, persistent URLs, request copy, etc., which make it easy to publish and share results, and provides REST and OAI-PMH to exchange metadata and data with other systems.

## 2.1. The technical specifications and standards followed by the Igneous Rocks Database

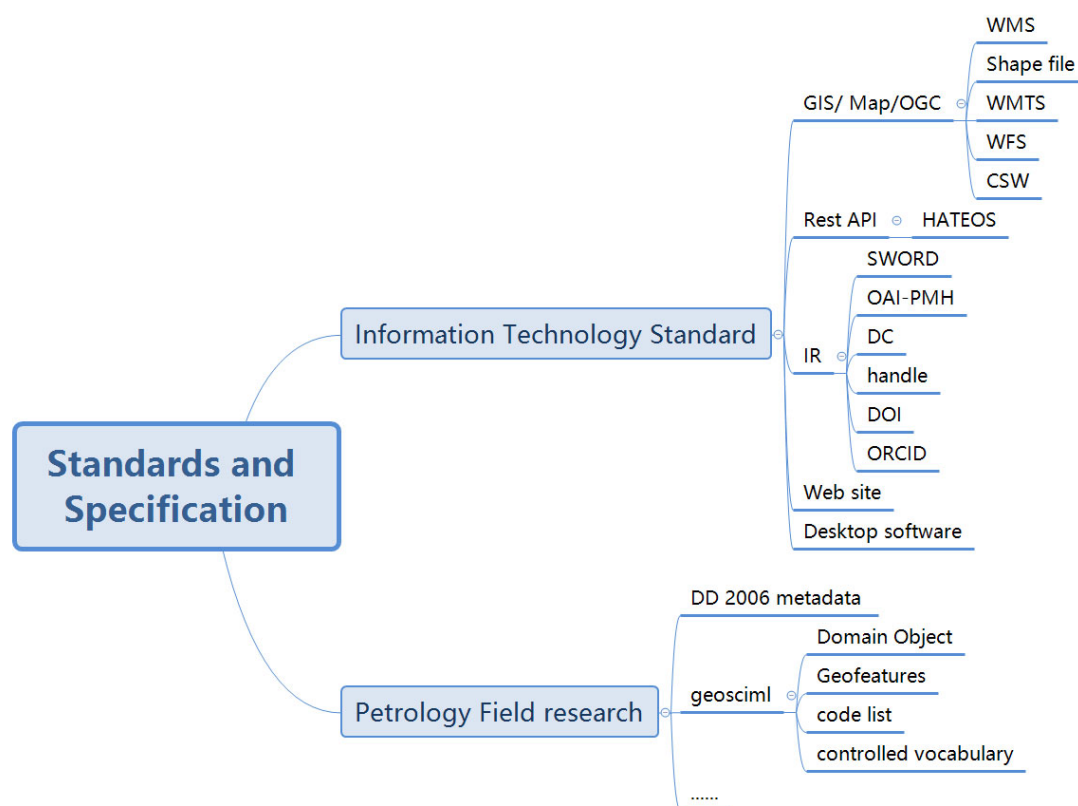


Fig.2 Technical specifications and standards for the Igneous Rocks

database

In the process of construction, the Igneous Rocks Database follows the relevant technical specifications and standards from the dimensions of information technology and professional fields, which lays a foundation for the integration of the magmatic database with other systems and the data exchange and interoperability between disciplines.

## **2.2. Introduction to the Magma Rock Database website**

The Magma Rock Database website is published as a second-level domain name for DDE. The domain name is: <https://petrology.deep-time.org>.

The data displayed on the Magma Rock Database website is sample-centric, and the spatial distribution of Igneous Rocks maps and samples (clustering) is displayed on the homepage in the form of map overlays, and the relevant data distribution can be viewed through spatial browsing. At the same time, the corresponding function menu is provided at the top. The relevant functions of the website are described in detail in the relevant sections that follow.

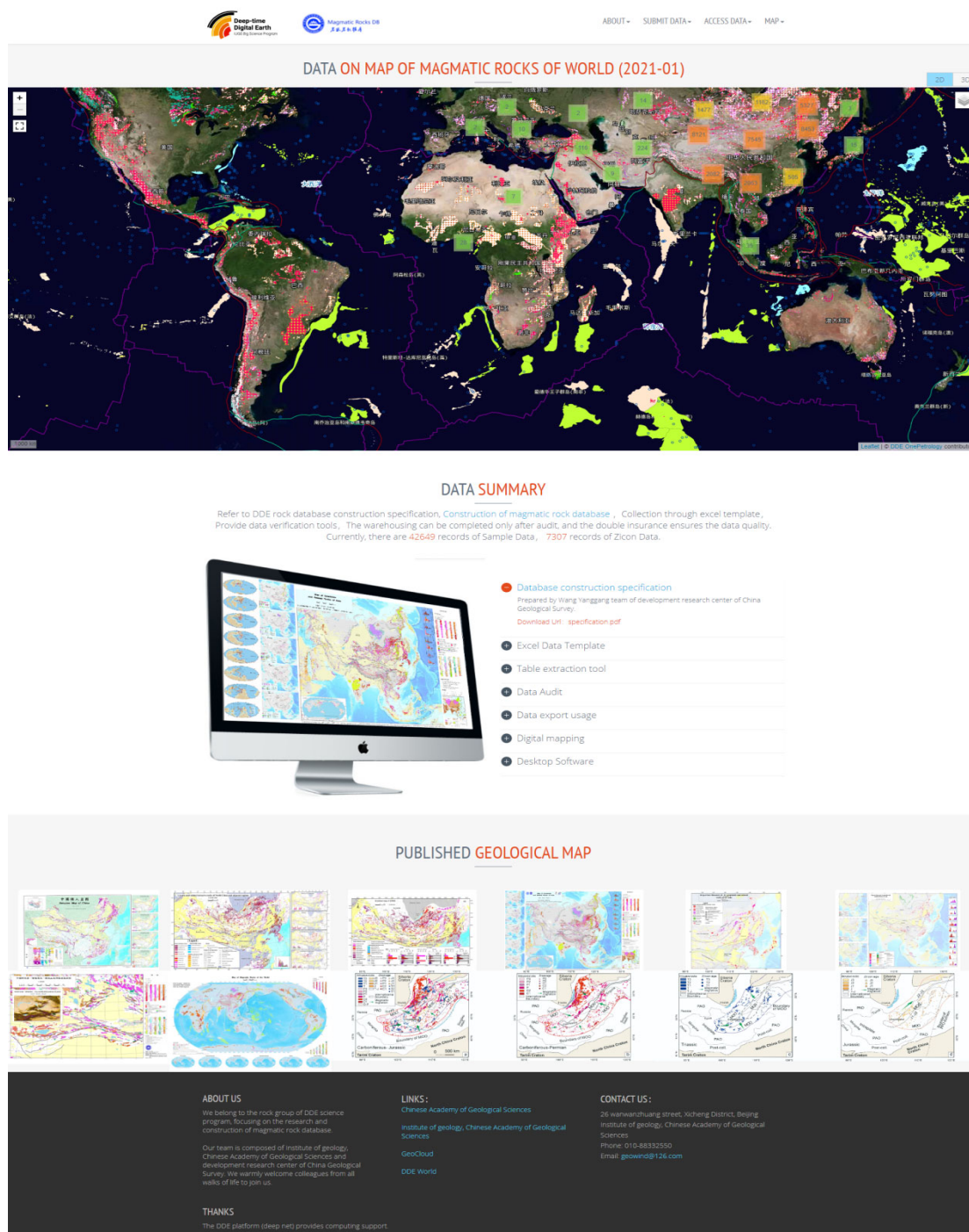


Figure 3 The homepage of the Igneous Rocks Database website

## 2.3. Introduction to the scientific research platform of Igneous Rocks database

The scientific research platform software is a desktop program developed by python, which integrates various functional libraries such as scientific

computing, drawing, AI, GIS analysis and other functions of python. The software is convenient for researchers to process and analyze data, and provides a quick and easy operation interface. The software can be downloaded from the Desktop link under the Data Summary in the middle of the website, and run after direct unzipping.

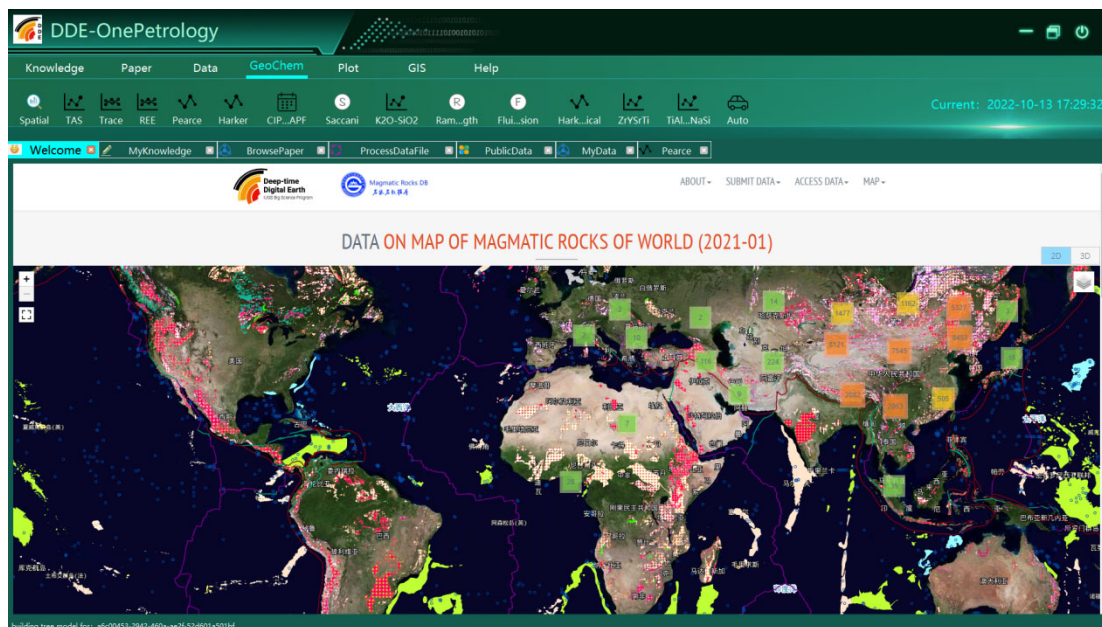


Figure 4 Screenshot of the Igneous Rocks database research platform

The scientific research platform software is written in Python and supports multiple operating system platforms (Linux, Mac, Windows, etc.). At present, only the Windows version is published on the website, if you need other versions, please contact the administrator.

## 2.4. Introduction to the Igneous Rocks Knowledge Base

The Igneous Rocks Knowledge Base is developed based on DSpace, which is mainly used to publish the personal information and related achievements of scientists, and at the same time provide back-office storage support for the desktop software of the scientific research platform.




The screenshot displays the user profile for Tao, WANG in the DDE Igneous Rocks Database. The profile includes a photo, email address (1746117142@qq.com), birth date (1960-04-27), job title (Professor), last name (Tao), and first name (WANG). A 'Full item page' button is available. Below the profile, a search bar and filters are shown. The search results display two publications: '全球岩浆岩图 (2021-03-17) Tao, WANG' and 'Map of Granitoids in Altai-Junggar-Tianshan area (2021-04-27) Tao, WANG'. The settings section shows 'Sort By' set to 'Most Relevant' and 'Results per page' set to '10'. The footer contains copyright information for DDE OnePetrology, ©2020-2022 Institute of Geoscience, CAGS, and links to 'Cookie settings', 'Privacy policy', 'End User Agreement', and 'Send feedback'.

Communities & Collections Statistics All of repository

Home • DDE OnePetrology • Scientist • Tao, WANG

**Person:**  
**Tao, WANG**



**Email Address**  
1746117142@qq.com

**Birth Date**  
1960-04-27

**Job Title**  
Professor

**Last Name**  
Tao

**First Name**  
WANG

[Full item page](#)

**Filters**

**Author** +

**Date** +

**Has files** +

**Item Type** +

[Reset filters](#)

**Search Results**

Now showing 1 - 2 of 2

**Publication**  
全球岩浆岩图  
(2021-03-17) Tao, WANG

**Publication**  
Map of Granitoids in Altai-Junggar-Tianshan area  
(2021-04-27) Tao, WANG

**Settings**

**Sort By**  
Most Relevant

**Results per page**  
10

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Figure 5 Schematic diagram of the release of the Igneous Rocks Knowledge Base



## 3. Magma Rock Database website

### 3.1. User environment and website

To access the magma database website, you need to have a browser environment, the recommended browser is Google's Chrome browser, the version is above 92, and the computer memory is not less than 8G. Please note that this website is not optimized for mobile phones, so it may not work well when accessed on mobile phones or other browsers.

Website: <https://petrology.deep-time.org/>

It can also be accessed directly with IP: <http://39.106.68.244/>

This URL is the DDE domain name server forwarding URL. If you encounter an abnormal situation, please use the IP address to access it directly. If you find that you cannot access it, please contact the Magma Rock team for the most up-to-date address. The results of the current URL display are:



Figure 6 Top page of magmatic database website (3D view)

### 3.2. Introduction to the functions of the home page

The homepage is mainly divided into headers and footers and an intermediate content section. The intermediate content is divided into map section, database overview, and partial map overview.

The map part supports two modes: 2D and 3D. The 2D mode is a 2D map, superimposed on the global Igneous Rocks map (2022 version), and the distribution of sample points on the map is displayed at the same time (only the data of latitude and longitude are available, and the data without latitude and longitude needs to be queried in the background). You can switch maps in the upper right corner, which currently supports ESRI, OSM, Map (image), AutoNavi. The distribution of its functions is shown in the figure 7. In the 3D mode, the global magma map is superimposed in the form of a sphere, which is convenient for viewing from a global perspective.

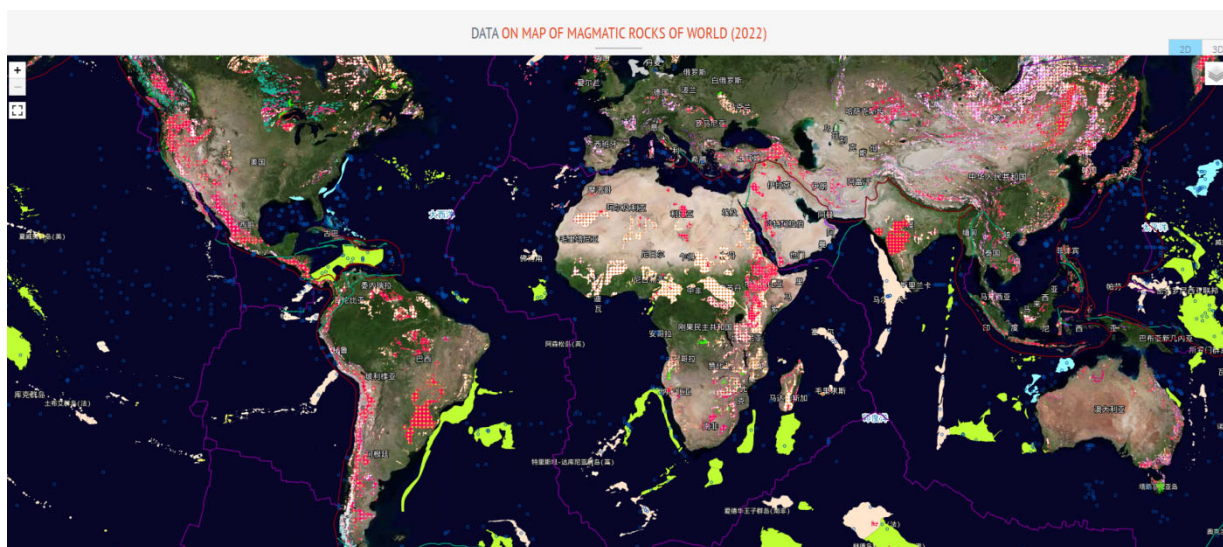


Figure 7? ? ? ?



Figure 8 ? ? ?

The functions of the various toolbars of the map on the homepage have been hidden, which are displayed in the places where they are used in subsequent functions.

In the middle, there are the database overview and some key data downloads, click the corresponding menu to view the download content.

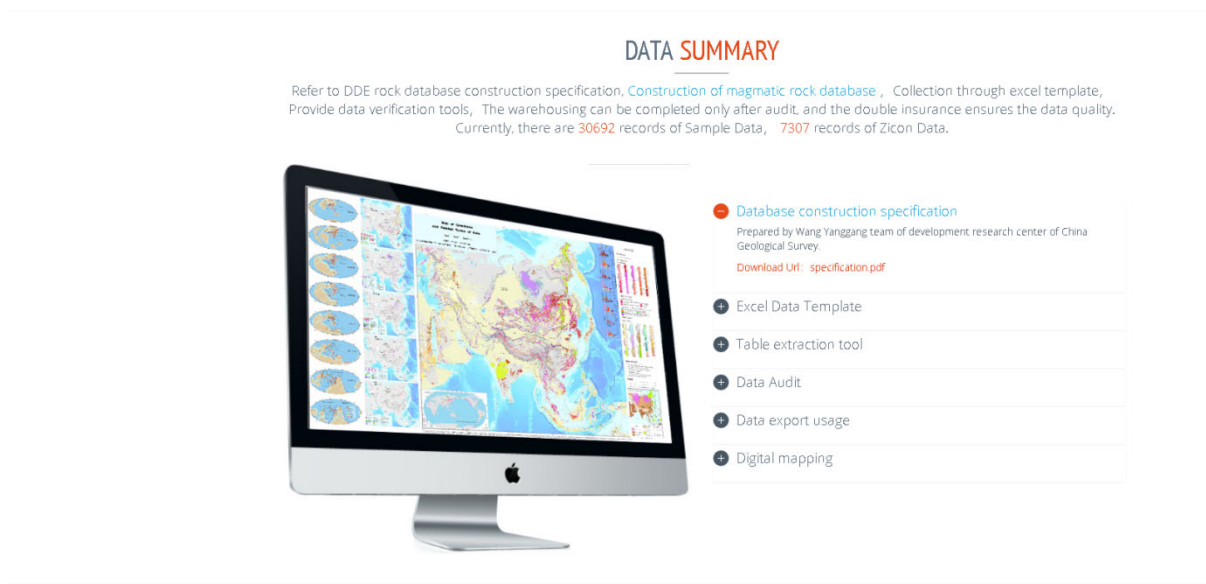


Figure 9 ? ? ?

Regarding the drawings below, at present, only the drawings with low resolution are provided for direct viewing, and the follow-up will be supplemented with high-definition geological maps for online browsing.



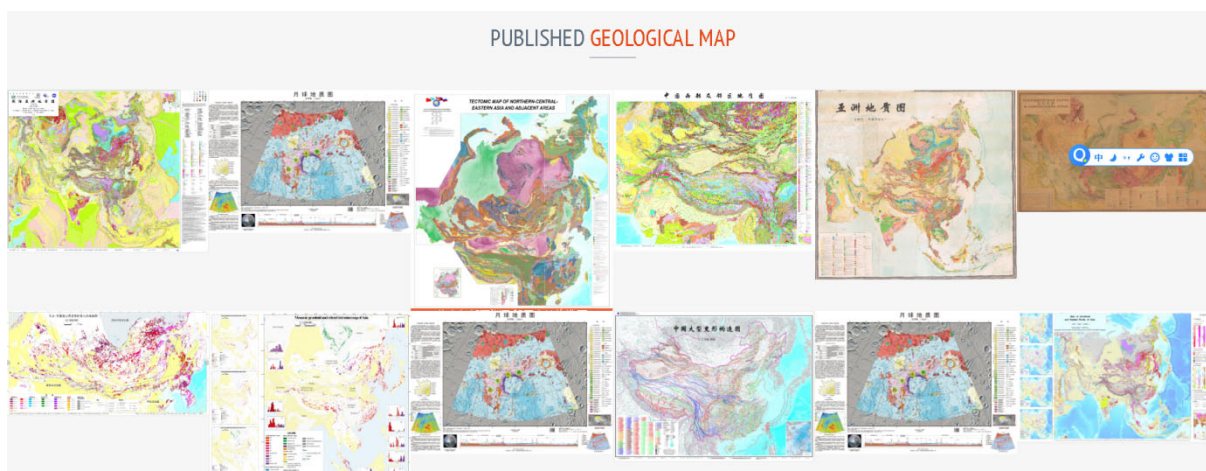


Figure 10 ? ? ? ?

### 3.3. Web page toolbar

At the top of Magma Rock's website, there is a toolbar for the website, and the functions are hidden in the menu, which will be gradually enriched as the work progresses. The function that already exist are:



ABOUT ▾ SUBMIT DATA ▾ ACCESS DATA ▾ MAP ▾

Figure 11 ? ? ? ?

About is the introductory information, and there are four web pages, which briefly introduce some basic information of the project. For browsing purposes only.

Submit Data is used to submit data. At present, only the basic functions have been developed and need to be improved. The features included under it are:



Figure 12 ? ? ? ?

The functions are to view all the submitted data, and only after review can the submitted information be seen to avoid anyone submitting illegal information.

The second one is the data submission function, which will automatically jump to the back-office (this part of the function is transferred to the scientific research platform, please refer to the instructions for the use of the work platform software).

The third design is to correct the data, which can be modified in the back-office management interface (this part of the function is transferred to the scientific research platform, please refer to the instructions for the use of the work platform software).

The fourth one is used to download the data template and provide data (this part of the function is transferred to the scientific research platform, please refer to the instructions for the use of the work platform software).

The third toolbar, Access Data, is the data access function, and the data provided by the website is publicly released, and different from the data in the scientific research platform software. This is described in a separate section below.

The fourth one is the online access to the map, and three maps have been released so far, all of which are displayed on the 2020 Asian geological map overlaid with different basemaps or displayed on the network with different projection coordinate systems.

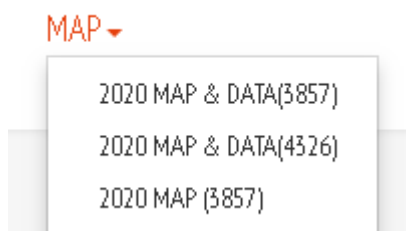


Figure 13? ? ? ?

Click on the corresponding menu to enter the browsing of the three drawings. This function is designed to observe the use of drawings, and does not explicit coordinate points. The screenshots of the full drawings of the three drawings are shown below.

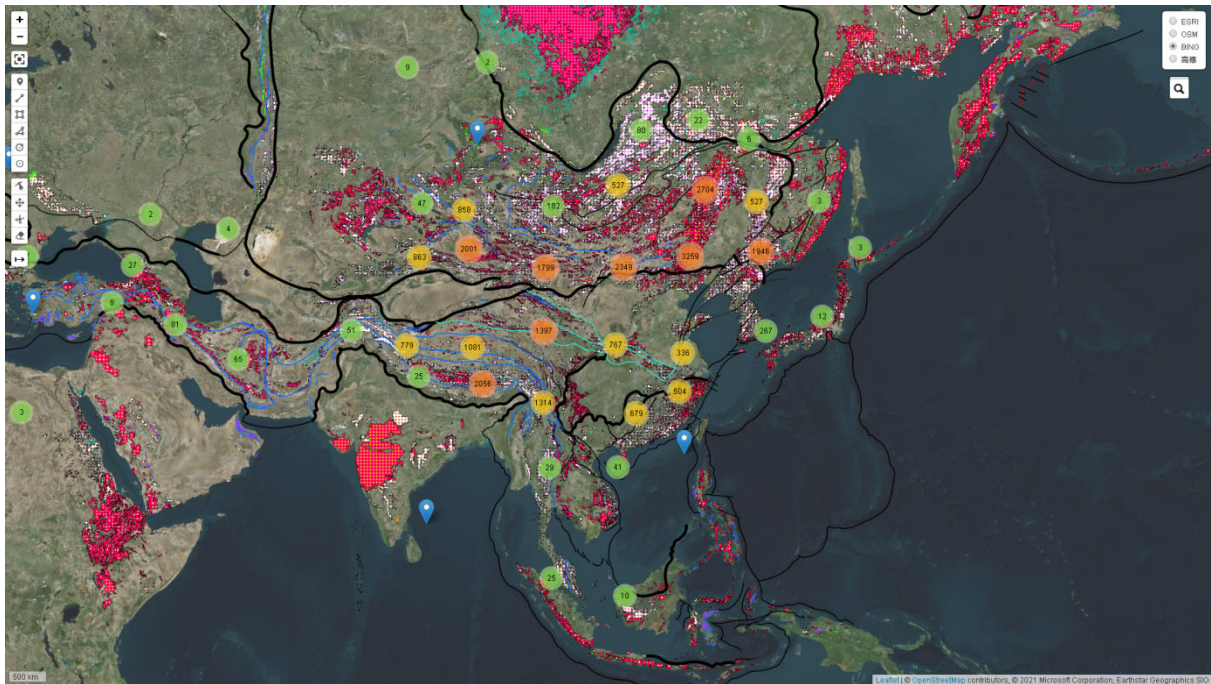


Figure 14? ? ? ?

The image above shows the display of the Mercator coordinate system of the 3857web. The upper right side is the basemap switching function, which currently supports the image map provided by ESRI, the map provided by OSM (the current OSMDE, both Chinese and English), BING (the image map provided by Microsoft) and AutoNavi's image map (including place name labeling).

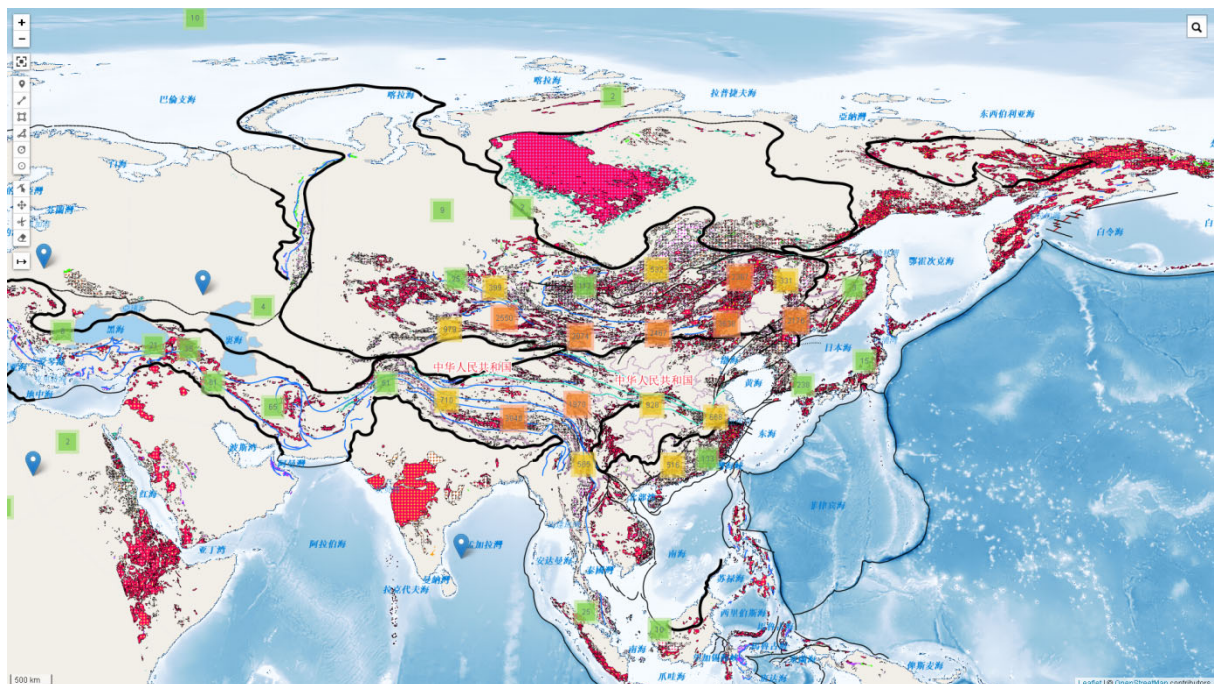


Figure 15? ? ? ?

The picture above is a screenshot of the display effect of the 4326 latitude and longitude



coordinate system, with coordinate points superimposed. The basemap switching function is not provided. Only zoom in and out functions are available. The basemap is based on OSM China data, including China's detailed administrative regions, transportation, waters, etc., and the nine-dash line of China's national border comes from the official boundary released by AutoNavi.

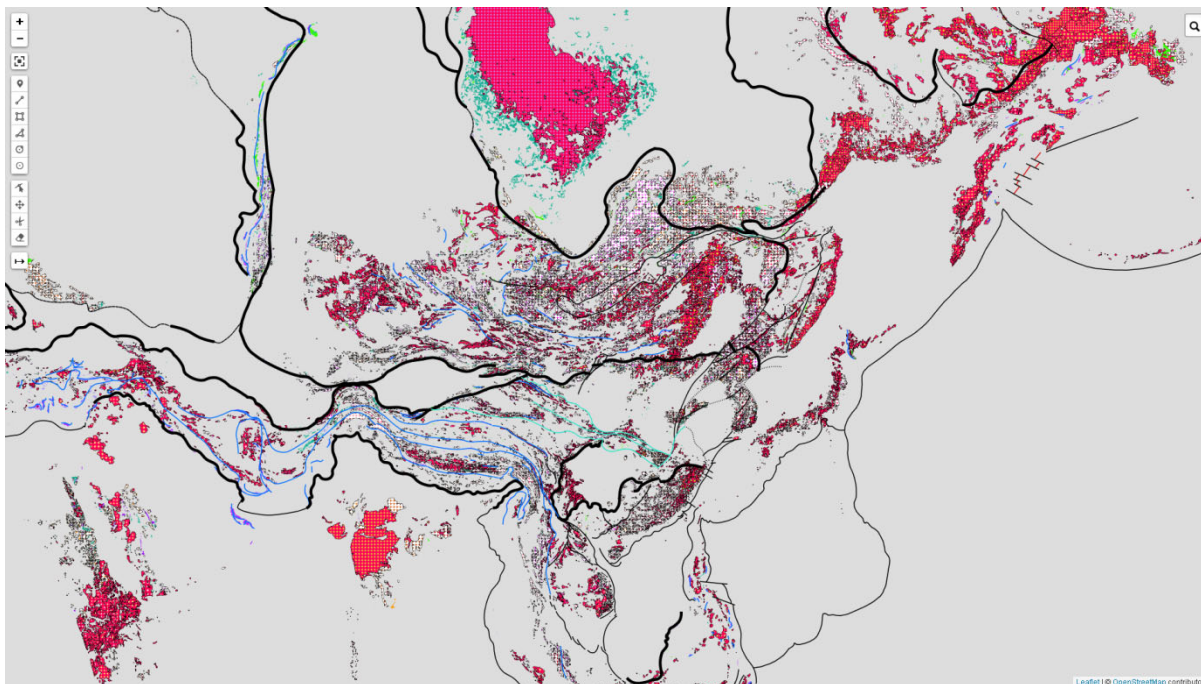


Figure 16? ? ? ?

The image above is an online display of the 2020 geological map of Asia. It does not include any noisy features such as basemaps and data points, and was used to observe and discuss the geological map itself.

### 3.4. Search Data access

The entry point for data access is under Search Data, under Access Data...



Figure 17? ? ? ?

The following is the entrance to the management interface for the time being

(ignore it for the time being). Click Search Data and the page will be redirected:

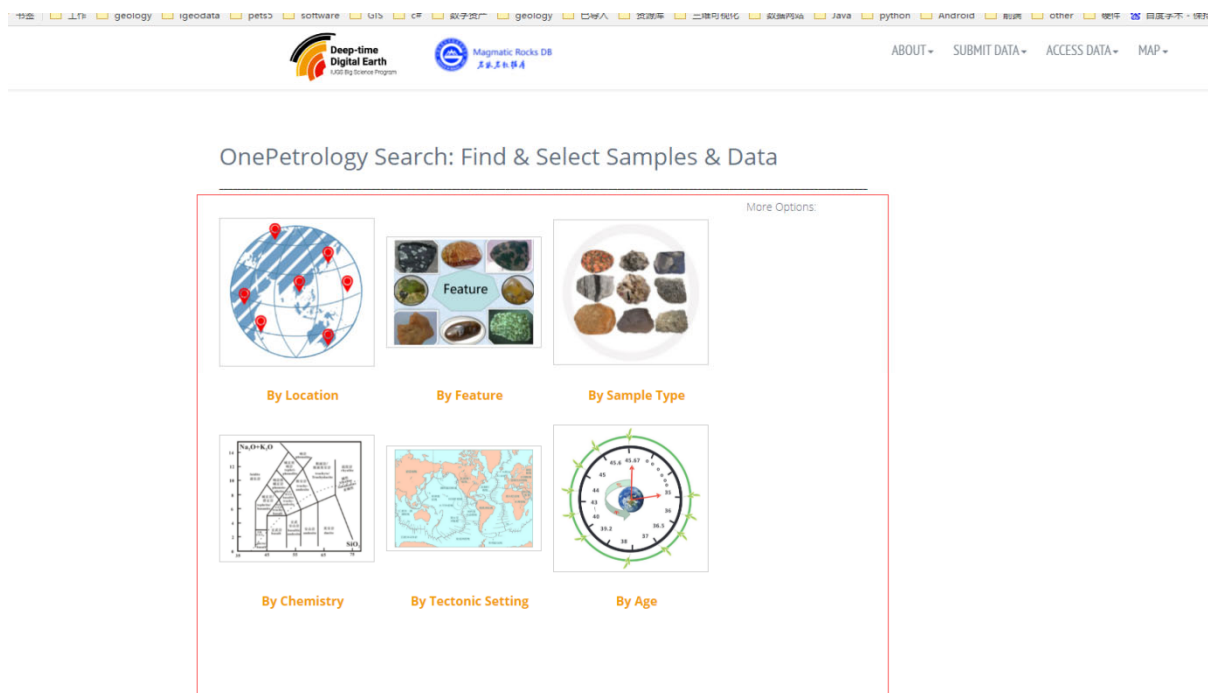


Figure 18? ? ? ?

A variety of search methods are provided here. Spatial Search function, and the two functions which based on geochemical query and age-based query respectively, are currently online, namely the first, fourth and sixth. Others are in development. Click on the first Spatial Search, and you can jump to:

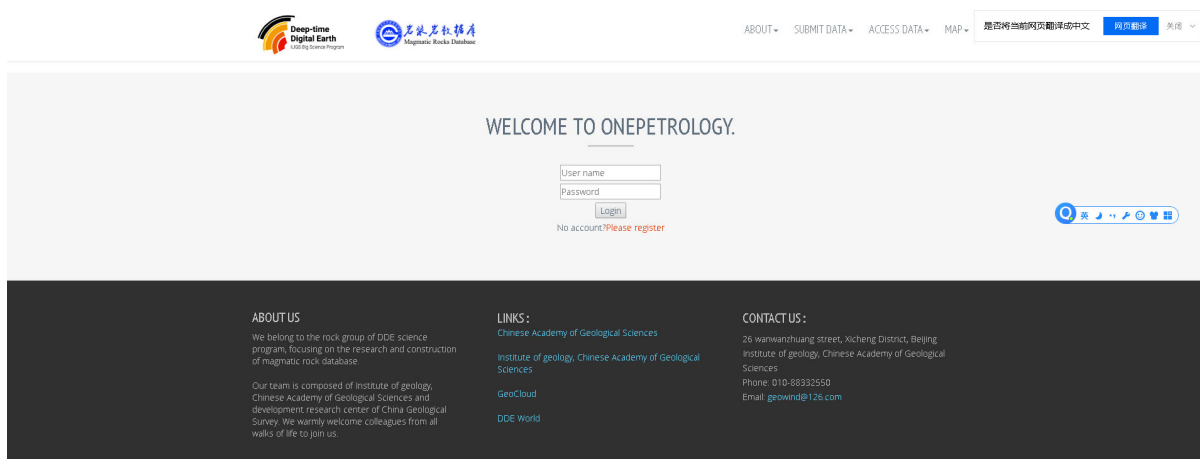




Figure 19? ? ? ?

This is the login page, and the function requires a registered user to access. It



is recommended that everyone register their own account, which can be used to test the data submission function.

After entering your username and password, you will be redirected to:



[ABOUT](#) [SUBMIT DATA](#) [ACCESS](#)

---

## Polygon Map

Click on the map below to define a search polygon. Click on each vertex of your polygon, double-clicking on the last vertex to close the shape.

You can use the zoom bar to zoom in and out. Use shift-click to create a smooth polygon with many vertices.

You can draw rectangle or polygon on the map, then the point coordinate will appear in text area in (lng,lat) pairs state. The next polygon will overwrite the pre selection.

Selected Area ((lng,lat) pairs, comma separated):

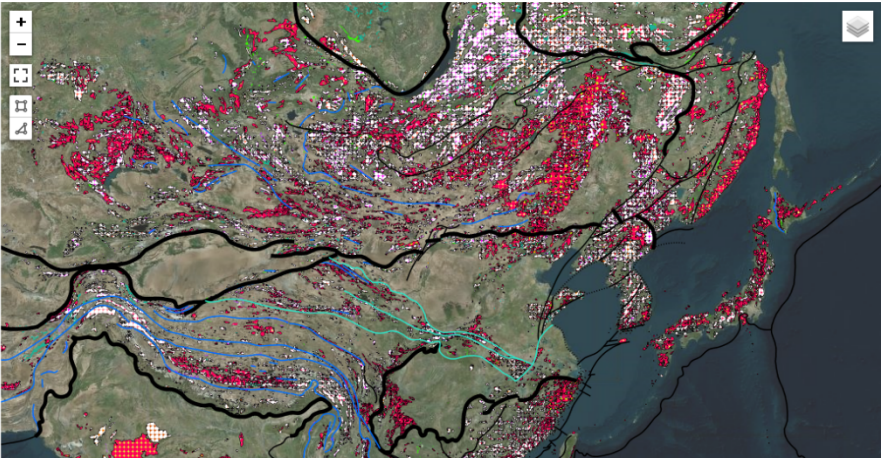




Figure 20 ? ? ? ?

Here you can draw a rectangle on the map, or draw any polygon (the beginning and end nodes must coincide to end). At the same time, the basemap switching function is provided in the upper right corner, and you can switch to the layer you need according to your preferences. Here's how to do it:

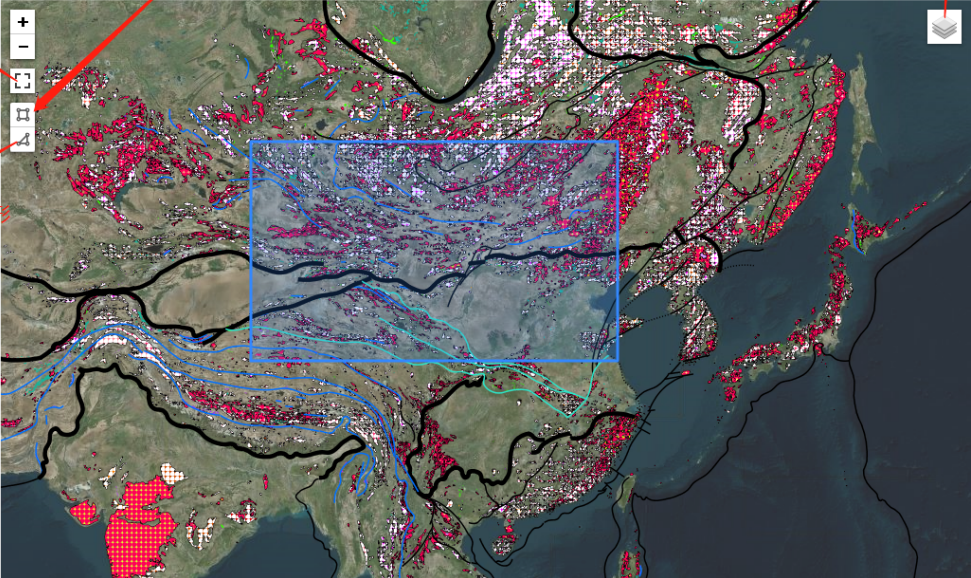
[ABOUT](#)
[SUBMIT](#)

Click on the map below to define a search polygon. Click on each vertex of your polygon, double-clicking on the last vertex to close the shape. You can use the zoom bar to zoom in and out. Use shift-click to create a smooth polygon with many vertices. You can draw rectangle or polygon on the map, then the point coordinate will appear in text area in (lng,lat) peris state. The next polygon will overwrite the pre selection.

Selected Area ((lng,lat) pairs,comma seperated.):

(86.220703,34.307144),(86.220703,49.325122),(120.234375,49.325122),(120.234375,34.307144),(86.220703,34.307144)

Submit
Clear



框选之后出现的坐标值，不要手工修改

底图切换



矩形框选功能

全屏

任意多边形

Figure 21 ? ? ? ?

The above figure is a rectangular box selection, and the bottom figure is an arbitrary polygon box selection, and the two base maps are different.

[ABOUT](#)

Click on the map below to define a search polygon. Click on each vertex of your polygon, double-clicking on the last vertex to close the shape. You can use the zoom bar to zoom in and out. Use shift-click to create a smooth polygon with many vertices. You can draw rectangle or polygon on the map, then the point coordinate will appear in text area in (lng,lat) peris state. The next polygon will overwrite the pre selection.

Selected Area ((lng,lat) pairs,comma seperated.):

(107.138672,48.719961),(105.117188,44.323848),(109.973145,42.956423),(117.158203,46.271037),(109.973145,45.537137),(112.697754,48.458352),(109.160156,46.679594),(107.138672,48.719961)

Submit
Clear

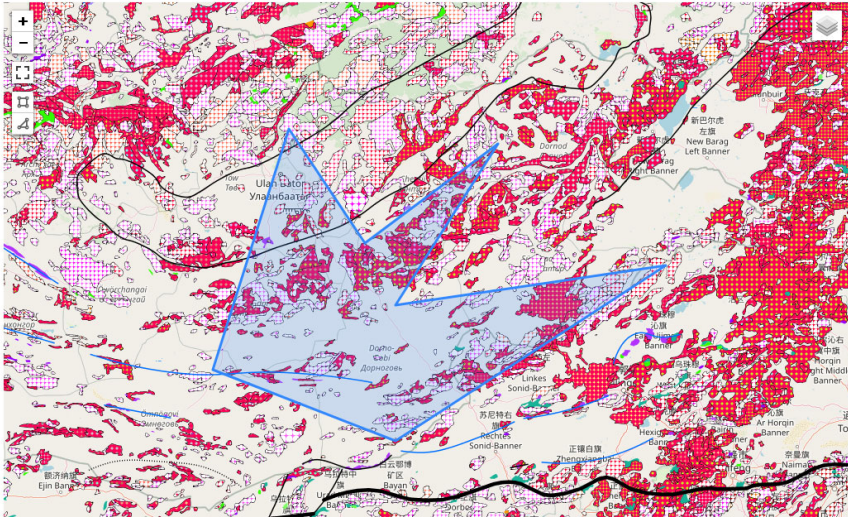




Figure 22 ? ? ? ?

After selecting the space area, click the submit button to jump to the next step:



ABOUT

## CONFIGURE OUTPUT

Samples to Display: ☒ Show samples with any of the checked values defined.  
☐ Show samples with all of the below values defined.

View and Download Results

File Type to Display: ☒ HTML Table ☐ Text File ☐ XLSX Spreadsheet

### Choose Chemical Data to Display:

Note: The items shown in bold below actually have values that lie within your search criteria. You can use the buttons below to choose a set of standard output items to use with multiple downloads.

Include Standard Output Items
Clear All Items

Basic Info:	Collector Info:	Ref Info:	Major Earth Element:	Rare Earth Element:	Trace Element:	Isotopes:
<input type="button" value="Mark All"/> <input type="button" value="Clear All"/> <input checked="" type="checkbox"/> Sample Id <input checked="" type="checkbox"/> Original Sample Id <input checked="" type="checkbox"/> Longitude <input checked="" type="checkbox"/> Latitude <input type="checkbox"/> Location <input checked="" type="checkbox"/> Lithology <input checked="" type="checkbox"/> Age(Ma) <input checked="" type="checkbox"/> Age Erro (Ma)r <input type="checkbox"/> Age Selected (Ma) <input type="checkbox"/> Age Selected Error(Ma) <input type="checkbox"/> Region Location <input type="checkbox"/> Location Type <input checked="" type="checkbox"/> Tectonic Location <input type="checkbox"/> Tectonic Type <input type="checkbox"/> Occurrence <input type="checkbox"/> Pluton <input type="checkbox"/> Pluton Origin <input type="checkbox"/> Lithology Origin <input type="checkbox"/> Intrusion <input type="checkbox"/> Rock Name	<input type="button" value="Mark All"/> <input type="button" value="Clear All"/> <input type="checkbox"/> Collector <input type="checkbox"/> Collector Org <input type="checkbox"/> Reviewer <input type="checkbox"/> Analyze Org <input type="checkbox"/> Analyze Person <input type="checkbox"/> Test Date	<input type="button" value="Mark All"/> <input type="button" value="Clear All"/> <input checked="" type="checkbox"/> Data Source <input type="checkbox"/> Ref.Author <input type="checkbox"/> Ref.Year <input type="checkbox"/> Ref.Magazine <input type="checkbox"/> Issue Page <input type="checkbox"/> Ref.Title <input checked="" type="checkbox"/> Article DOI <input type="checkbox"/> Ref.Origin <input type="checkbox"/> Ref.Magazine.Origin <input type="checkbox"/> Ref.Title.Origin <input type="checkbox"/> Remark	<input type="button" value="Mark All"/> <input type="button" value="Clear All"/> <input checked="" type="checkbox"/> Si O <sub>2</sub> <input checked="" type="checkbox"/> TiO <sub>2</sub> <input checked="" type="checkbox"/> Al <sub>2</sub> O <sub>3</sub> <input checked="" type="checkbox"/> Fe <sub>2</sub> O <sub>3</sub> <input checked="" type="checkbox"/> FeO <input checked="" type="checkbox"/> Fe <sub>2</sub> O <sub>3</sub> Total <input type="checkbox"/> FeOT <input type="checkbox"/> Tfe <input checked="" type="checkbox"/> MnO <input checked="" type="checkbox"/> MgO <input checked="" type="checkbox"/> CaO <input checked="" type="checkbox"/> Na <sub>2</sub> O <input checked="" type="checkbox"/> K <sub>2</sub> O <input checked="" type="checkbox"/> P <sub>2</sub> O <sub>5</sub> <input checked="" type="checkbox"/> H <sub>2</sub> O <sup>+</sup> <input checked="" type="checkbox"/> H <sub>2</sub> O <sup>-</sup> <input checked="" type="checkbox"/> CO <sub>2</sub> <input checked="" type="checkbox"/> SO <sub>3</sub> <input type="checkbox"/> F <input type="checkbox"/> Cl	<input type="button" value="Mark All"/> <input type="button" value="Clear All"/> <input checked="" type="checkbox"/> La <input checked="" type="checkbox"/> Ce <input checked="" type="checkbox"/> Pr <input checked="" type="checkbox"/> Nd <input type="checkbox"/> Pm <input checked="" type="checkbox"/> Sm <input checked="" type="checkbox"/> Eu <input checked="" type="checkbox"/> Gd <input type="checkbox"/> Tb <input type="checkbox"/> Dy <input checked="" type="checkbox"/> Ho <input type="checkbox"/> Er <input type="checkbox"/> Tm <input type="checkbox"/> Yb <input type="checkbox"/> Lu <input type="checkbox"/> Y <input checked="" type="checkbox"/> Sc <input checked="" type="checkbox"/> Total Rare Element	<input type="button" value="Mark All"/> <input type="button" value="Clear All"/> <input checked="" type="checkbox"/> V <input checked="" type="checkbox"/> Cr <input checked="" type="checkbox"/> Co <input checked="" type="checkbox"/> Ni <input checked="" type="checkbox"/> Mn <input checked="" type="checkbox"/> Cu <input checked="" type="checkbox"/> Zn <input checked="" type="checkbox"/> Ga <input type="checkbox"/> Ge <input checked="" type="checkbox"/> Cs <input checked="" type="checkbox"/> Rb <input checked="" type="checkbox"/> Ba <input checked="" type="checkbox"/> Th <input checked="" type="checkbox"/> U <input checked="" type="checkbox"/> Nb <input checked="" type="checkbox"/> Ta <input checked="" type="checkbox"/> Ti <input checked="" type="checkbox"/> P <input checked="" type="checkbox"/> Pb <input checked="" type="checkbox"/> Sr	<input type="button" value="Mark All"/> <input type="button" value="Clear All"/> <input type="checkbox"/> Is Sr Isotope <input type="checkbox"/> Is Nd Isotope <input checked="" type="checkbox"/> <sup>87</sup> Rb/ <sup>86</sup> Sr)m <input checked="" type="checkbox"/> <sup>87</sup> Sr/ <sup>86</sup> Sr)m <input checked="" type="checkbox"/> <sup>147</sup> Sm/ <sup>144</sup> Nd)m <input checked="" type="checkbox"/> <sup>143</sup> Nd/ <sup>144</sup> Nd)m <input checked="" type="checkbox"/> Test Rock(Ma) <input checked="" type="checkbox"/> <sup>87</sup> Sr/ <sup>86</sup> Sr)j <input checked="" type="checkbox"/> <sup>143</sup> Nd/ <sup>144</sup> Nd)j,CHUR <input checked="" type="checkbox"/> <sup>143</sup> Nd/ <sup>144</sup> Nd)j <input type="checkbox"/> f(Sm/Nd)s <input type="checkbox"/> zNd(0) <input checked="" type="checkbox"/> zNd(t) <input checked="" type="checkbox"/> TDM <sub>1</sub> Ma <input checked="" type="checkbox"/> TDM <sub>2</sub> (Ma) <input type="checkbox"/> Is Hf Isotope <input type="checkbox"/> Hf_PointNum <input type="checkbox"/> Hf_normalNum <input type="checkbox"/> zHft_min <input type="checkbox"/> zHft_max

Figure 23 ? ? ? ?

The main purpose of this function is to select the output fields you need, and do not select the ones you don't need to avoid slow response or garbage data. Some fields are initially loaded, and you can modify them as needed. After you are done, click "View and download results" above to see the effect in the space area you just selected and the fields selected on this page.

Search Result: 另存为excel

The following result data is filtered out according to the space range you selected and the columns displayed. You can click the [Save](#) button to download and save as an excel file.

SAVE...

Show 25 entries

调整分页的参数

每个字段都可以升序或者降序排列

全文检索，输入有惊喜

Sample Id	Original Sample Id	Longitude	Latitude	Lithology	Age(Ma)	Age Error (Ma)	Tectonic Location	Era	Data Source	Article DOI	SiO2	TiO2	Al2O3	Fe2O3	FeO	Fe2O3 Total	FeOT	MnO	MgO	CaO
DL10-8	112.841666666667	44.71		K-feldspar granite	160				Xue et al., 2015											
M1498-3.1	110.4275	43.890138888889		Syenogranite	337				Zhao et al., 2015											
N16623-5.3	112.388888888889	45.387777777778		碱长花岗岩	329				贾学新, 2018											
145214	112.706111111111	44.502777777778		黑云母二长花岗岩	301.2				杨泽雄等, 2019											
145215	112.706388888889	44.503055555556		黑云母二长花岗岩	301.2				杨泽雄等, 2019											
145216	112.706666666667	44.503333333333		黑云母二长花岗岩	301.2				杨泽雄等, 2019											
145217	112.706900000000	44.503611111111		黑云母二长花岗岩	301.2				杨泽雄等, 2019											
145218	112.707222222222	44.503888888889		黑云母二长花岗岩	301.2				杨泽雄等, 2019											
145219	112.7075	44.504166666667		黑云母二长花岗岩	301.2				杨泽雄等, 2019											
145220	112.707777777778	44.504444444444		黑云母二长花岗岩	301.2				杨泽雄等, 2019											
145221	112.708055555556	44.504722222222		黑云母二长花岗岩	301.2				杨泽雄等, 2019											

Figure 24? ? ? ?

Scroll down to page section to see the results of the pagination.

055	111.897508	44.754515		Granite porphyry	131.3				ZHANG_Zhenjie_010											
GD	112.692905	44.520498		Granodiorite	300				Zhang_Xiaojun, 2018											
M16527-1.1	115.970086	45.813652		黑云母二长花岗岩	132				孙佳慧, 2018											
M16527-2.1	115.989154	45.812182		黑云母二长花岗岩	127				孙佳慧, 2018											
M16527-3.2	116.078245	45.794867		辉长花岗岩	141				孙佳慧, 2018											
DL-01	112.249225	44.560850000000		花岗岩 (刘恩手, 2020)	288															

Showing 1 to 25 of 397 entries

分页结果

Previous 1 2 3 4 5 ... 16 Next

Figure 25? ? ? ?

The speed reflected on this page is mainly related to the spatial range selected (i.e., how much data is filtered). There is currently no limit to the overall amount of data, and if you box the world, it may cause the machine to get stuck (if there is too much data).

Click Save to download it as excel, and the columns of excel are related to the previously selected content. The downloaded excel result is:



DDE-OnePetrology									
Sample Id	Original Sample Id	Longitude	Latitude	Lithology	Age(Ma)	Age Error (Ma)	Tectonic Location	Era	Data Source
	DL10-8	112.8416667	44.71	K-feldspar granite	160				Xue et al., 2015
	M1498-3.1	110.4275	43.89013889	Syenogranite	337				Zhao et al., 2015
	M16623-5.3	112.3888889	45.38777778	碱长花岗岩	329				贾幸新, 2018
	145214	112.7061111	44.50277778	黑云母二长花岗岩	301.2				杨泽黎等, 2019
	145215	112.7063889	44.50305556	黑云母二长花岗岩	301.2				杨泽黎等, 2019
	145216	112.7066667	44.50333333	黑云母二长花岗岩	301.2				杨泽黎等, 2019
	145217	112.7069444	44.50361111	黑云母二长花岗岩	301.2				杨泽黎等, 2019
	145218	112.7072222	44.50388889	黑云母二长花岗岩	301.2				杨泽黎等, 2019
	145219	112.7075	44.50416667	黑云母二长花岗岩	301.2				杨泽黎等, 2019
	145220	112.7077778	44.50444444	黑云母二长花岗岩	301.2				杨泽黎等, 2019
	145221	112.7080556	44.50472222	黑云母二长花岗岩	301.2				杨泽黎等, 2019
	145222	112.7083333	44.505	黑云母二长花岗岩	301.2				杨泽黎等, 2019
	145223	112.7086111	44.50527778	黑云母二长花岗岩	301.2				杨泽黎等, 2019
	145224	112.7088889	44.50555556	黑云母二长花岗岩	301.2				杨泽黎等, 2019
	145225	112.7091667	44.50583333	黑云母二长花岗岩	301.2				杨泽黎等, 2019
	15DX41	115.072379	45.313842	花岗岩闪长岩	496				杨泽黎等, 2017
	15DX44	115.132422	45.360877	花岗岩闪长岩	479				杨泽黎等, 2017
	P26-8	112.967239	44.355569	Monzogranite	304				Chaihui, 2020
		1024	111.882052	44.732839 Monzonitic granite	137.3				ZHANG, Zhenjie, 2016
		633	111.887508	44.734515 Granite porphyry	131.9				ZHANG, Zhenjie, 2016
	GD	112.692905	44.520498	Granodiorite	300				Zhang, Xiaojun, 2018
	M16527-1.1	115.970086	45.813652	黑云母二长花岗岩	132				孙佳慧, 2018
	M16527-2.1	115.989154	45.812182	黑云母二长花岗岩	127				孙佳慧, 2018
	M16527-3.2	116.078245	45.794867	钾长花岗岩	141				孙佳慧, 2018
	DL-01	113.249225	44.5608944	花岗岩 (刘宏宇, 2020)	288				
	DL-02	113.0963278	44.57343333	花岗岩 (刘宏宇, 2020)	305.7				
	DL-04	112.6129944	44.45935556	花岗岩 (刘宏宇, 2020)	316				

Figure 26 ? ? ? ?

The first line is the project name: DDE-Petrology, the second line has some copyright information (bilingual in English and Chinese), the third line is all listings, and the fourth line starts with data and contains all selected data.

## 3.5. Background management function of the Igneous Rocks Database

### 3.5.1. Overview of back-office management

The website back-office of the Igneous Rocks Database includes all the settings of the website and the development functions. Back-office management mainly provides functions such as data management, website configuration, content publishing, and page development.

The access path of the back-office management is <https://petrology.deep-time.org/admin> and <http://39.106.68.244/admin> (IP mode).

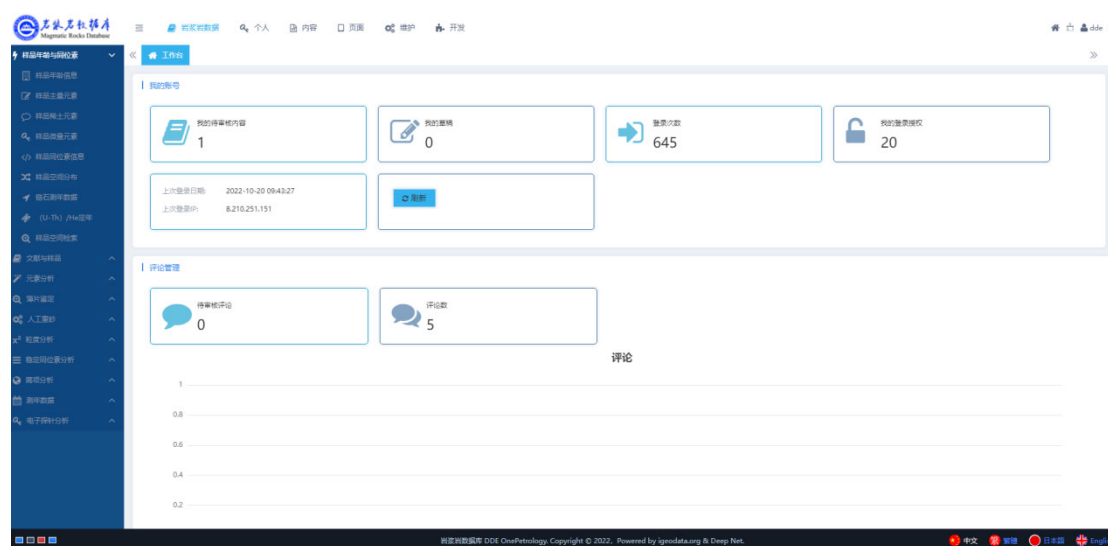


Figure 27 ? ? ?

The picture above shows the homepage interface after the website background management login, the upper one is the large functional partition, the left side is the secondary menu partition, the middle area is the main functional area, and all the functional interfaces corresponding to the secondary menu on the left are opened in the middle area. Part of the Magma Rock Database is the database management function of the old version, which can retrieve and query the data of the old version, and supports operations such as modification and deletion (all operations are logged and deleted

carefully).

The common functions are content and development, and the content refers to the news and achievements published by the website, which can be published in the front desk after being edited in the background (the template needs to be set up in the development). The development part is the development website page. Let's take a look at each of these two features.

### 3.5.2. Content management

This website is built using the CMS architecture, so the content management is consistent with the CMS management concept of the website, and the relevant content can be published under the corresponding column in accordance with the CMS method.

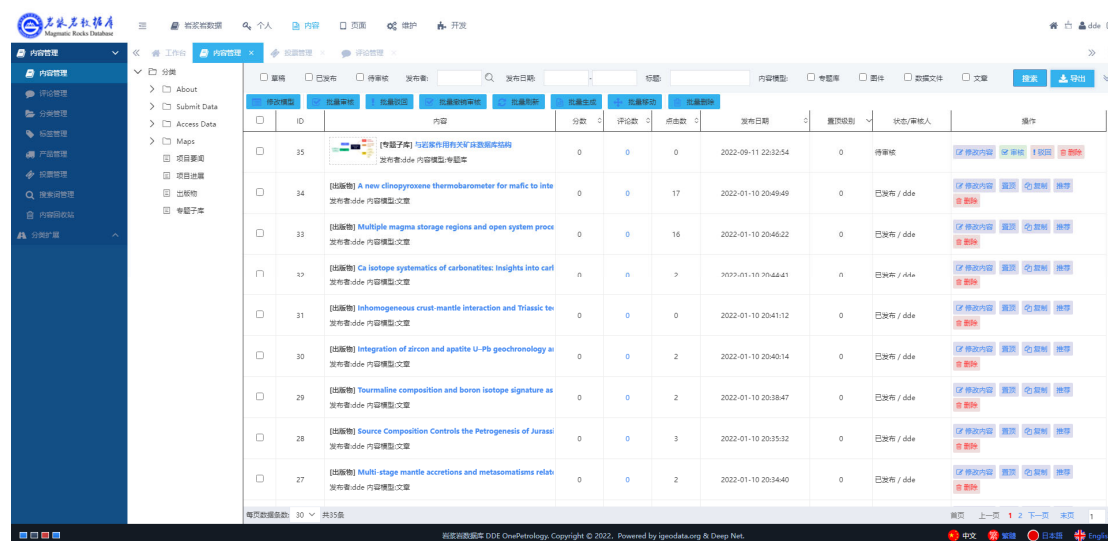


Figure 28 ? ? ?

When publishing content, fill in the relevant content one by one and approve it ( If you don't have permissions, you'll need to wait for approval from an administrator with permissions) to see the content on the front-end page.

The specific content management includes comment management, category management, tag management, product management, voting management, search term management, etc., all of which are set up in accordance with the CMS concept, and can be used after being set up in the front-end page.

### 3.5.3. Website development

This function is used by web developers to set up various front-end pages. The IT technical skills required to use this function include HTML, JS, FreeMarker, etc.

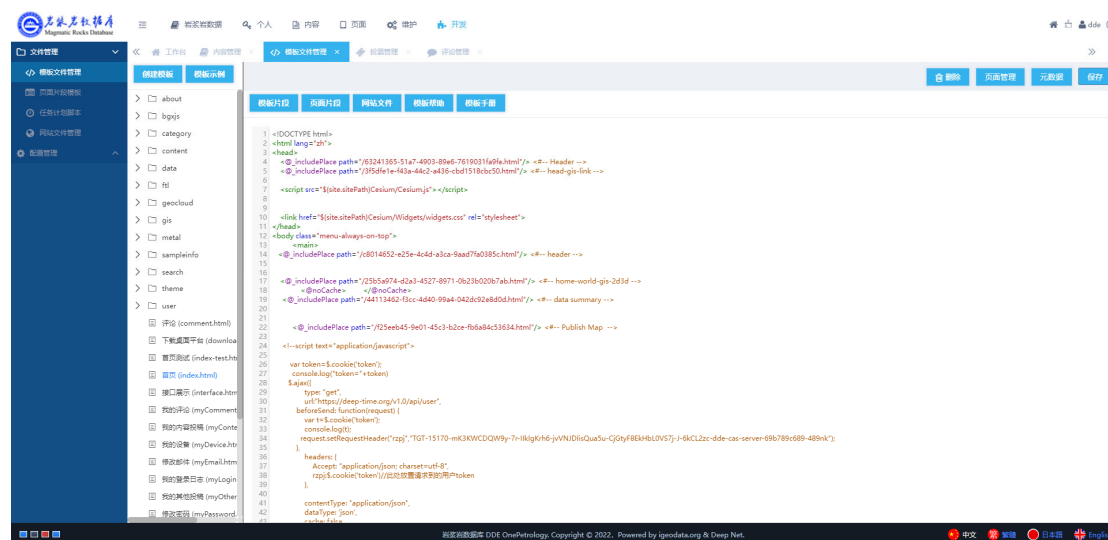


Figure 29 ? ? ? ?

Steps and precautions during development:

1. The JS, CSS, images, HTML and other resource files that need to be used can be uploaded through the "website file management" function. You can upload multiple files at once. After the upload is successful, you can view the corresponding content in the website file management.

2. When writing front-end pages, try to be modular for reuse, that is, use the "page template fragment" function. This function facilitates the modularization of HTML pages, such as header and footer, which can be embedded in all pages as two fragments. When changes are needed, modify the page fragment directly once to complete all the changes to the page.

3. Template file management corresponds to the front-end page. When using this function, it should be noted that the development is a front-end HTML, in which you can directly embed page fragment templates, write HTML code and JS code, use all the code functions of FreeMarker. For the specific



tags supported by FreeMarker, you can query <http://39.106.68.244/interface.html>.

4. Remember to save the edited content in time, because the acquired management has a session timeout function, and the operation in the rich text browser will not change the state of the session and cause a timeout.

### 3.5.4. Website maintenance

The operation of website maintenance is mainly the management of users, departments, roles, etc., and can be set according to actual needs (administrator permissions required).

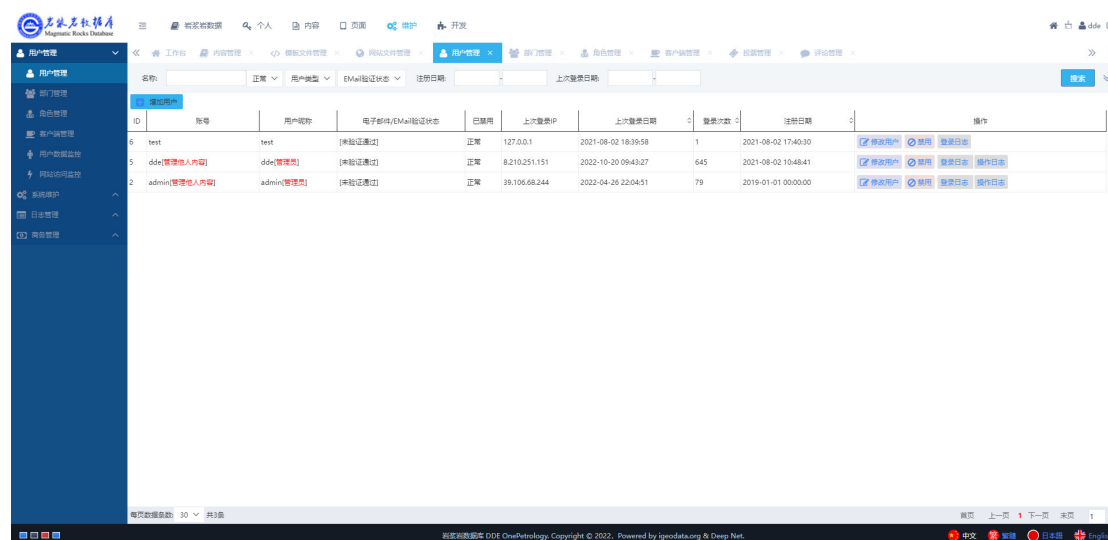


Figure 30? ? ? ?

Other technical parameters that are set to run the website are configured by default and do not need to be adjusted.

## **4. Igneous Rocks research platform software**

### **4.1. Target**

The goal of DDE-OnePetrology desktop software is to build a scientific research platform for Igneous Rocks, which is used to process the collection of tools and software from literature management, to extract data from literature, to form large-scale datasets, to form spatial databases combined with GIS, to carry out discipline research and analysis, and to provide researchers with a collection of tools and software.

### **4.2. Function**

Classify, preserve and sort out the collected academic literature and data, provide tools to extract excel sheets from literature, extract coordinates from map frames, extract effective information and data from text, etc., and then build a complete Igneous Rocks database, accumulate big data for discipline research, and lay the foundation for carrying out discipline research such as intelligent mapping.

### **4.3. Capability**

This software is a desktop working software developed in python language, and its performance and efficiency are higher than those of web applications and slightly lower than those developed by C++. At the same time, the characteristics of the python language determine that it can easily integrate many tools, and it can also be closely integrated with AI-related applications.

In this software, web functions are also integrated to support direct

embedding of web applications.

Through the online upgrade, the problem of desktop software update was solved, and the foundation for sustainable development was laid.

## **4.4. Operating environment**

### **4. 4. 1. Hardware requirements**

After testing, the environment for running this software is i7 CPU, 16G memory, 20GB of free hard disk space, and the software can run smoothly.

The operation of this software requires networking, and there are certain requirements for network speed, and the network speed is too slow to cause jamming.

### **4. 4. 2. Support software**

Win10 64-bit has been tested to run the software smoothly. In the later stage, it can be packaged separately for the distribution of Linux and domestic operating systems.

## **4.5. Directions for use**

### **4. 5. 1. Installation and initialization**

First of all, download the compressed file "DDE-OnePetrology.zip" from the Internet, temporary URL: <http://39.106.68.244/>

Find Desktop Software in the middle of the page to download it.

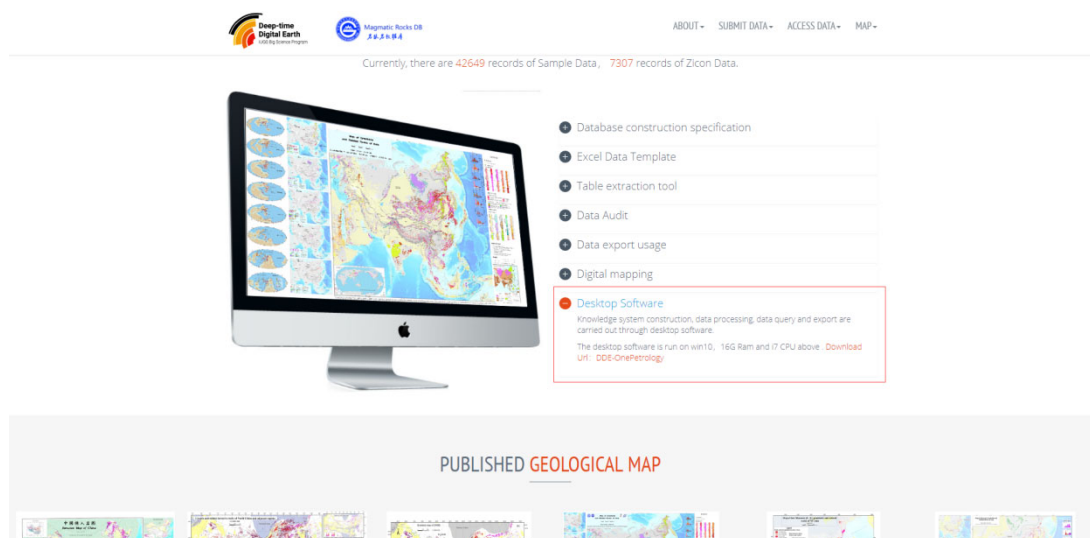


Figure 31 ? ? ? ?

After downloading, unzip it to a directory on the hard disk, and it is recommended to use the English directory name to avoid unpredictable errors caused by Chinese. Then, after unzipping, create a shortcut DDE-OnePetrology.exe to the desktop for later use.

#### 4.5.2. Software startup

Double-click DDE-OnePetrology.exe or the desktop shortcut to launch.

First of all, a Splash screen appears, blue is the desktop, and normally it is a round picture.

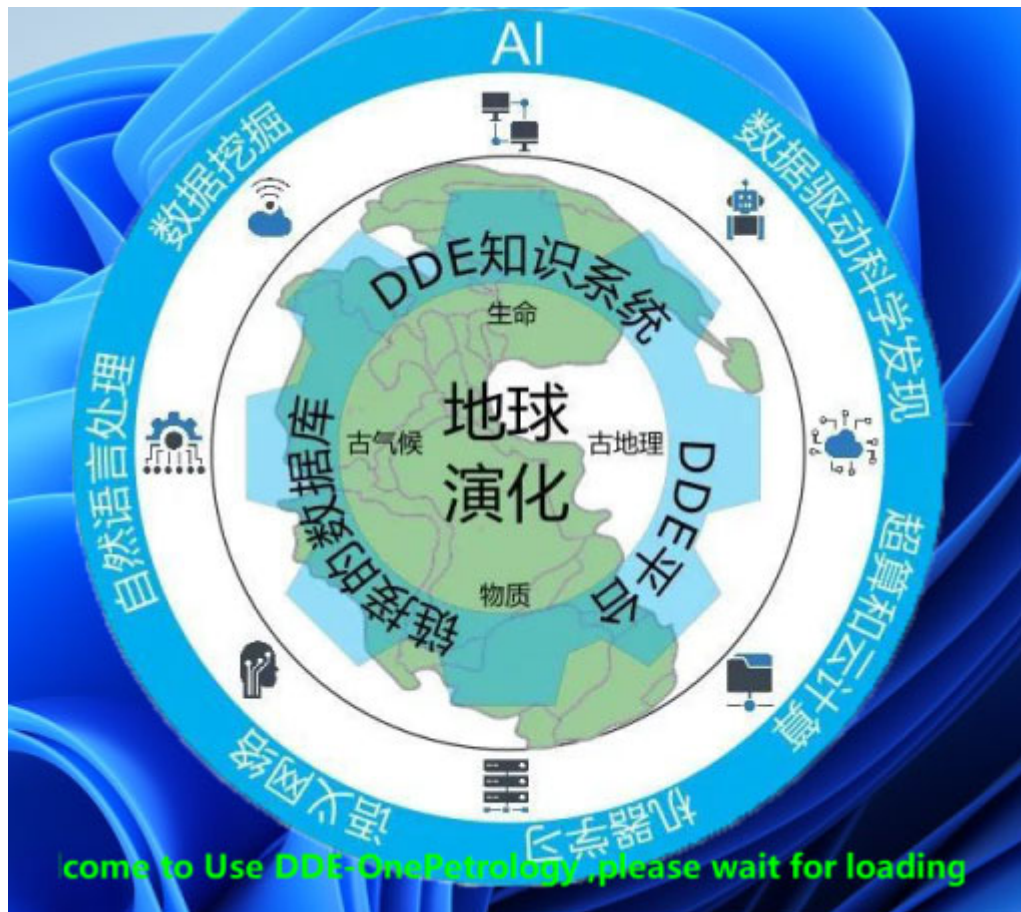


Figure 32 ? ? ? ?

Then, after the system has preliminarily finished loading, the landing window is displayed (on the left is the animation of the global magmatic map on the 3D Earth):

Deep-time Digital Earth  
IUGS Big Science Program

中国科学院地质研究所  
INSTITUTE OF GEOLOGY, CAS

Magmatic Rocks DB  
岩浆岩数据库

User Account: geowind@126.com

Password: ●●●●●●●●

[Click me to register new user...](#) ☒ Remember user and password ☐ Auto Login

Login Cancel

Figure 33? ? ? ?

The username is email address, and you can log in by entering your password. Once you log in, you will be able to access the software.

The registration page is currently open: <http://39.106.68.244:4000/register>, or click on the hyperlink in the lower left corner of the login window, and contact the administrator for authorization if necessary after registration (currently the permissions are only related to the mailroom and document management).

### 4. 5. 3. Introduction to the layout and operation of the interface

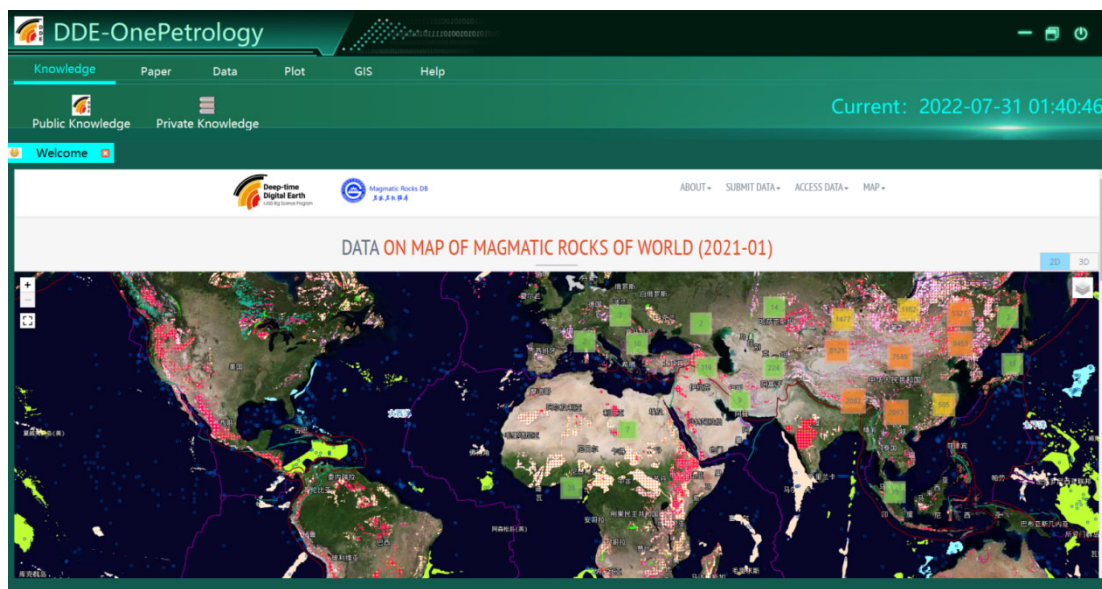


Figure 34 ? ? ? ?

As shown in the figure, the software includes a menu bar, a toolbar, a status bar and other areas. Click the button on the left control panel to activate the corresponding function in the main workspace in the middle.

### 4. 5. 4. Body of knowledge/knowledge tree

The body of knowledge is at the heart of the software.

Public Knowledge is the part of the public knowledge system, that is the part that everyone needs together. It is recommended that experts work together to develop a basis for everyone's work, so as to facilitate the integration of data that is coordinated by multiple people in the later stage.

Private knowledge is a private knowledge system, which is pruned on the basis of the public knowledge system to form the knowledge system you need. The private knowledge system is bound to the user name.

The Body of Knowledge can be exported as an Excel template for collecting and organizing data.



## (1) Public knowledge tree

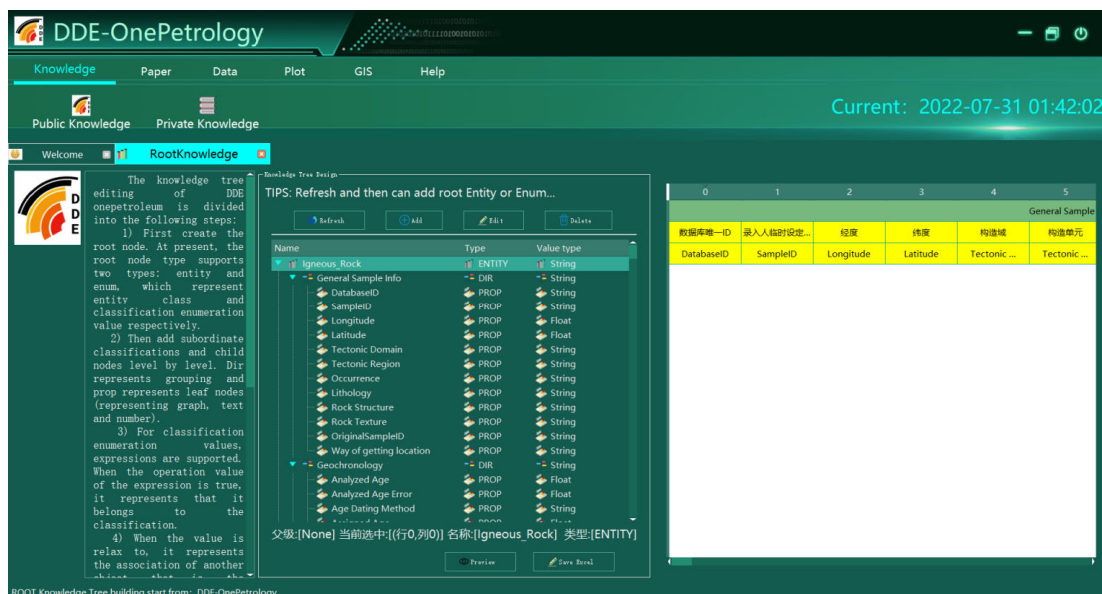


Figure 35? ? ? ?

Click the Public Knowledge button in the dashboard to activate the public knowledge tree in the main workspace. The interface is displayed in three sections, the left side is the description information (you can hide it by dragging it during work), the middle is the knowledge tree editing, and the right display area can preview the nodes of the knowledge tree. You can freely drag or close a section between the three segments to adjust the display range.

The Refresh, add, edit, and delete in the middle, correspond to the refresh of the knowledge tree, adding nodes, editing nodes, and deleting nodes.

The nodes and interrelationships of the knowledge tree are the most important and need to be carefully understood before we can carry out our work. Take edit as an example:

Parent Node: DDE-OnePetrology

Name: Sample

CN Name: 样品

Type: ENTITY

Description: 样品，来自于野外采集，为实验分析的基本单位。

Expression:

Value Type: Str String

Relate to:

Display Order: 1

Save Cancel

Figure 36? ? ? ?

Among them, name and cn\_name are English and Chinese names, respectively. All names on all of leaf nodes under an Entity, that is, nodes of prop type, cannot be repeated.

There are four types of Type: Entity, Dir, Prop, and Classify. Entity can be understood as a table, which contains many fields (Props). dir is the structure used by the directory to organize different Props. Classify is an enumeration classification system, which can be used as a value check for Prop fields.

Description is a description, which can be described in a mixture of

Chinese and English, and is used to explain and make people understand.

Expression: An expression can be a calculation expression of another Prop field, similar to an Excel calculation function, and the writing method follows the conventional mathematical method.

Value Type: includes four types: Str string, Float number, Enum enumeration value (classification check, etc.), RELATION (associated with other entities, such as sample association to literature).

Relate to: The value is ENTITY in the root directory, and this field needs to be set only when the Value Type is set to RELATION.

Display Order: Used to control the display order on the knowledge tree.

The rest of the Add, delete are the same. At the same time, you can right-click on the tree node, which can also have the same effect.

Preview function

After selecting the node, click Preview. This function currently supports two types of previews: ENTITY and CLASSIFY, which are Excel and xmind respectively.

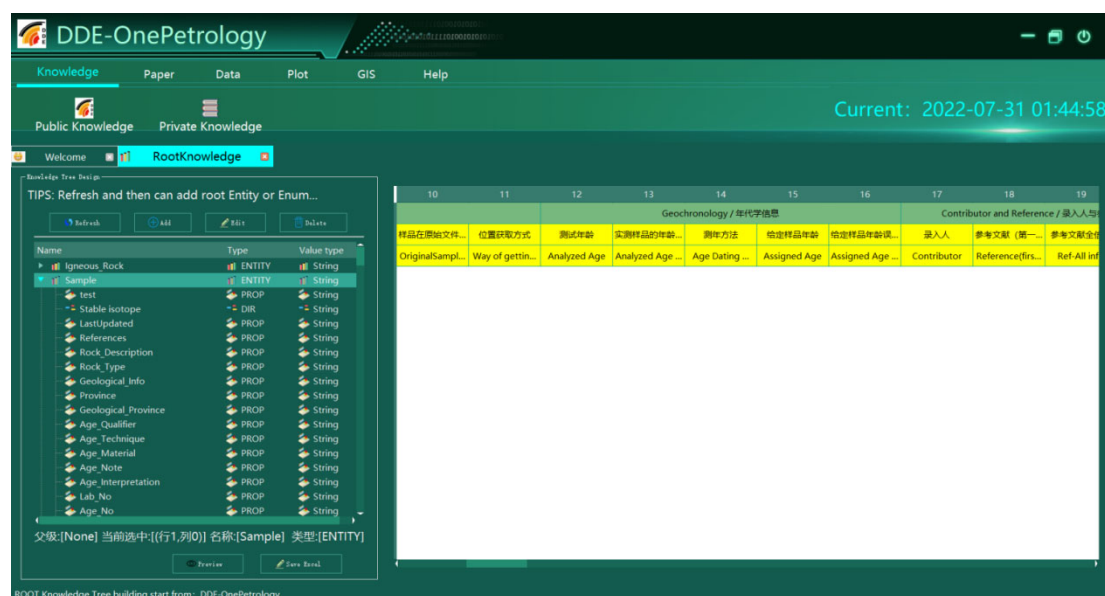


Figure 37 ? ? ? ?

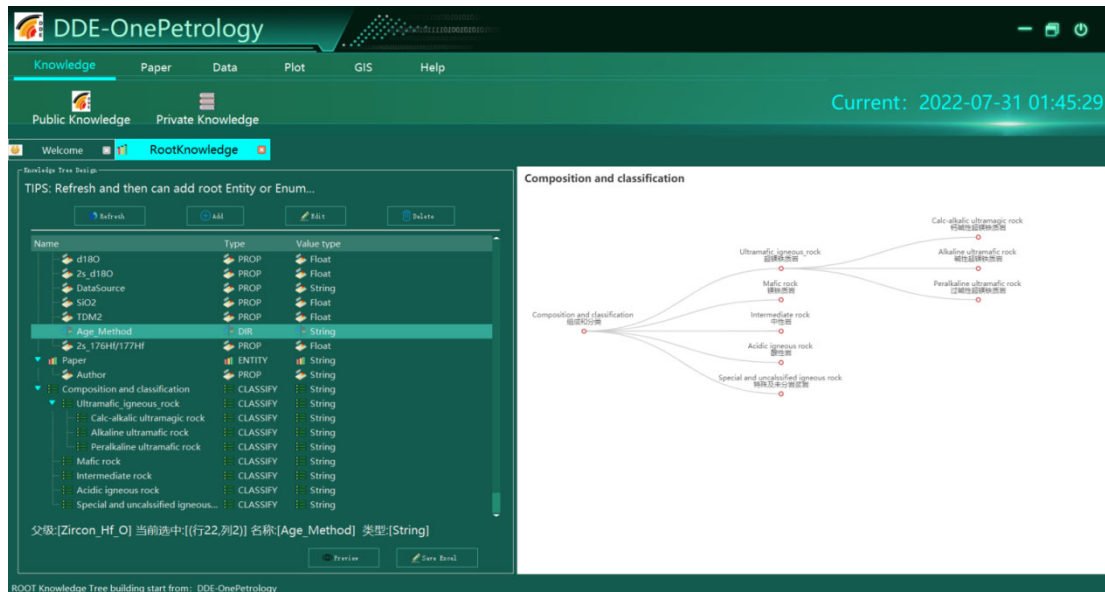


Figure 38 ? ? ? ?

After clicking Save Excel, you can export all the following nodes, that is, all the Entities to excel, and all the CLASSIFY nodes to the xmind file.

## (2) Private knowledge tree

The private knowledge tree is similar to the public knowledge tree, with a copy from ROOT function, that is, it is updated from the public knowledge tree to its own private knowledge tree.

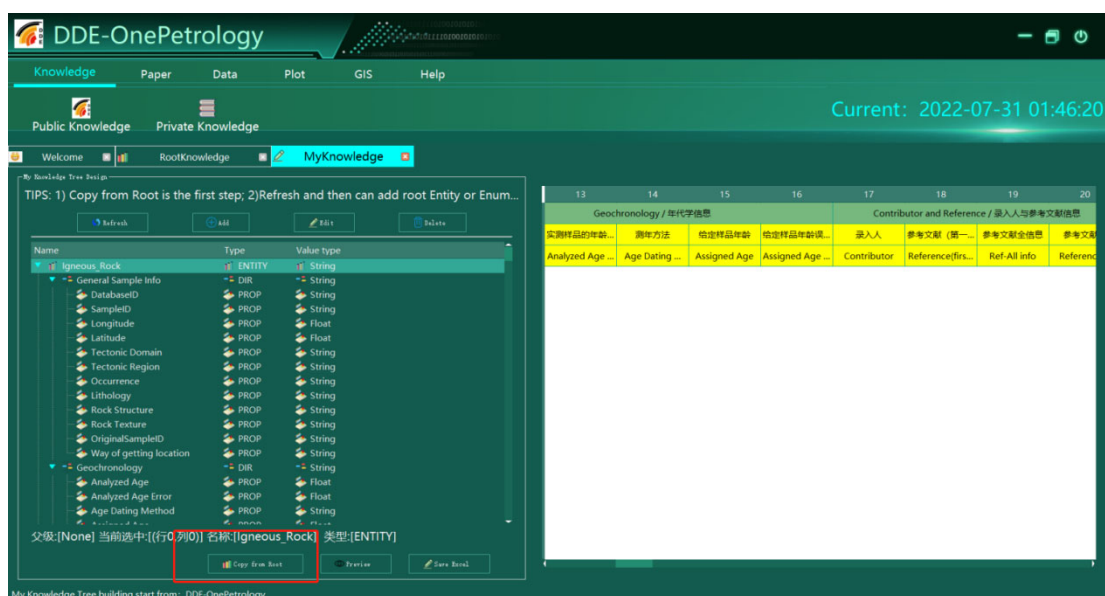


Figure 39 ? ? ? ?

This function needs to be used with caution, and it is easy to lose the results of your hard editing, so it is best to build a public knowledge tree first and then copy it all at once.

#### 4. 5. 5. Data mailroom (Excel)

The data mailroom is an Excel file that is organized and collected.

##### (1) Data file upload

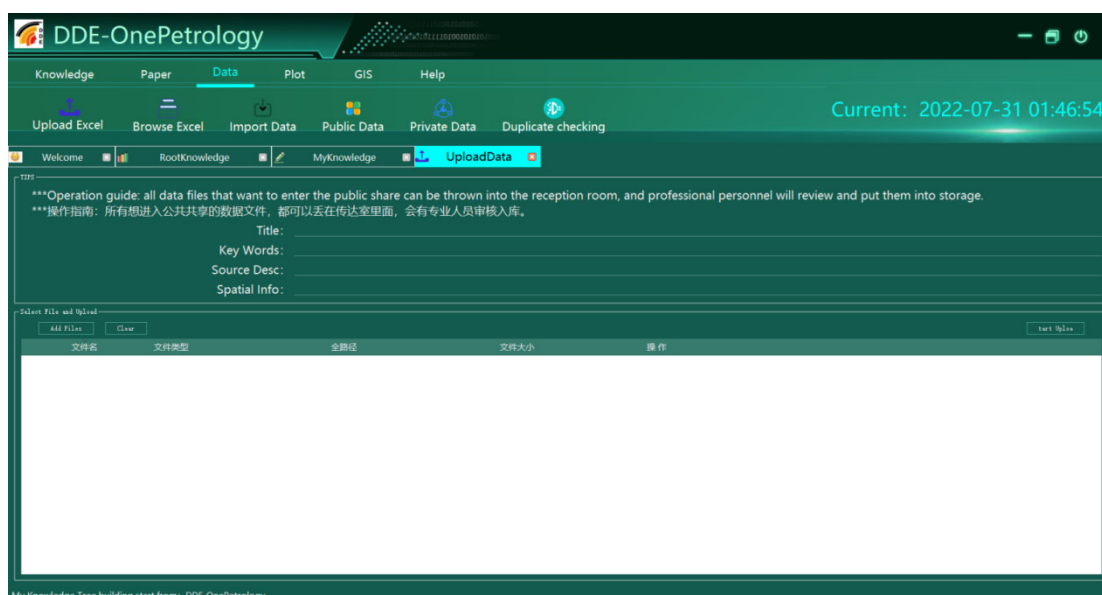


Figure 40 ? ? ?

After selecting the file, fill in the relevant metadata and click Start Upload to upload it.

## (2) Process data files/import data

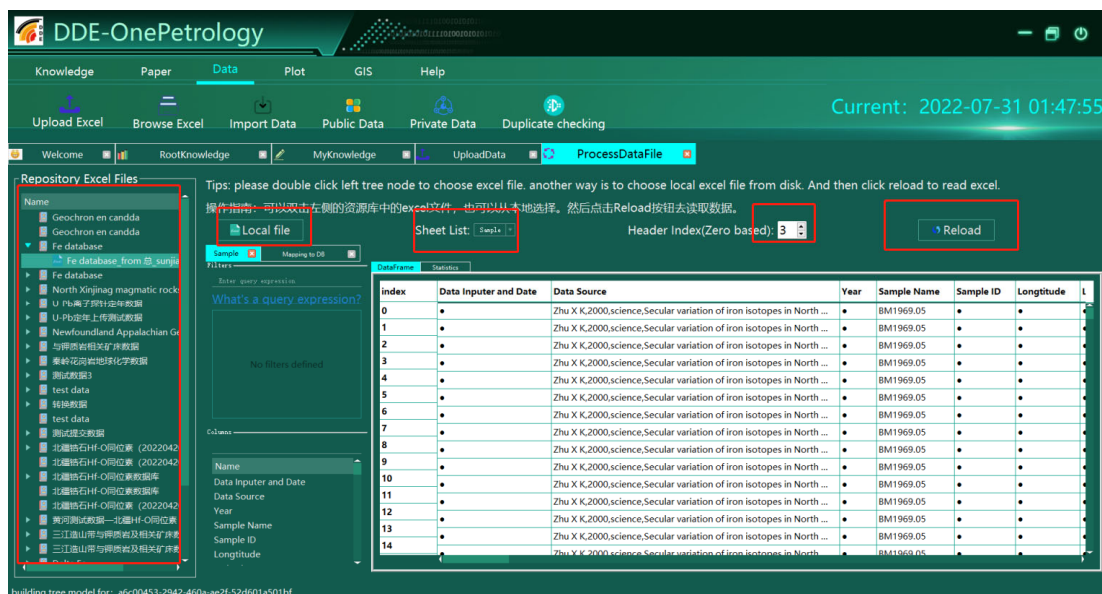


Figure41? ? ? ?

The data file can be an excel file from the mailroom, double-click the tree on the left to activate the file for processing. After activation, it will read the sheet list in the file, select Sheet, and then click reload, you can read the data in the sheet. It will be dynamically loaded below. In addition to the two-dimensional table, there is a statistical result.



Figure 42? ? ? ?

Switch to the warehousing module, firstly select the corresponding ENTITY,



and then click the refresh button, you can see the automatic matching results: white is a complete match (ignore case), the green is a complete mismatch, the red is a match rate of 80~90%, and yellow is >90%. In the third column, click to display a drop-down list, that is, you can select the correspondence between the columns of Excel and the fields of the knowledge tree.

It can be used to filter the duplication of data caused by multiple people working at the same time, so as to ensure the quality and uniqueness of the data in the database. The procedure is as follows:

- 1) First, check the fields to check duplicates.

- 2) It is recommended to use latitude and longitude and the original sample number as the basis, if there is no latitude and longitude data, please evaluate the data type and the situation in the database and the data to be uploaded, and select the fields that will be specific to each piece of data to minimize missed screening and false positives.

- 3) Pay attention to duplicate checks, do not select string fields such as references, and you can't find out if the writing is a little different. Don't choose a different field like Contributor ID.

- 4) Note that null values are also considered to be duplicates, so don't choose fields with many null values.

#### About the duplicate data processing option

Each time a piece of data is entered, the previously selected fields will be checked for duplicates with the data in the database, and if there are no duplicates, the data will be entered smoothly.

It is recommended to select Skip and Pick out to file for the first time, and it will be returned to excel with one or more duplicate data columns.

#### Merge and Return conflicts

If there is a duplicate, the entries in the library are compared one by one, and if there is a conflict, both are exported for inspection. If there is no conflict, the missing item in the supplementary library is used. (In practice, because the

reference string fields entered by different people are easy to conflict, it is more suitable for the situation that the data entries uploaded by yourself are supplemented later.)

If there are multiple duplicates in the library, all of them are exported without merging.

Delete and Use Mine deletes one or more duplicates in the library and replaces them with the one that entered the library. Make sure to pick out all the duplicates and review the process merge before proceeding with this action. The selection of fields is especially important for this option, please select as many consistent fields as possible on the basis of the above checks to ensure that you do not accidentally get hurt.

Finally, click Save to DB. Wait for a while, there will be entries being processed in the lower left corner, when there are many entries (tens of thousands), it will take a long time to enter the warehouse and return the results, please be patient.

Be sure to remember to check the result file of the reversal after each inbound operation, and if it is not automatically opened, go to the import directory in the program directory to find it

### (3) Browse the data file

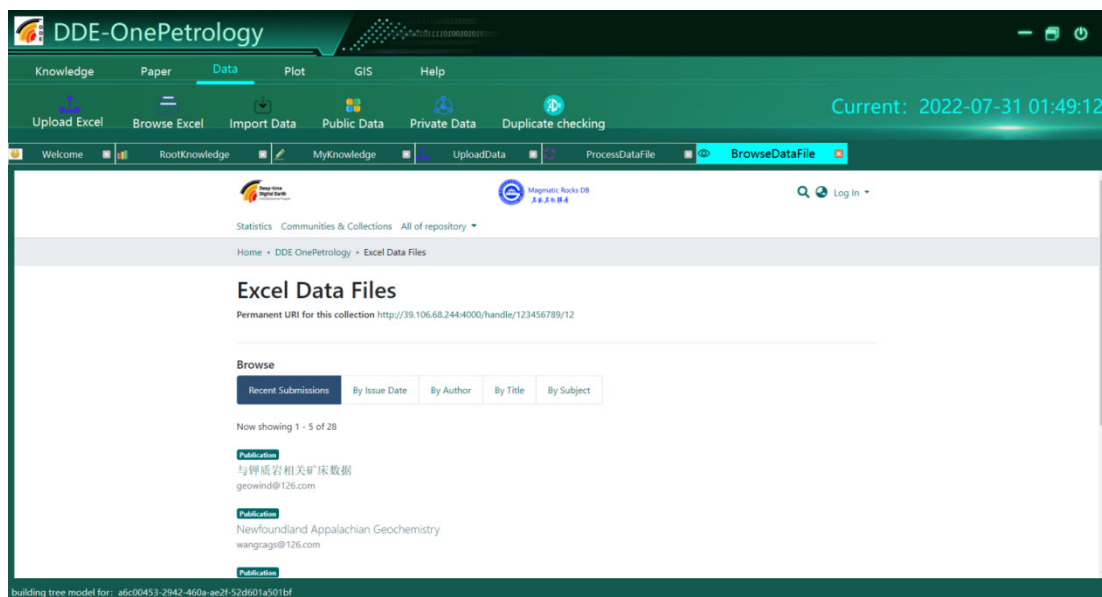


Figure 43? ? ? ?

An Open Access web page is provided.

## 4.5.6. Research document management (PDF)

### (1) Submit documents

网络首发时间: 2019-11-07 15:59:41  
网络首发地址: <http://kns.cnki.net/kcms/detail/61.1423.P.20191107.1029.003.html>

第 42 卷 第 1 期 地球科学与环境学报 Vol 42 No 1  
2020 年 1 月 Journal of Earth Sciences and Environment Jan. 2020

徐晓春, 安昱华, 许心悦, 等. 安徽南陵—宣城地区岩浆岩锆石 U-Pb 年龄及元素地球化学特征[J]. 地球科学与环境学报, 2020, 42(1): 000-000.  
XU Xiaochun, AN Yichua, XU Xinyue, et al. Zircon U-Pb Ages and Element Geochemistry Characteristics of Magmatic Rocks in Nanling-Xuancheng Area of Anhui, China[J]. Journal of Earth Sciences and Environment, 2020, 42(1): 000-000.  
DOI: 10.13814/j.jee.2019.05023

### 安徽南陵—宣城地区岩浆岩锆石 U-Pb 年龄及元素地球化学特征

徐晓春, 安昱华, 许心悦, 傅仲阳  
(合肥工业大学 资源与环境工程学院, 安徽 合肥 230009)

**摘 要:** 安徽南陵—宣城地区是一个中—新生代火山—沉积盆地, 位于长江中下游构造—岩浆—成矿带东北段的东南翼。对该区发育的岩浆岩开展了较系统的 LA-ICP-MS 锆石 U-Pb 定年及岩石主量、微量和稀土元素分析, 并与长江中下游构造—岩浆—成矿带其他地区岩浆岩进行对比, 旨在确定岩浆岩的成岩时代, 探讨岩浆岩成因及其与成矿的关系。南陵—宣城地区岩浆岩一部分侵入于盆地基底中, 另一部分喷发形成盆地盖层, 还有一部分产于盆地之上的推覆构造(体)中。侵入岩的岩性主要为花岗岩、花岗闪长岩、石英闪长岩等, 火山岩主要为英安质火山碎屑岩和熔岩。获得的侵入岩锆石 U-Pb 年龄主要为 138~135 Ma, 火山岩年龄均小于 134 Ma, 表明岩浆作用发生于晚中生代(燕山晚期)早白垩世。岩浆岩主量元素显示高 Si、K 的特征, 为亚碱性高钾钙碱性系列岩石; 微量元素组成显示岩浆岩富集 Rb、Th、U、K 等大离子亲石元素, 亏损 Nb、Ta、Ti 等高场强元素; 火山岩比侵入岩较为亏损 Sr 和 P; 球粒陨石标准化稀土元素配分模式均表现为富集轻稀土元素的右倾模式和较弱的 Eu 负异常。元素地球化学特征指示区内岩浆岩具有壳幔混源且以幔源为主的特征。南陵—宣城地区既发育与长江中下游构造—岩浆—成矿带隆起区(如铜陵地区)同位素地质年龄和地球化学特征基本一致的侵入岩, 又发育与凹陷区(如庐枞、宁芜等盆地)同位素地质年龄和地球化学特征基本一致的火山—次火山岩, 显示该区晚中生代岩浆作用具有长江中下游构造—岩浆—成矿带隆起区和凹陷区的双重特征。岩浆作用的双重特征指示与其有关的成矿作用也可能具有双重性, 即既可能发育与隆起区侵入岩作用有关的斑岩型、砂卡岩型和脉型铜金等多金属矿床, 也可能发育与凹陷区火山—次火山岩有关的斑岩型铁(硫)矿床。

**关键词:** 岩浆岩; 锆石 U-Pb 年龄; 元素地球化学; 岩石成因; 火山岩; 侵入岩; 成矿成矿关系; 安徽

**中图分类号:** P588.1; P59 **文献标志码:** A **文章编号:** 1672-6561(2020)01-0000-21

Zircon U-Pb Ages and Element Geochemistry Characteristics of Magmatic Rocks in Nanling-Xuancheng Area of Anhui, China

File Path: 锆石U-Pb年龄及元素地球化学特征\_徐晓春.pdf

PDF File Meta data

Title: 宣城地区岩浆岩锆石U-Pb年龄及元素地球化学特征\_徐晓春

Author: CHX

Subject:

Key words:

Creator: ReaderEm\_DIS 2.1.0 Build 39602

Producer: TTX

Created date: D:20191107174011-08'00'

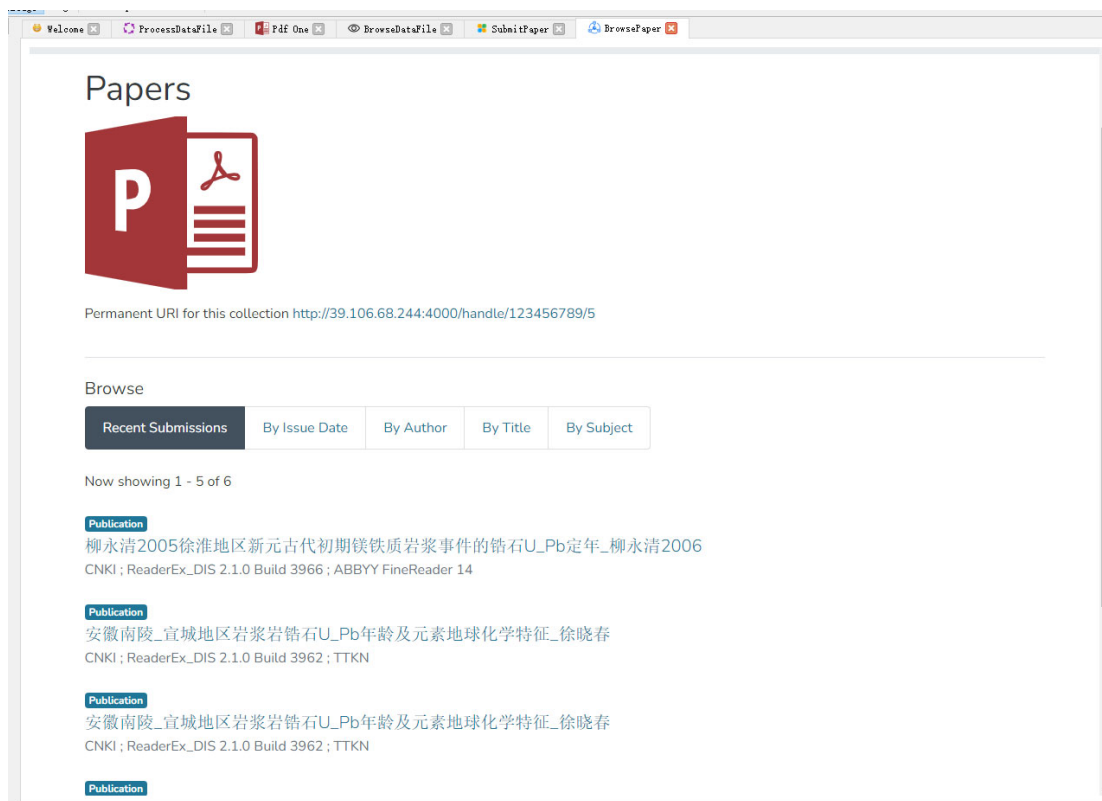
Modify date:

Upload Process: 0%

Figure 44 ? ? ? ?

Select the local file, the metadata information in the PDF will be automatically read, then preview the PDF file on the left, correct the proofreading metadata, and click submit to upload.

## (2) Browse documents



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Now showing 1 - 5 of 6

**Publication**  
柳永清2005徐淮地区新元古代初期镁铁质岩浆事件的锆石U-Pb定年\_柳永清2006  
CNKI ; ReaderEx\_DIS 2.1.0 Build 3966 ; ABBYY FineReader 14

**Publication**  
安徽南陵\_宣城地区岩浆岩锆石U-Pb年龄及元素地球化学特征\_徐晓春  
CNKI ; ReaderEx\_DIS 2.1.0 Build 3962 ; TTKN

**Publication**  
安徽南陵\_宣城地区岩浆岩锆石U-Pb年龄及元素地球化学特征\_徐晓春  
CNKI ; ReaderEx\_DIS 2.1.0 Build 3962 ; TTKN

**Publication**

### (3) Figure 45 Paper List

## 4. 5. 7. PDF data extraction

### (1) Single file extraction



**Repository PDF Files**

Tip: please double click left pdf file node, or choose local pdf file, then click extract button to do the task.  
操作提示: 双击左侧pdf文件节点, 或选择本地pdf文件, 然后点击提取按钮

<http://39.106.68.244:4000/server/api/core/bitstream/9169444-5940-494a-9a0b-bbca5a826536/content>

**ELSEVIER** journal homepage: [www.elsevier.com/locate/precames](http://www.elsevier.com/locate/precames)

### A-type granites in the western margin of the Siberian Craton: Implications for breakup of the Precambrian supercontinents Columbia/Nuna and Rodinia

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Zircon U-Pb SHRIMP II dating  
In situ U-Th-Pb monazite ages  
Interplay tectonics  
Siberian Craton

**ABSTRACT**

The tectonic evolution of the Siberian Craton margins offers important clues for global paleogeographic reconstructions, within the complex continental collage of Central Asia. The Yenisey Ridge fold-and-thrust belt at the western margin of the Siberian Craton forms part of the Central Asian Orogenic Belt (CAOB) and is a key to understand the Precambrian tectonic evolution of the Siberian Craton and crustal growth in the CAOB, the world's largest Phanerozoic accretionary orogenic belt. Here we report the occurrence of A-type granites with geochemical features indicating intraplate setting from the Yenisey Ridge and provide evidence for rift-related magmatism. Zircon SHRIMP U-Pb analyses coupled with in situ U-Th-Pb geochronology of monazite constrain the timing of emplacement of the rift-related granitoids and suggest two consequential tectonic events. The magmatic events at 1380 Ma and 800–720 Ma along the western margin of the Siberian Craton and other continental blocks can be associated with the breakup of the Precambrian supercontinents Nuna-Columbia (1.8–1.3 Ga) and Rodinia (1.2–0.7 Ga). These pre-Greenville and post-Greenville episodes of regional crustal evolution are correlated with the synchronous accretion and similar style of rocks along the Arctic margin of Nuna-Columbia and Rodinia and supports the spatial proximity of Siberia and North Atlantic cratons (Laurentia and Baltica) over the long period 1.38–0.72 Ga. Our data confirm the proposed Neoproterozoic paleogeographic reconstruction of Columbia and Rodinia as constrained from the large igneous province (LIP) record.

**1. Introduction**

The Yenisey Ridge fold-and-thrust belt at the western margin of the Siberian Craton forms part of the Central Asian Orogenic Belt (CAOB) and is a key to understand the Precambrian tectonic evolution of the Siberian Craton and crustal growth in the CAOB (Xiao et al., 2015; Precambrian accretionary-collision belt of the Yenisey Ridge. The tectonic interpretation of the Yenisey Ridge structure has largely relied on the basement ages. In many of the previous models, this region is interpreted to have formed after 750 Ma (e.g., Vinnikovsky et al., 2003) as a result of the step-wise accretion of terranes to the western margin of the Siberian Craton. On the basis of this assumption, several recent

**Extract Results**

page-1-table-1 | page-3-table-1 | page-5-table-1 | page-7-table-1 | page-9-table-1

Filters: No filters defined

Index	0	1
0		
1		

Columns: Name

0  
1

Extract start: <http://39.106.68.244:4000/server/api/core/bitstream/9169444-5940-494a-9a0b-bbca5a826536/content>

Figure 46? ? ? ?

Extracting PDF can be selected from the library (double-clicking) or local files (clicking the local File button).

The lower left corner is the extraction parameters.

The extraction result is on the right, and the PDF preview is in the middle.

## (2) Batch extraction

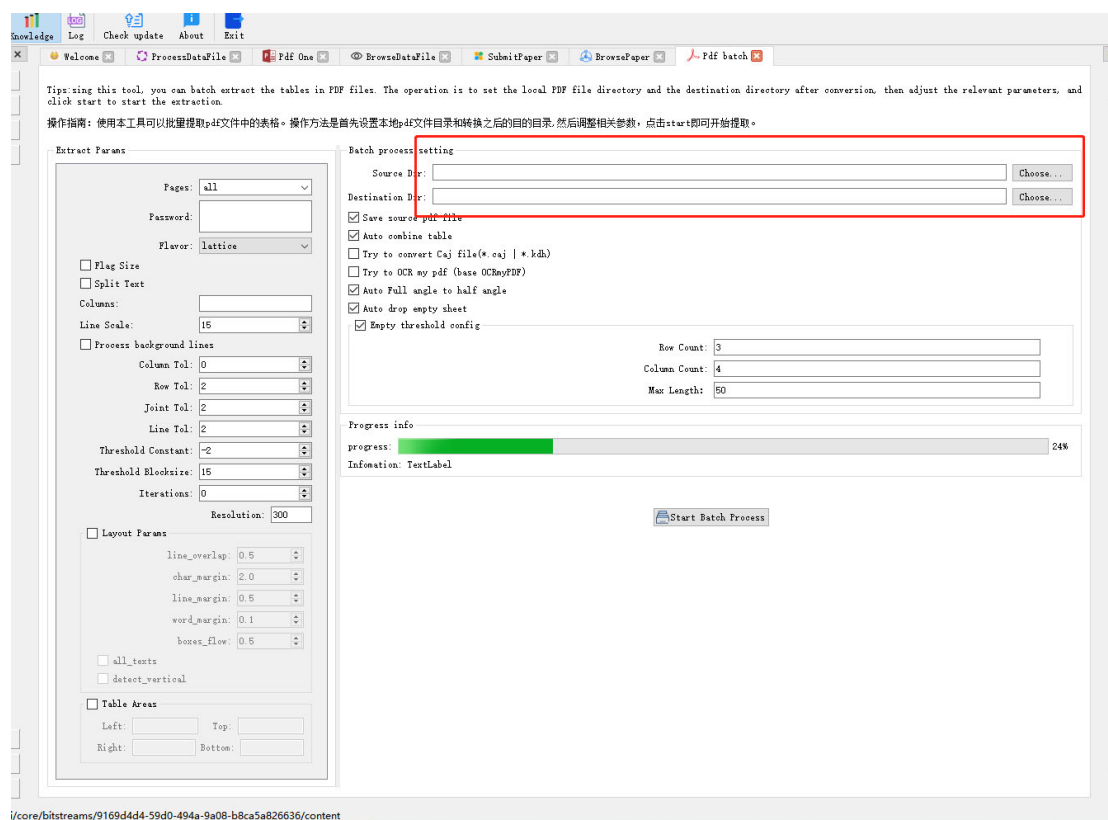


Figure 47? ? ? ?

For batch extraction, you need to set the relevant parameters, and then click Start Batch Process to start batch processing.



## 4. 5. 8. Data viewing and analysis

### (1) Public data

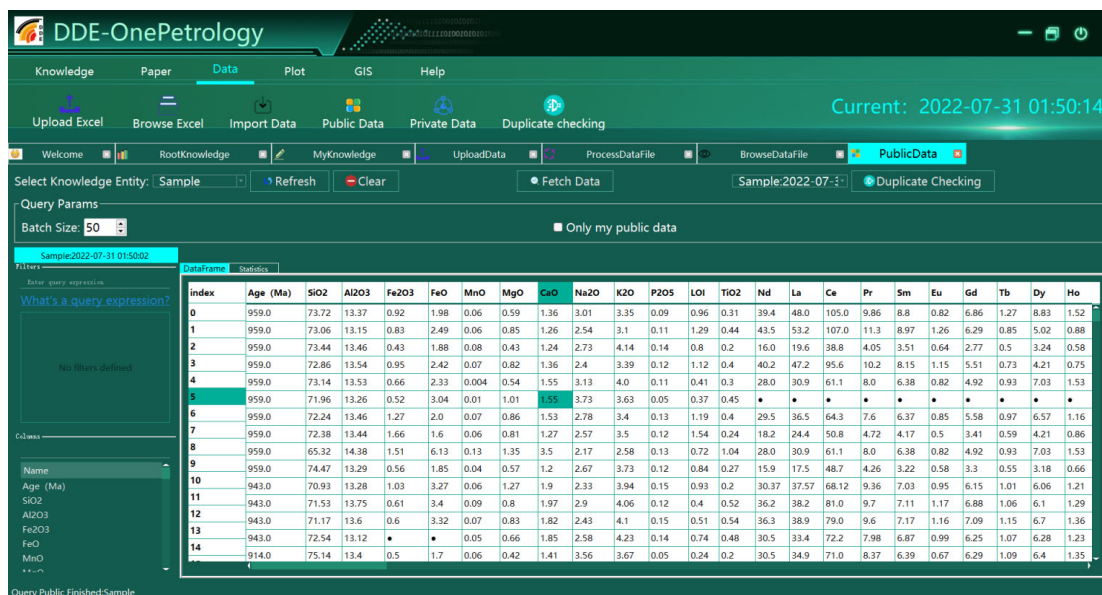


Figure 48 ? ? ? ?

First, select the knowledge ENTITY, and then click Fetch Data to read the data from the database.

### (2) Private data

It's basically the same as the public data operation, but the visibility of the data is limited to itself.

Both public and private data support duplicate checking, that is, duplicate checking for query results. The method is to select the query results in the upper right corner (note that they are arranged in chronological order) and click the "duplicate checking" button to jump to the duplicate checking function.

### (3) Data duplicate checking

The screenshot shows the 'Duplicate Checking' interface in DDE-OnePetrology. It features a 'Filter Fields' section with checkboxes for various data fields, and a table of data. The table has columns: Index, Contributor, ContributorSampleID, SampleNo, Longitude, Latitude, SiO2, Reference(first author-year-journal), ContributorSpotID, SpotNo, SampleAge, SampleAgeError, ZirconSpotAge, ZirconType, 176Yb/177Hf, and 176Lu/177Hf. The table contains 14 rows of data for samples from HUANG He, WT0835, OBKT03-1, all with a longitude of 77.142 and latitude of 40.25. The 'Duplicate Checking' window also has buttons for 'All Duplicate View', 'Only No Duplicate', 'Duplicate keep first', and 'Save to Excel file'.

Figure 49? ? ? ?

You can check for duplicates in the dataframe (that is, in the public and private data, select the query result (select it through the drop-down list) to jump directly to the duplicate check page), or you can load an excel file for duplicate checking. In the middle is all the fields that can be used for duplicate checking, and on the right is the duplicate checking operation: only view all duplicate data, no duplicate data, only keep the first duplicate data, and output as an excel file.

#### 4.5.9. GeoChem geochemistry mapping

The GeoChem function is the integration of the geochemical mapping function in the open source software Geopytool, which retains the original function and adds the functions of data reading and column mapping for ease of use. The operation mode of geochemical mapping is unified, that is, the column mapping function is done after opening the data, so that different data columns can be mapped to the columns required in GeopyTool, so that the map can be drawn.

## (1) TAS

The plotting function supports opening excel files, and can also support direct jumping from query results in public and private data (right-click, function to be added). The following is an example of opening local excel:

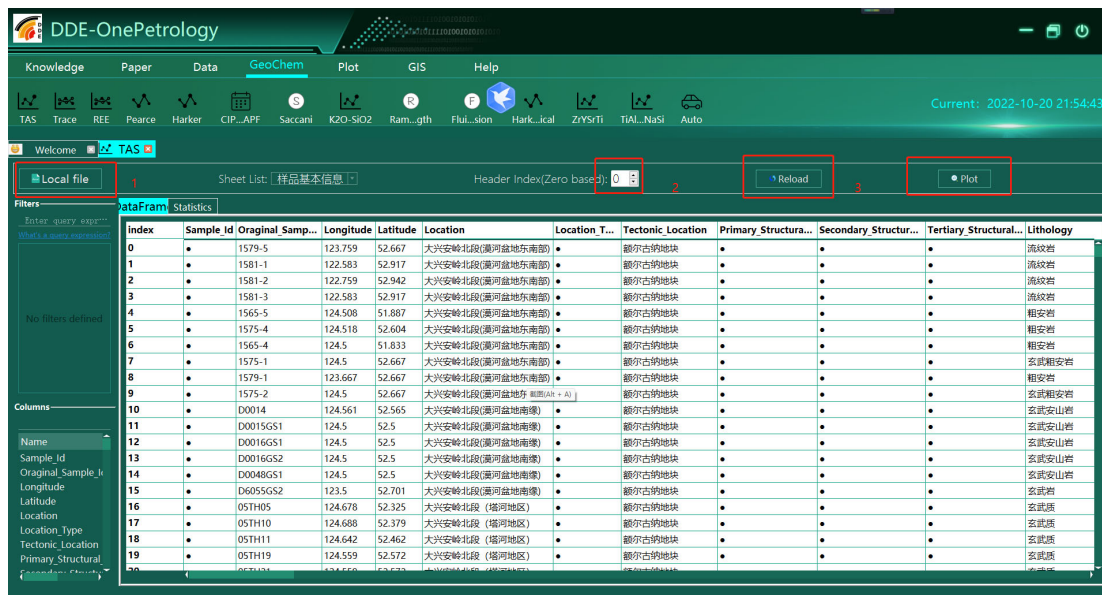


Figure 50 ? ? ? ?

Click the Local file button to select the excel file, which can be opened. If excel contains multiple sheets, you can switch sheets in the drop-down list. If the column name is not in the first row, you can adjust the header index (starting from 0 and gradually going down), when the header index is changed, you need to click the reload button to reload and refresh the data, and you can see the data below after success. Click on plot to pop up the column mapping window:

Plotting data prepare

**Target Data Type**

Label	点的标签值	String	<input type="checkbox"/> Use Default	Null Process:	Drop Only
Color	颜色值, red, green等	String	<input checked="" type="checkbox"/> Use Default	red	Null Process: Drop Only
Marker	分类标签, 例如O, *	String	<input checked="" type="checkbox"/> Use Default	*	Null Process: Drop Only
Size	图标大小, 默认10	Float	<input checked="" type="checkbox"/> Use Default	10	Null Process: Drop Only
Width	宽度, 默认1	Float	<input checked="" type="checkbox"/> Use Default	1	Null Process: Drop Only

**Dataframe Column Mapping**

Name	Desc	Data Column Name
Label	点的标签值	
Color	颜色值, red, green等	
Marker	分类标签, 例如O, *	
Size	图标大小, 默认10	
Width	宽度, 默认1	
Style	渲染风格, 默认-	
Alpha	透明度, 默认0.6, 取值范围0~1	
SiO2	二氧化硅含量	SiO2
K2O	氧化钾含量	K2O
Na2O	氧化钠含量	Na2O

Do Plotting

Save Data

Figure 51 ? ? ? ?

When the column mapping window pops up for the first time, it is displayed as shown in the figure above, with the upper part showing the column settings and the lower half showing the column name mapping. In the upper part, some display parameters are set to default values by default. If the values are already set in the data, the bottom half is all white. The Use default option sets the default value for the column, and null process has two ways: drop only and fill value.

Plotting data prepare

**Target Data Type**

Label: 点的标签值 String ☒ Use Default a Null Process: Fill Value abc

Color: 颜色值, red, green等 String ☒ Use Default red Null Process: Drop Only

Marker: 分类标签, 例如O, \* String ☒ Use Default \* Null Process: Drop Only

Size: 图标大小, 默认10 Float ☒ Use Default 10 Null Process: Drop Only

Width: 宽度, 默认1 Float ☒ Use Default 1 Null Process: Drop Only

**Dataframe Column Mapping**

Name	Desc	Data Column Name
Label	点的标签值	
Color	颜色值, red, green等	
Marker	分类标签, 例如O, *	
Size	图标大小, 默认10	
Width	宽度, 默认1	
Style	渲染风格, 默认-	
Alpha	透明度, 默认0.6, 取值范围0~1	
SiO2	二氧化硅含量	SiO2
K2O	氧化钾含量	K2O
Na2O	氧化钠含量	Na2O

Do Plotting

Save Data

Figure 52? ? ? ?

After setting the columns, you can click the do plotting button on the right to plot, or you can click save data to save the data as an Excel file (because use default will set all values to one, which does not meet many application scenarios, you need to save it as an excel file to manually modify it and then plot again).

After clicking do plotting, the column mapping window will be hidden and a new plot window will pop up.

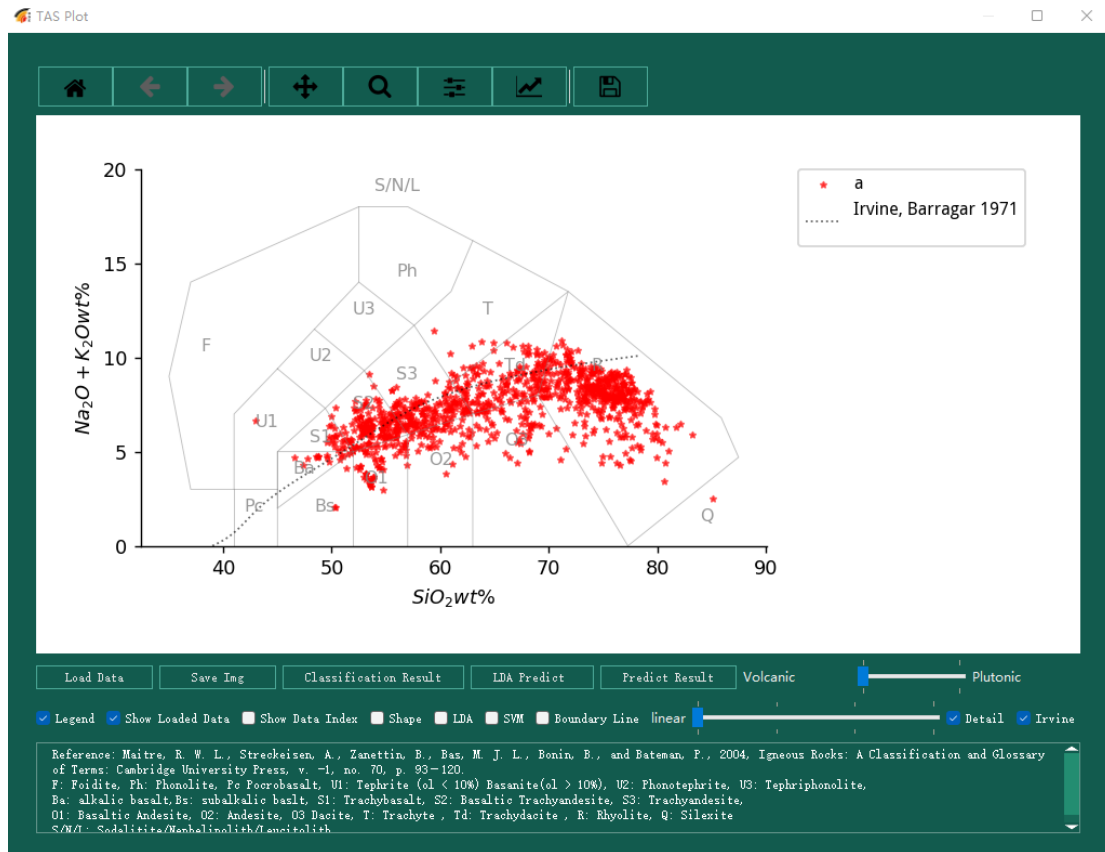


Figure 53? ? ? ?

After the graph window pops up, the above tool menu can be used to set, adjust, zoom in, zoom in, save as, etc. The specific functions are the same as those of GeopyTool.

Since the data correction has been performed at the time of plotting, so click do plot at the second time, the column mapping data has already been successfully matched.



Plotting data prepare

**Target Data Type**

Label	点的标签值	String	<input type="checkbox"/> Use Default	Null Process:	Drop Only
Color	颜色值, red, green等	String	<input checked="" type="checkbox"/> Use Default	red	Drop Only
Marker	分类标签, 例如O, *	String	<input checked="" type="checkbox"/> Use Default	*	Drop Only
Size	图标大小, 默认10	Float	<input checked="" type="checkbox"/> Use Default	10	Drop Only
Width	宽度, 默认1	Float	<input checked="" type="checkbox"/> Use Default	1	Drop Only

**Dataframe Column Mapping**

Name	Desc	Data Column Name
Label	点的标签值	Label
Color	颜色值, red, green等	Color
Marker	分类标签, 例如O, *	Marker
Size	图标大小, 默认10	Size
Width	宽度, 默认1	Width
Style	渲染风格, 默认-	Style
Alpha	透明度, 默认0.6, 取值范围0~1	Alpha
SiO2	二氧化硅含量	SiO2
K2O	氧化钾含量	K2O
Na2O	氧化钠含量	Na2O

Do Plotting

Save Data

Figure 54 ? ? ?

You can then plot again or save the data.

## (2) Trace

The operation of Trace is the same as that of TAS diagrams, but the data columns and graphing effects are different.

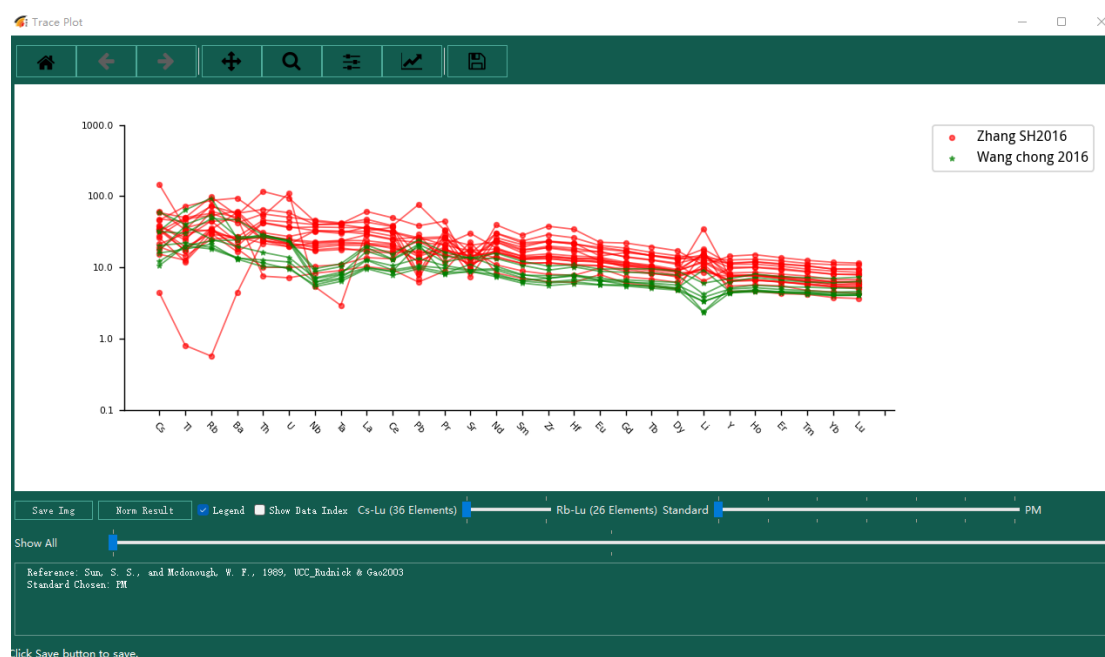


Figure 55 ? ? ?

### (3) Note: The label data is modified here, and it is not populated with a uniform value.REE

The operation of REE is the same as that of TAS diagrams, but the data columns and graphing effects are different.

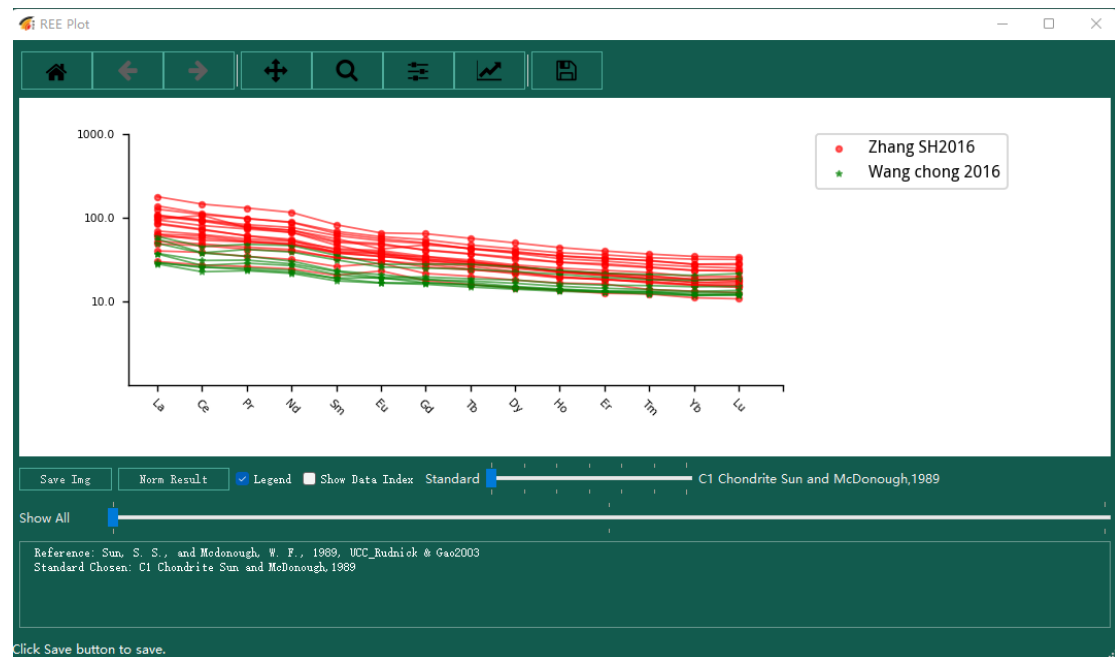


Figure 56? ? ?

Note: The label data is modified here, and it is not populated with a uniform value.

### (4) Pearce

The operation of Pearce is the same as that of TAS diagrams, but the data columns and graphing effects are different.

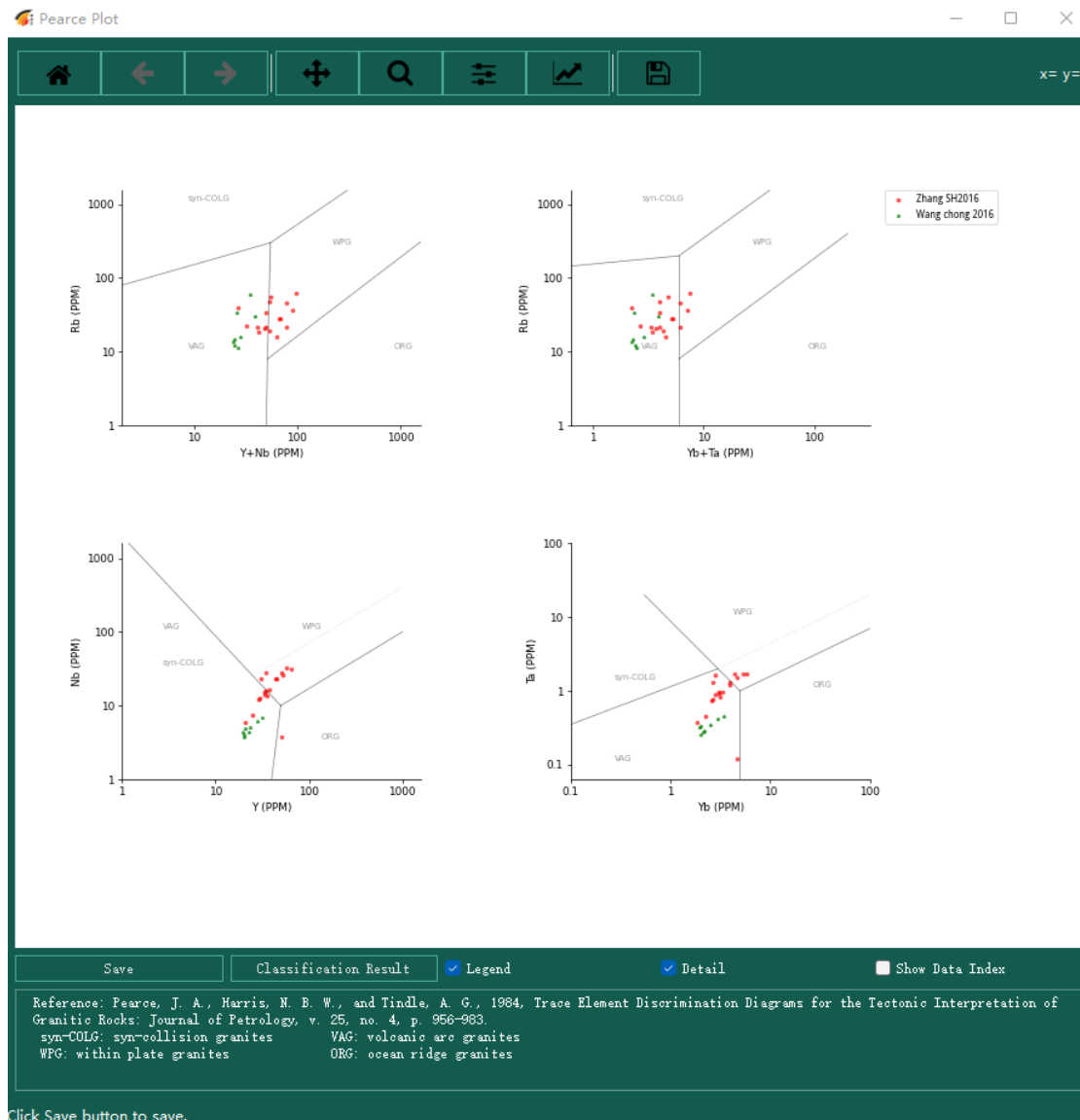


Figure 57 ? ? ?

Note: The label data is modified here, and it is not populated with a uniform value.

## (5) Harker

The operation of Harker is the same as that of TAS diagrams, but the data columns and graphing effects are different.

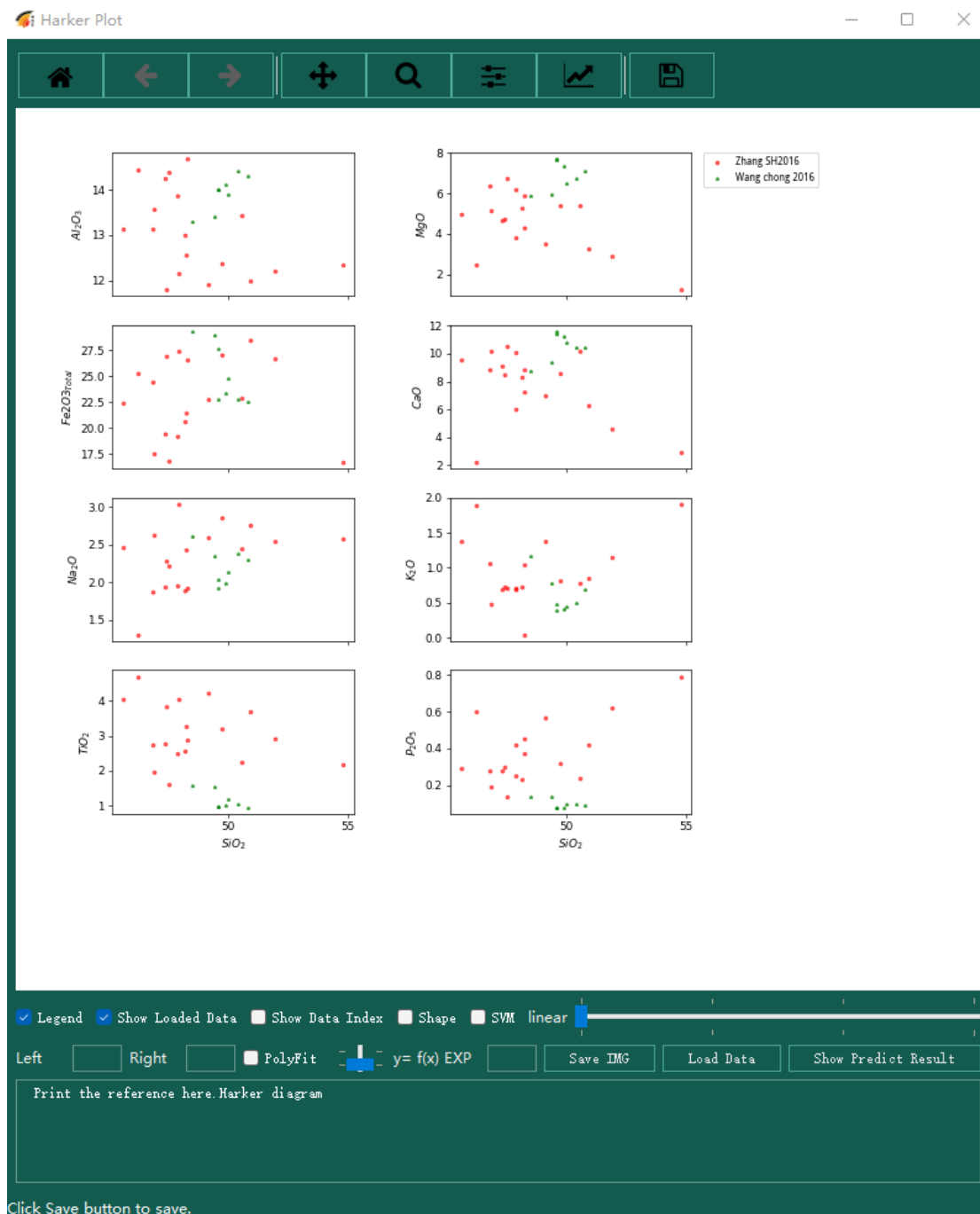


Figure 58? ? ? ?

**(6) Note: The label data is modified here, and it is not populated with a uniform value.CIPW/QAPF**

CIPW/QAPF is different from other graphing functions in that CIPW is calculated based on the data, and then QAPF is graphed, and the two

operations are completed together.

After opening the data, click on the graph, and the first thing that pops up is the calculation

result

window:

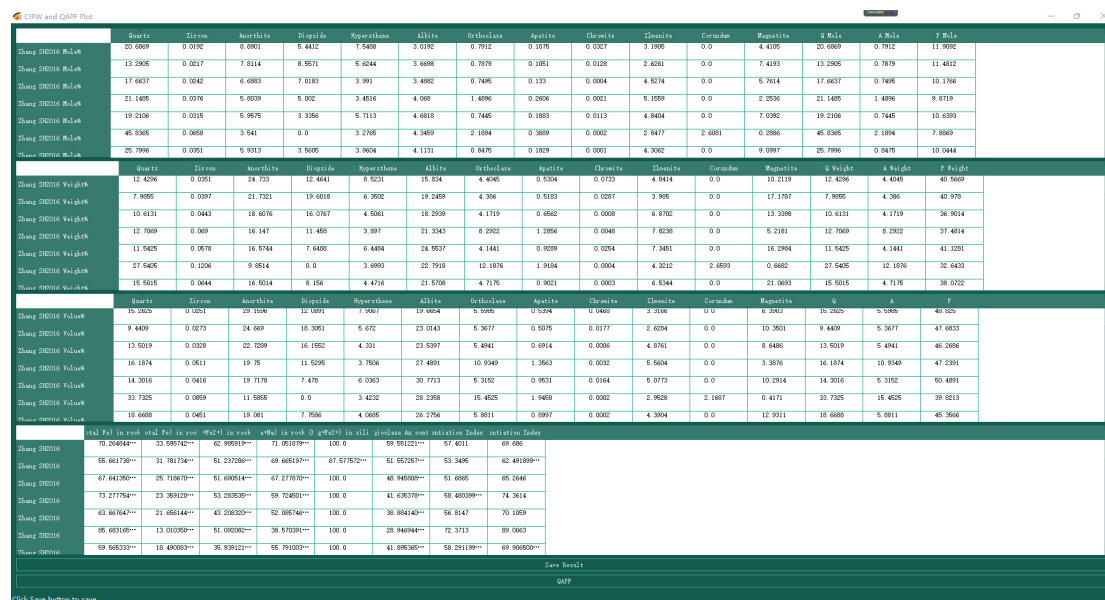


Figure 59? ? ? ?

There are two buttons at the bottom, one to save the calculation and the other to QAPF graphing. Click on QAPF to make a picture:

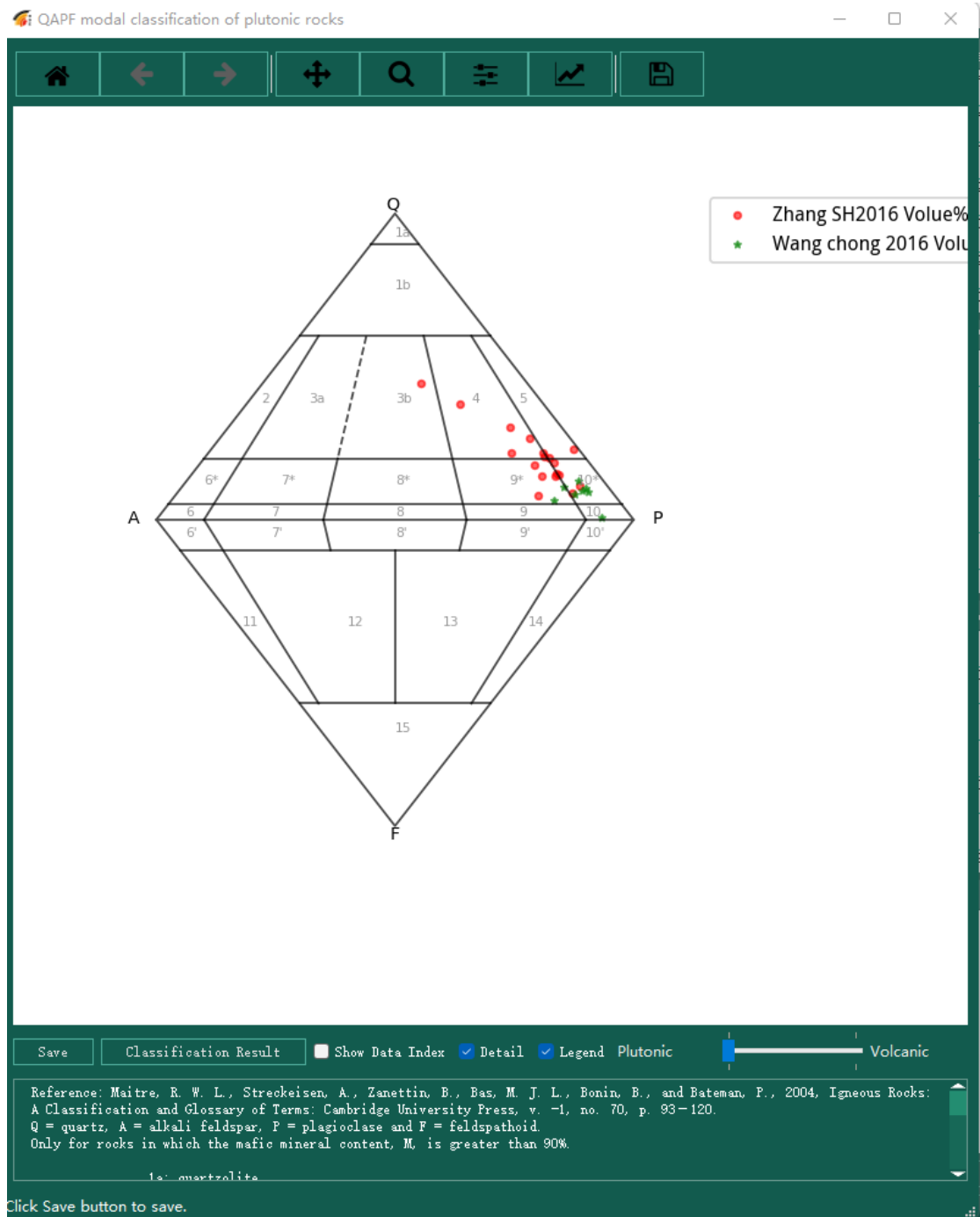


Figure 60? ? ?

**(7) Note: The label data is modified here, and it is not populated with a uniform value.Saccani**

The operation of Saccani is the same as that of TAS diagrams, but the data

columns and graphing effects are different.

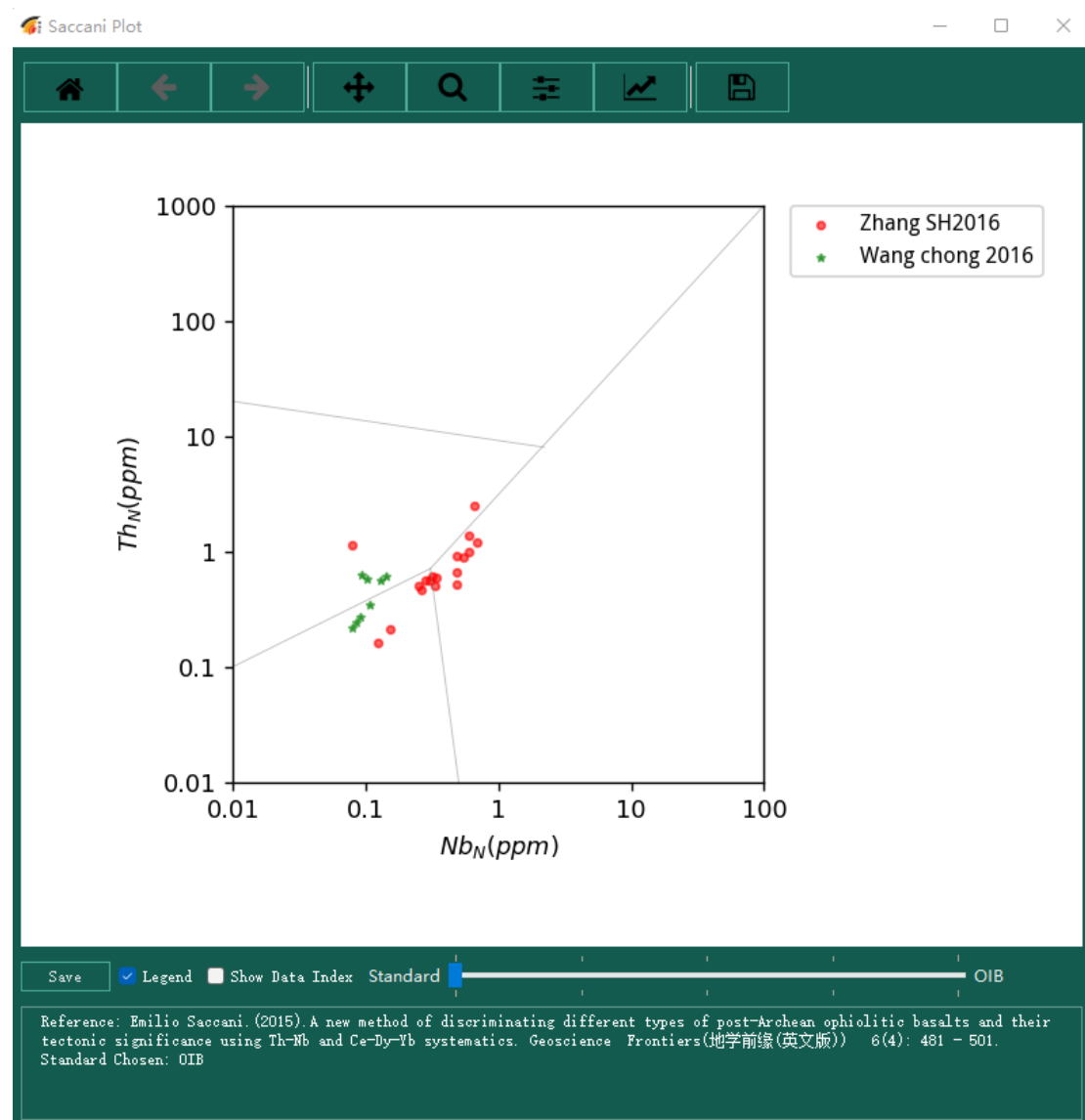


Figure 61 ? ? ? ?

**(8) Note: The label data is modified here, and it is not populated with a uniform value.  $K_2O-SiO_2$**

The operation of  $K_2O-SiO_2$  is the same as that of TAS diagrams, but the data columns and graphing effects are different.



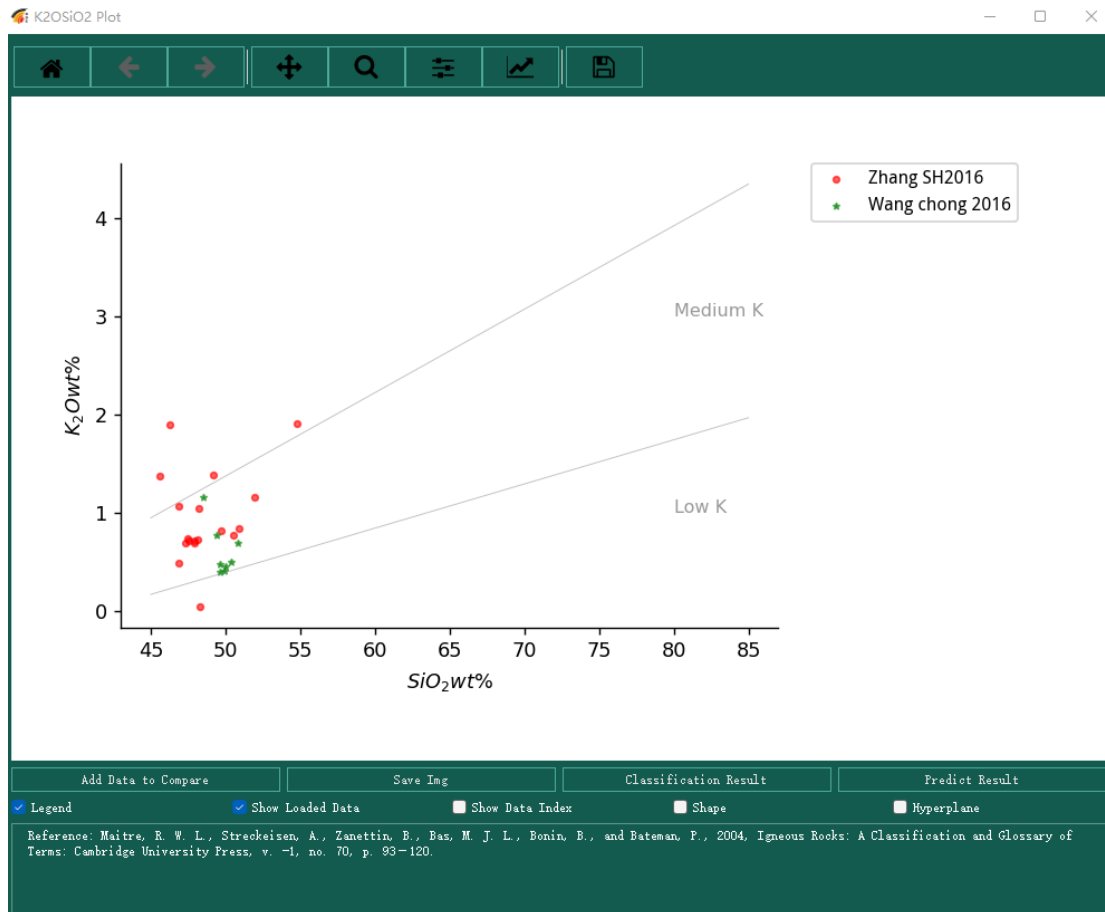


Figure 62? ? ? ?

Note: The label data is modified here, and it is not populated with a uniform value.

## (9) Raman Strength

The operation of Raman Strength is the same as that of TAS charts, except that the data columns and graphing effects are different.

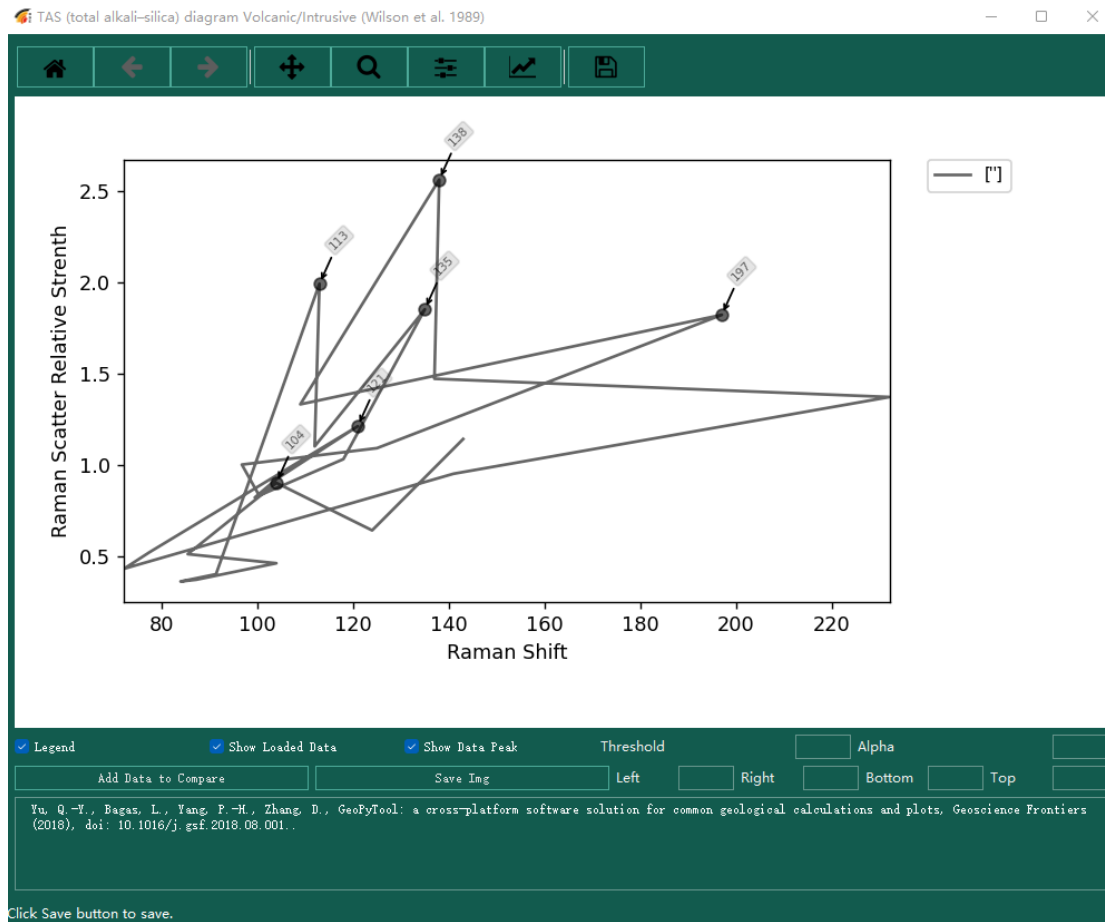


Figure 63? ? ? ?

**(10) (The data here is sample data, and no suitable data was found, so the graphing effect is not good.)Fluid Inclusion**

The operation of Fluid Inclusion is the same as that of TAS charts, except that the data columns and graphing effects are different.

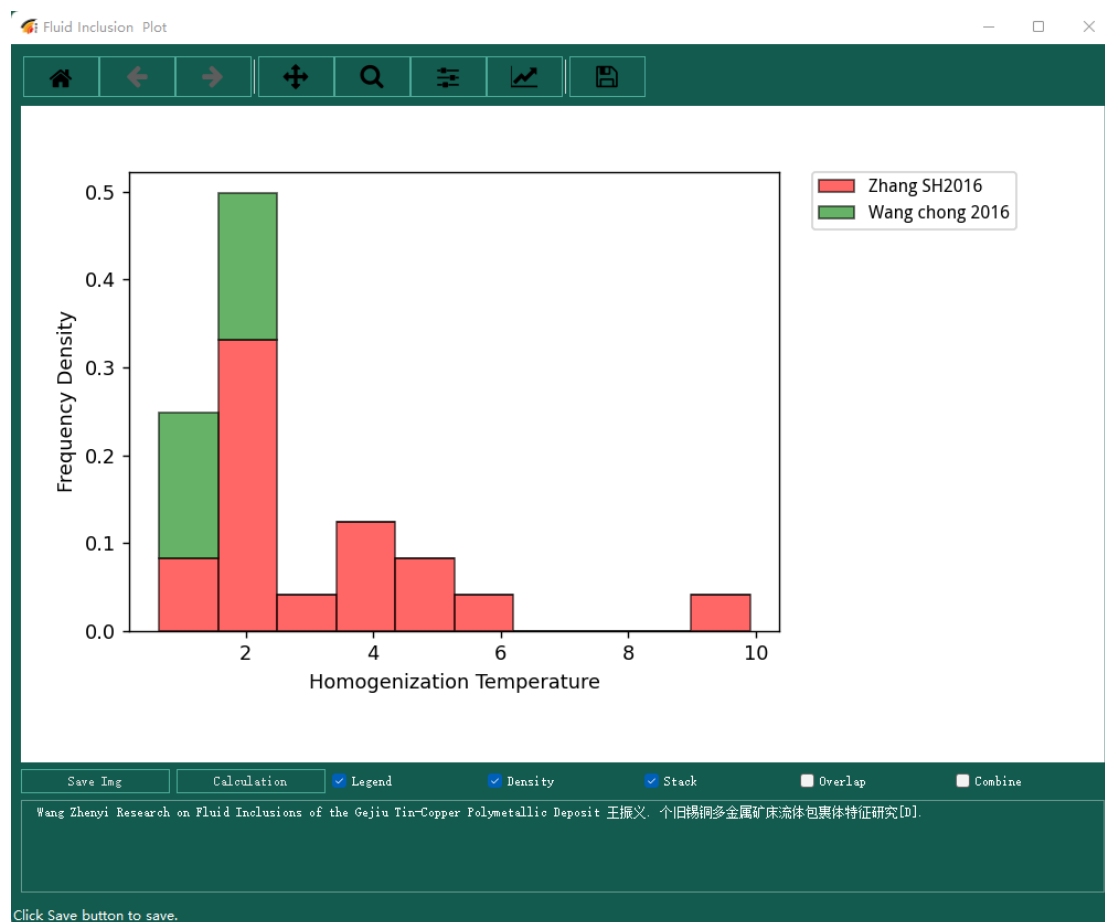


Figure 64 ? ? ? ?

**(11) Note: The label data is modified here, and it is not populated with a uniform value.**  
**Harker Classical**

The operation of Harker Classical is the same as that of TAS charts, except that the data columns and graphing effects are different.

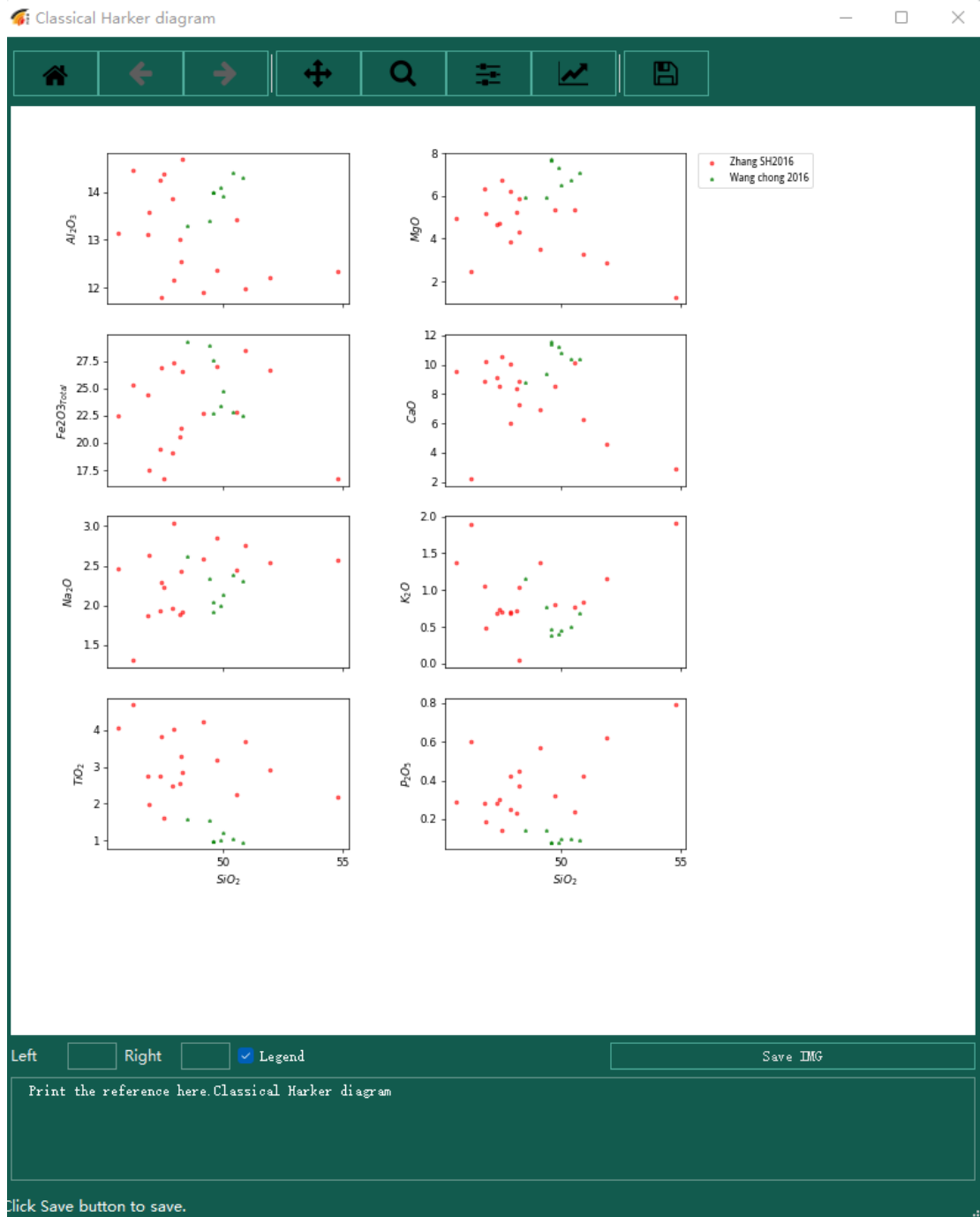


Figure65? ? ? ?

**(12) Note: The label data is modified here, and it is not populated with a uniform value. ZrYSrTi**

The operation of ZrYSrTi is the same as that of TAS charts, but the data

columns and graphing effects are different.

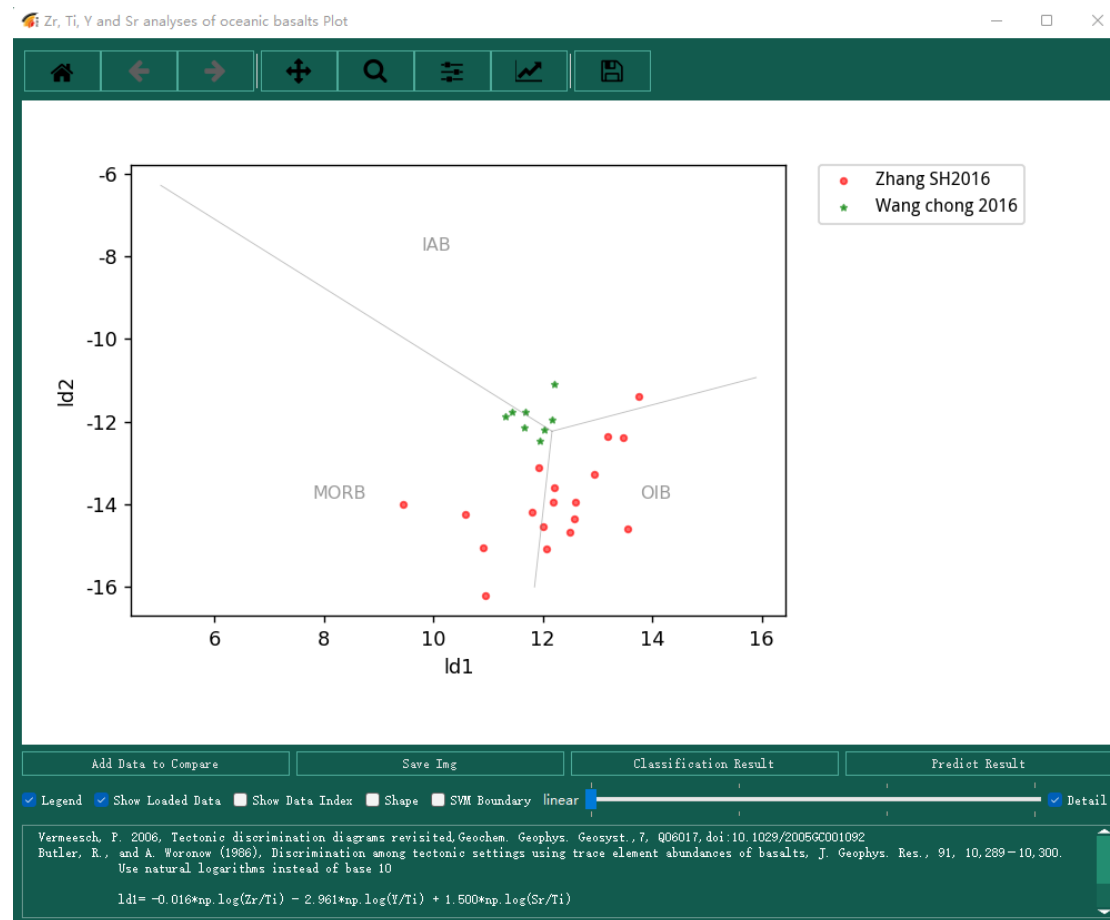


Figure 66? ? ? ?

**(13) Note: The label data is modified here, and it is not populated with a uniform value.  $TiAlCaMgMnKNaSi$**

The operation of  $TiAlCaMgMnKNaSi$  is the same as that of the TAS diagram, but the data column and graphing effect are different.

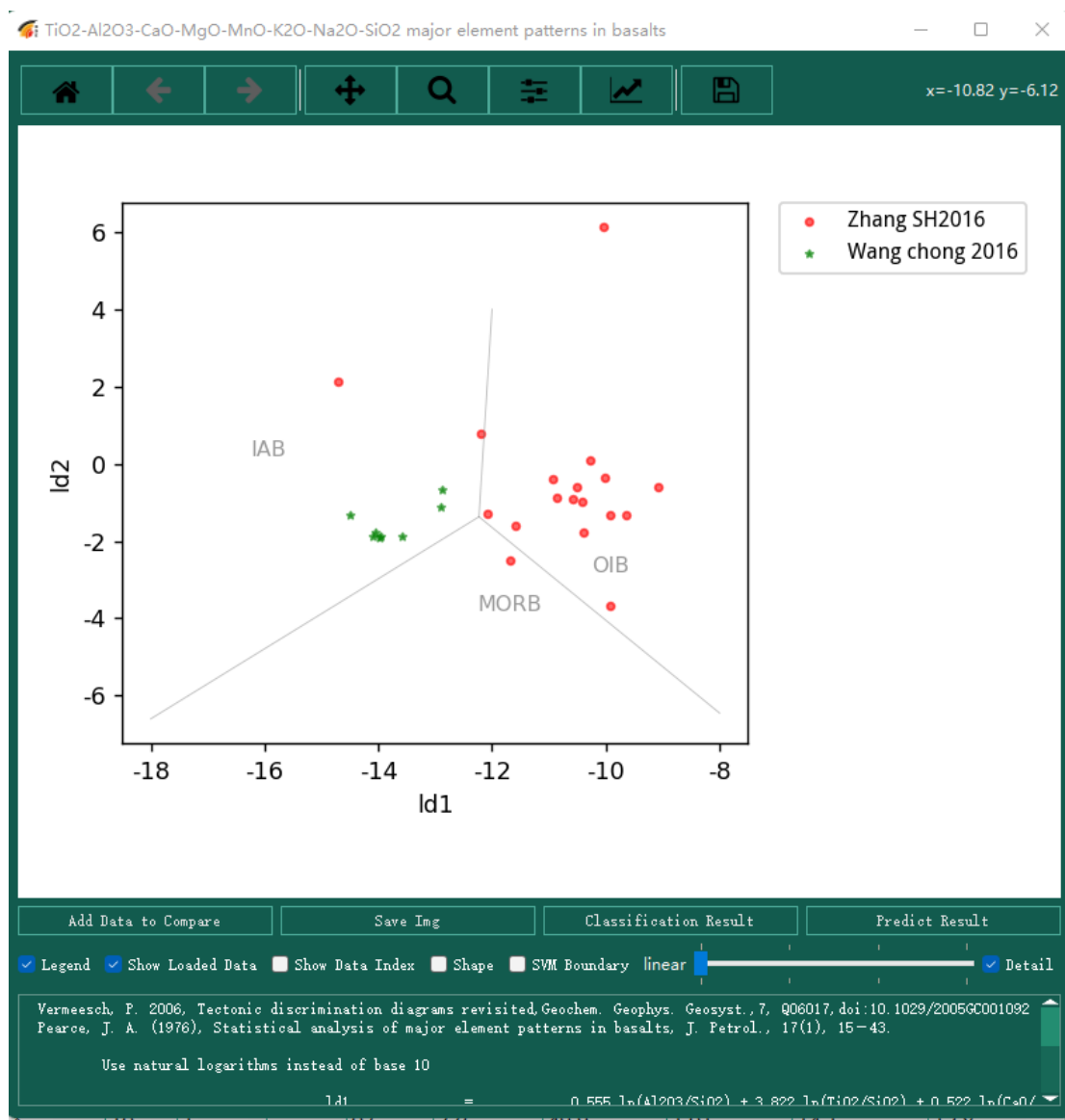


Figure 67 ? ? ? ?

Note: The label data is modified here, and it is not populated with a uniform value.

## (14) Auto

The Auto function is to automatically generate a graph and a pdf file for a set of data, which is a batch operation of the previous operation. Since it takes a long time to generate a picture, you need to wait patiently for the PDF to be generated before opening it.

Taking Save as test.pdf as an example, the generated file list includes:



Figure 68? ? ? ?

That is, in addition to PDF, it also includes the synchronous output of CIPW calculation results.

The generated PDF file includes:

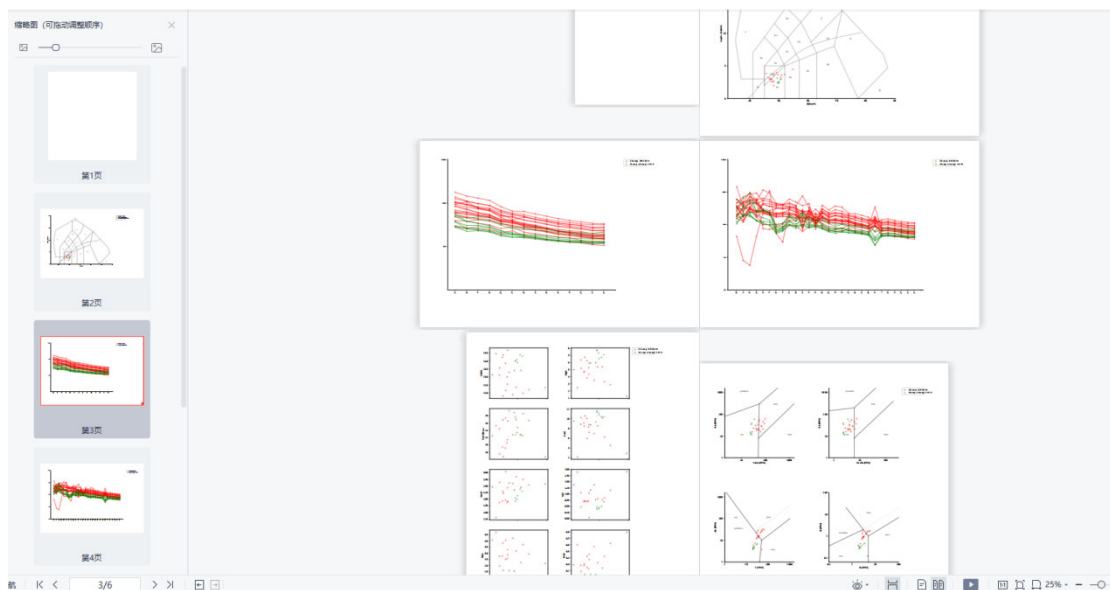


Figure 69? ? ? ?

PDF files can be edited as needed.

## 4. 5. 10. Plot mapping

### (1) Spatial

This function is to view the spatial distribution of the data set, that is,



project the latitude and longitude of the data onto the map to view its spatial distribution, and require that the data must have latitude and longitude data (decimal system; degrees, minutes and seconds are not supported).

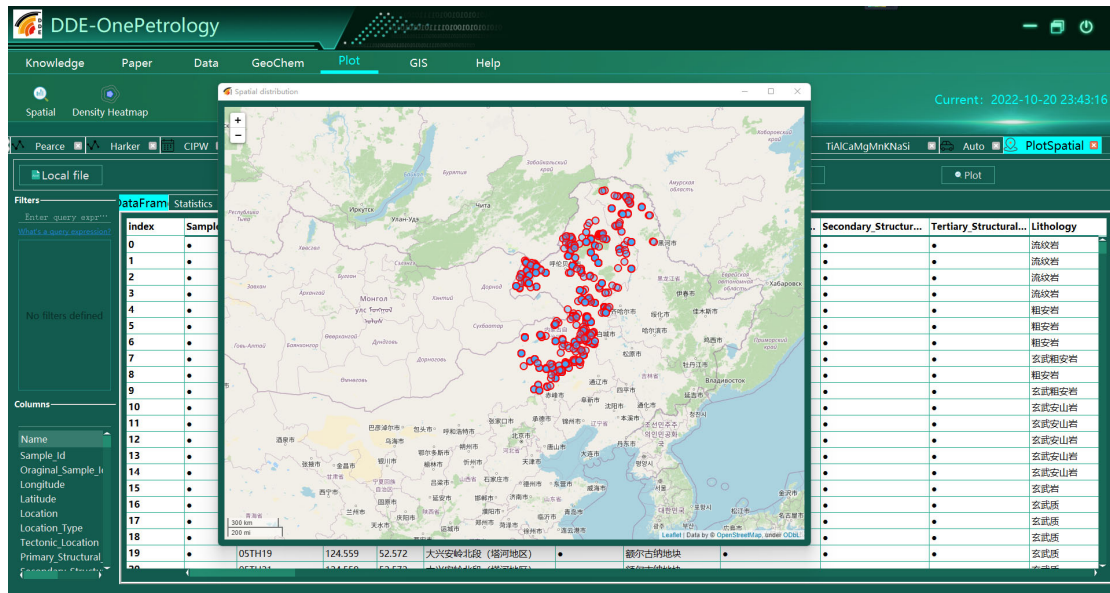


Figure 70? ? ? ?

The procedure is the same as in GeoChem.

## (2) Density heatmap

This feature is to be developed and launched...

## 4. 5. 11. GIS spatial analysis and data processing

### (1) PostGIS

This feature is to be developed and launched...

### (2) GeoPlot

This feature is to be developed and launched...

#### 4. 5. 12. System parameter configuration

## (1) My Profile

This function is designed for logged-in users to manage their own achievements and personal information, that is, the logged-in user can associate with the Scientist in the knowledge base (through email), supplement personal information and achievements through this function, and change passwords (the email address cannot be modified).

Once set up, this function is equivalent to a scientist's personal website (published in the knowledge base).

This feature is to be developed and launched...

## (2) Save layout

Save the current window layout to suit the current user's usage habits. Many windows in this software can be dragged and dropped to adjust the position, etc., and you can remember your habits through this function.

### (3) Restore Layout

Corresponding to saving the layout, it is used to restore the layout.

**(4) Log**

The log window is displayed, and you can view all the operation logs after the current login. Logs are divided into multiple levels, and you can view the log content of different levels as needed.

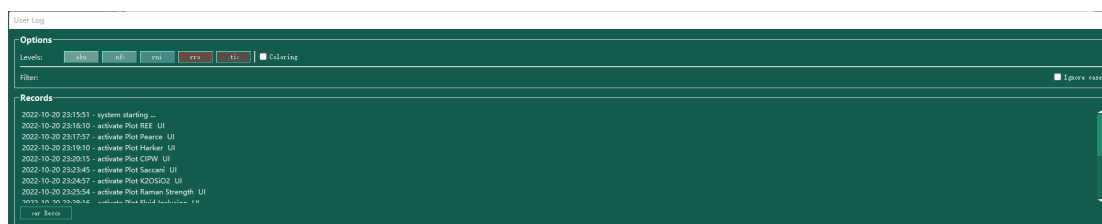
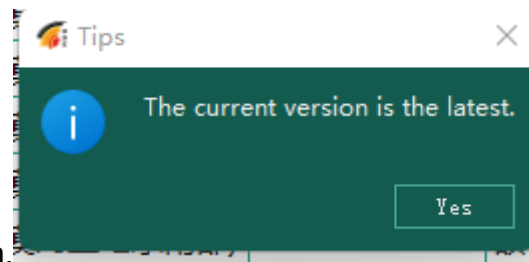


Figure 71 ? ? ? ?

### (5) Check update

Auto-updater, i.e. automatically detects if the version needs to be updated, asks the user if it needs to be updated, and when it chooses to update, it automatically exits the current program and starts the updater to download the new version from the server. If an update is not required, let it know that it is



the latest version. Figure 72 ? ? ? ?

At present, due to the frequent version updates, it is recommended to download it directly from the official website and manually extract it into a new directory before running. If you need to save configuration information such as the login username and password, you can copy the config directory from the old version to the new version. If it fails to start normally, clear the directory and decompress it again.

## (6) About



Figure 73 ? ? ? ?

**(7) Information such as the cited open source software, such as GeopyTool, Pandas, etc., needs to be added. Exit**

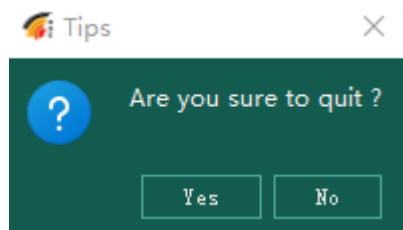


Figure 74? ? ? ?

Ask if you want to exit the program, and click “yes” to exit.

## **4.6. Next version planning function**

After discussion, it was decided that suggestions would be welcome.

## 5. Igneous Rocks Knowledge Base

The Magma Rock Institution Knowledge Base is built with the open-source software DSpace, which has all the features of DSpace. It is used for long-term preservation of literature, data, scientific research results, etc. of Igneous Rocks Databases.

Magma Rock Knowledge Base access method:  
<http://39.106.68.244:4000/>

### 5.1. Dataset partitioning

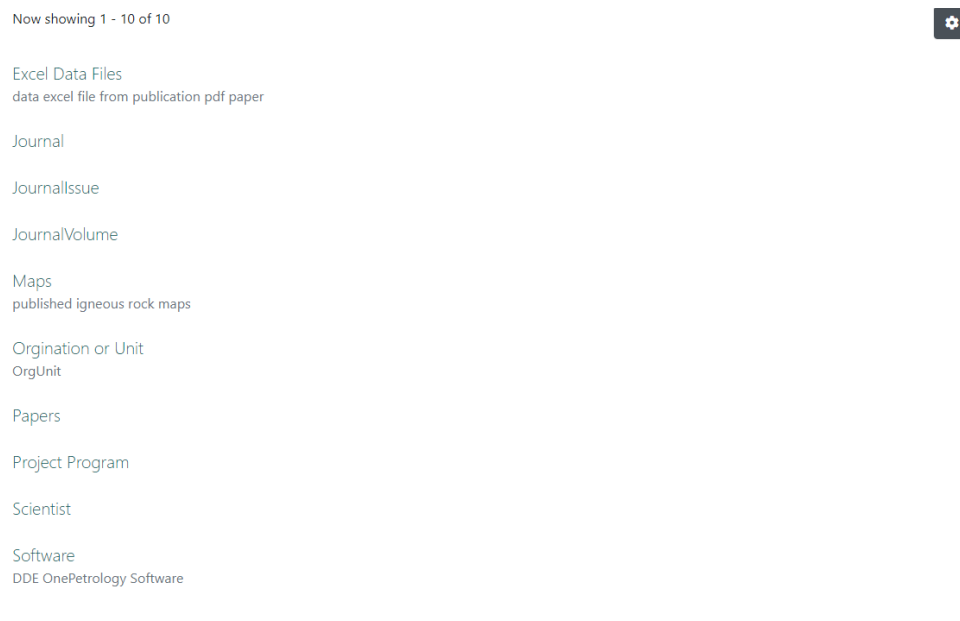


Figure 75? ? ? ?

Datasets can be added or deleted as needed. At present, Excel Data Files are used to store excel files in the data mailroom, Maps is used to publish large geological maps. Papers are used to store literature, Scientist is used to store

scientist information, and Software is used to store software tools (the automatic upgrade of the scientific research platform is also here).

Alternate extended datasets: Journal intended for use in scientific journals, JournalVolume for journal volumes, Orgination or Unit for units (scientists affiliated with a unit or organization) ;P roject programs, such as DDE, SinoProbe, etc.Datasets can be freely associated with each other for association retrieval, for example, scientists and institutions involved in a scientific research project, published literature and geological maps of a scientist, and uploaded Excel data. This feature is useful for statistical outcomes.

## 5.2. Scientists

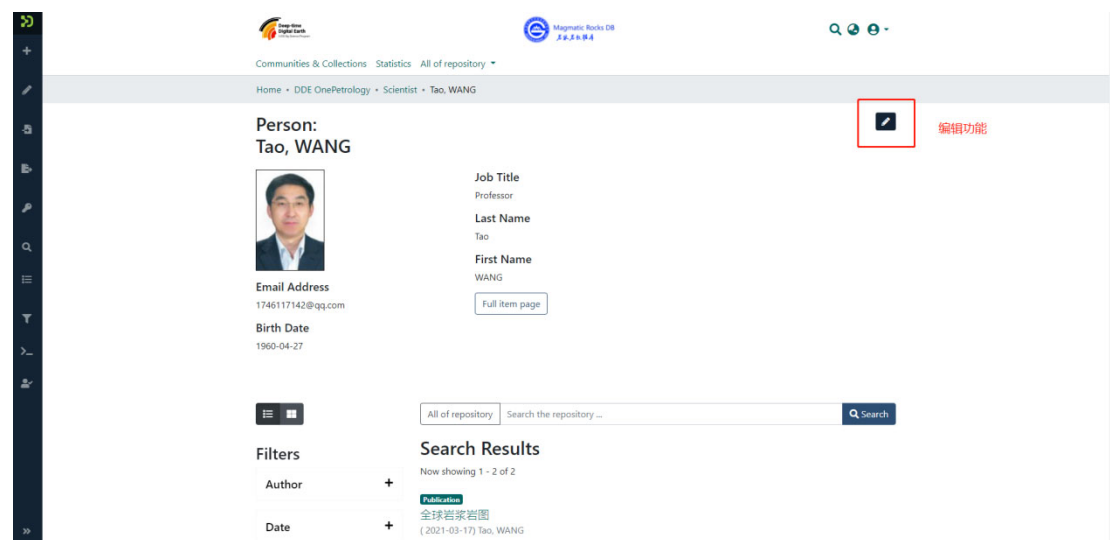


Figure 76? ? ? ?

Click the “Edit” button to edit the metadata and data.

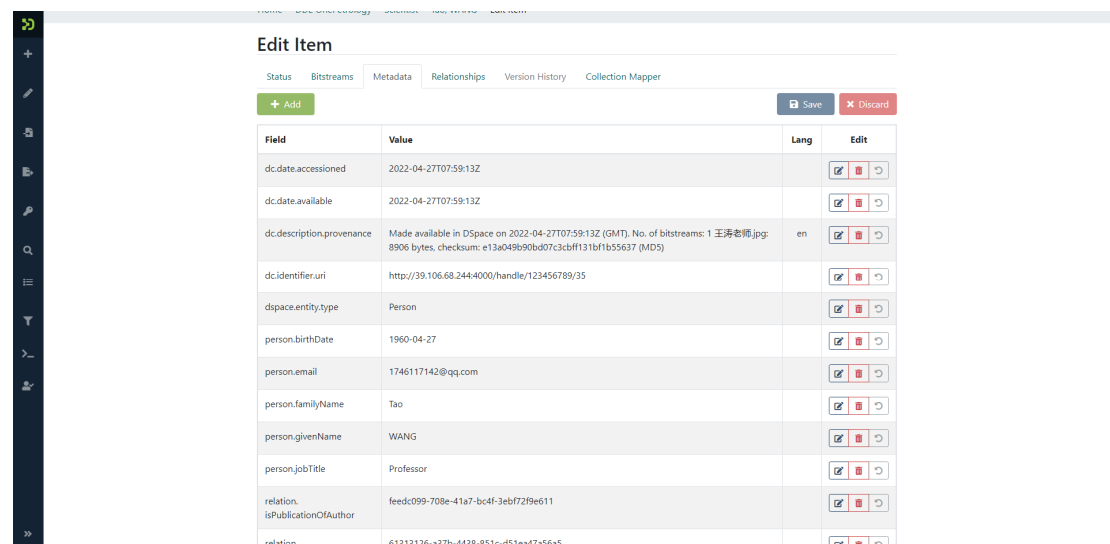




Figure 77 ? ? ? ?

The editing function is an advanced function, and you need to understand metadata and associations.

### 5.3. Paper

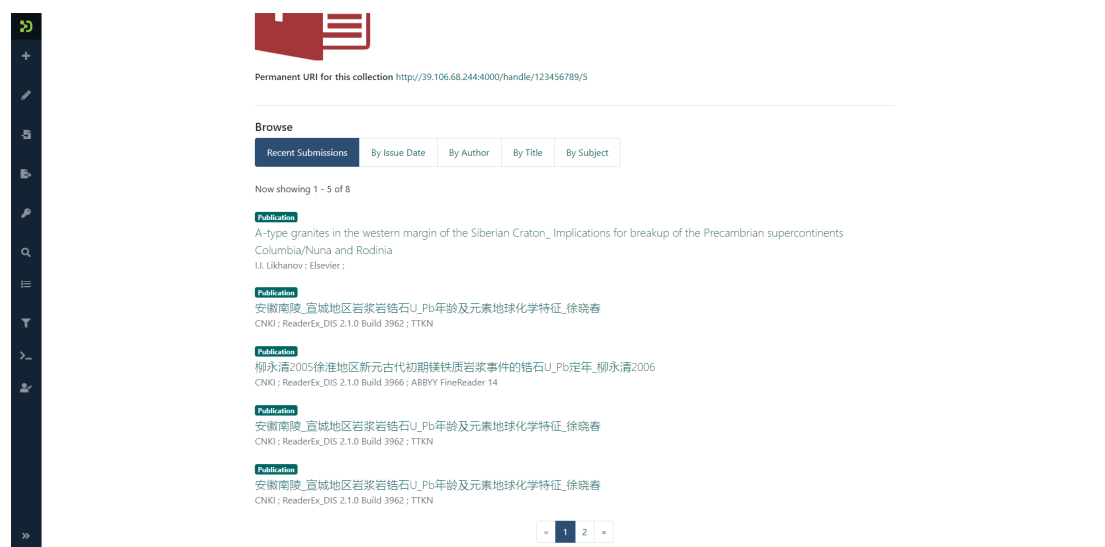


Figure 78 ? ? ? ?

### 5.4. The synchronization of literature collection supports the function of uploading documents in the software of the scientific research platform. The upload port can be seen here and can be searched in full text. Maps

One of the special features of the mapping function is that it supports online access to large geological maps (IIIF mode) and supports the annotation of metadata.

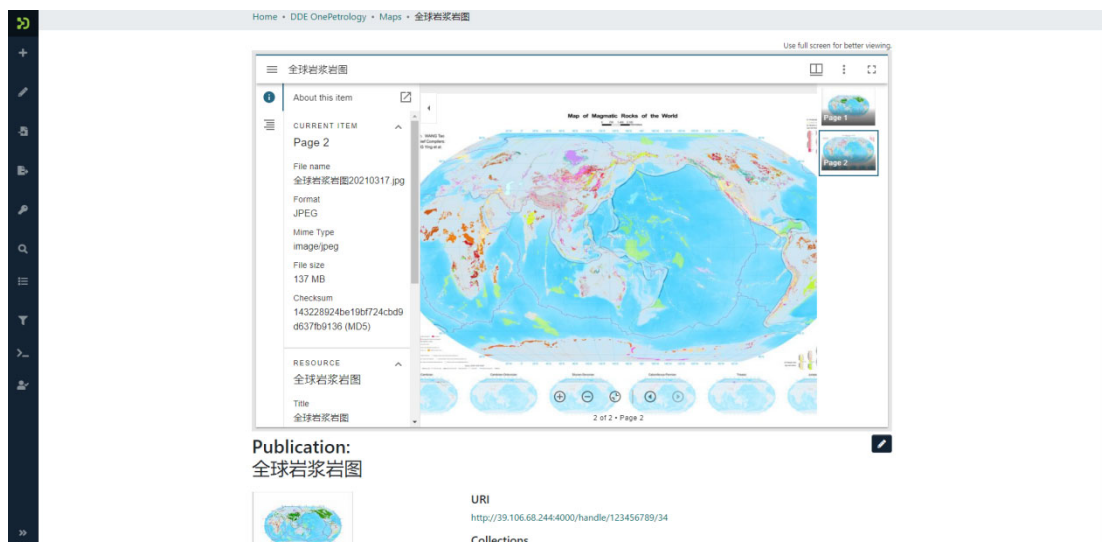


Figure 79? ? ? ?

## 5.5. Software

This collection is mainly for the upload and sharing of tool software, and at the same time supports the online upgrade function of scientific research platform software.

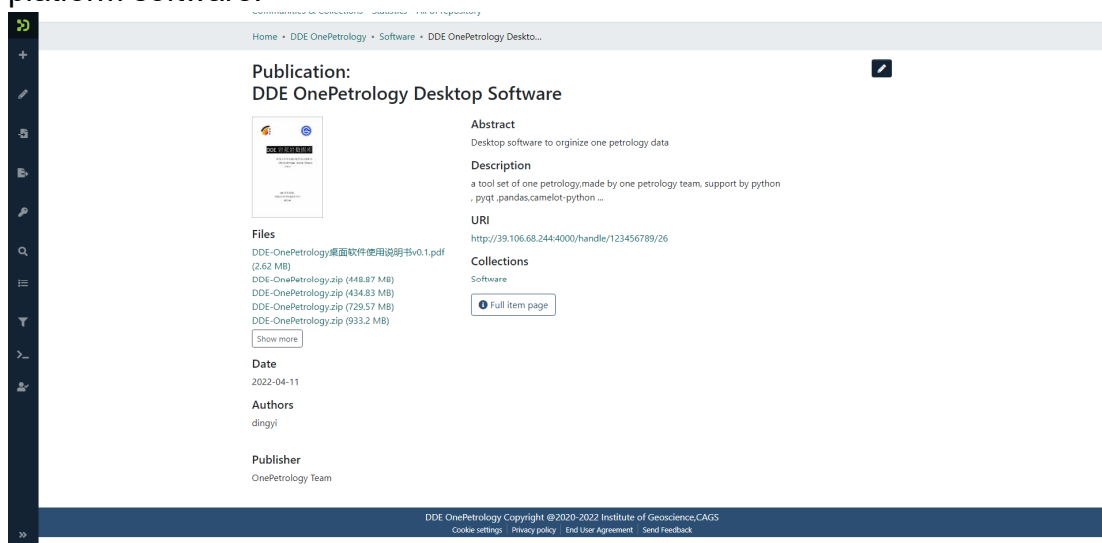


Figure 80? ? ? ?

Various versions of the desktop software can be found here.

## 5.6. User registration

Registered users need to have a legally available email address (they need to be able to send and receive emails).

Access:

<http://39.106.68.244:4000/register>



Log In ▾

[Communities & Collections](#) [All of repository ▾](#)

## New user registration

Register an account to subscribe to collections for email updates, and submit new items to DDE OnePetrology.

Email Address \*

Please fill in an email address

This address will be verified and used as your login name.

Register

Figure81? ? ? ?

Enter the email address of the user you want to register, and then click the register button, you can go to your email address and follow the link to complete the registration steps: set a password, enter your name and other information. Back-office management

The back-office management function is not available to ordinary users for the time being. For administrator users, please refer to the DSpace manual.

## **6. FAQ**

### **6.1. Whether the users of the website and the scientific research platform are unified**

A: At present, the username and password of the scientific research platform and the institutional repository are unified, but they are not unified with the website, and the username and password of the website are separate, and they will be changed to unified in the later stage. The user ID is based on the email address, which is convenient for scientists to communicate with each other and does not cause intrusion.

### **6.2. Whether the private data is secure**

A: At present, the private knowledge tree and private data in the scientific research platform can only be seen by the user, and the password is held by the user (the password can be reset or retrieved by email), and the private data is safe. If you want to share it with everyone, upload it to the public section or contact the administrator to share it.

### **6.3. How to import and export data**

A: At present, Excel is the core file format for import and export. Excel files can be imported and exported through the scientific research platform, and Excel can be processed quickly and effectively through Office/WPS and other software, and then imported into the system.

### **6.4. How to publish data on a website**

A: At present, individuals can not publish data directly on the website, please contact

the administrator to publish it. Individuals can post in the institutional repository.

## **6.5. How to cite my own dataset in the literature**

A: The data files published in the institutional repository have a permanent unique ID and can be directly cited in the literature.

## **6.6. How to cite Igneous Rocks databases in the literature**

A: Please indicate that it is from the Magma Rock Database@<https://petrology.deep-time.org/>.

## **6.7. How to contact administrator for permissions**

A: Please send an email to [petrology@126.com](mailto:petrology@126.com) or call +86-10-83413869

# Appendix 1: Working Group Warehousing and Duplicate Checking Process (Taking Samples as an Example)

1、用丁毅提供的课题组公共账号导入桌面软件

2、进入后如下图所示，依次点击1、2、3，出现如图所示界面后，点击4 (Save Excel)，导出一个xlsx文件

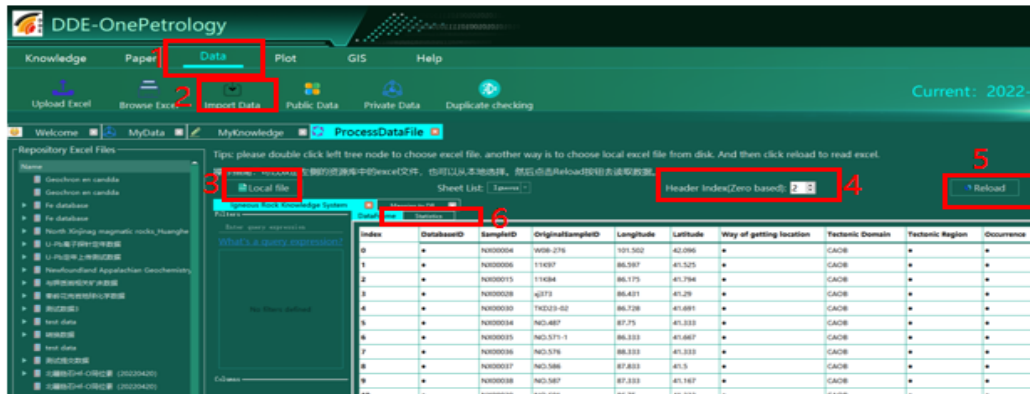
3、打开导出的excel文件，其中第一个sheet "Igneous rock" 界面如下图所示

4、将拟录入的数据的相关列复制到这个excel中的相关列下，  
注意：  
(1) 录入的时候给每个样品临时加入一个录入人自己设定的ID，在“录入人临时设定的ID”那一列，比如Huanghe-01\Huanghe-02之类；  
(2) 在“录入人”列填入录入者的姓名；  
(3) 参考文献目前包括“参考文献（第一作者+年代+期刊）”和“参考文献全信息”以及分列信息，每个样品至少都要填入第一个信息，最好有全信息或标题，详细分列信息已经统计了的尽量填入。  
(4) 实测样品年龄填给Analyzed Age和Error后，Age和Age Error也填一样的，一定要填！保证有Analyzed Age (& Error) 的一定也有Age (& Error) 且一至。  
(5) 如果出现目前还没有包含的类目（比如某个元素未包含在现在导出excel的列名里），如果只是极少量样品中有可以先不管，如果涉及成批样品较多，请联系丁毅或黄河在现有知识树表头中加入该类目。  
(5) 其他说明和注意事项见后面思维导图。

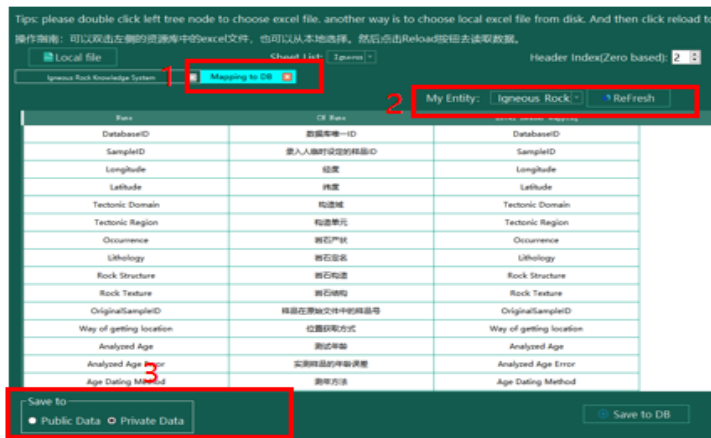
5、数据复制、整理完成后保存该excel文件

Figure 82 ? ? ?

6、如图依次点击1、2、3，导入刚刚保存的excel文件，在红框4的位置选2；选完后点Reload（红框5）。导入数据后先检查一下，可进入Statistics（红框6）检查一下数据统计信息。

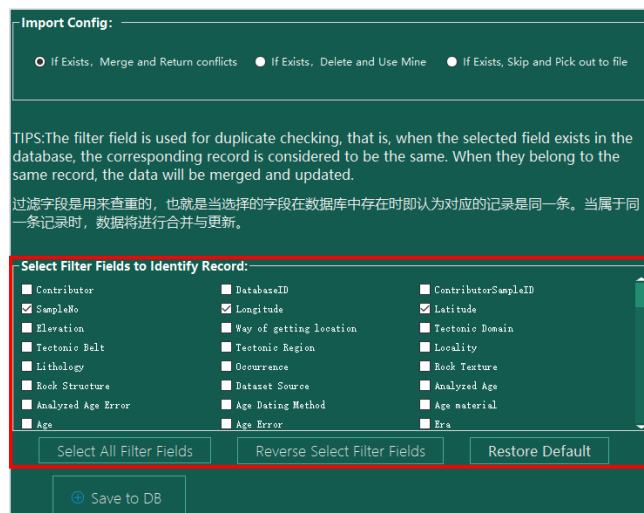


7、完成上述步骤后，点“Mapping to DB”（红框1）



选择My Entity为“Igneous Rock”，选完后点“ReFresh”（红框2）。之后，会出现作图白色区域。按照上面的步骤操作的话。数据库中的列名和excel中的列名是完全匹配。所以数据框底纹必然都是白色。红框3选Private Data，

Figure83? ? ? ?



#### 入库查重

- 首先勾选用来查重的字段
- 推荐以经纬度和原始样品号为基础，无经纬度数据请评估数据类型和库中与待上传数据的情况，选择基本每条数据都会有的且有特异性的字段，尽量减少漏筛和误报。
- 注意查重不要选参考文献等字符串字段，写的有点不一样就查不出来。也不要选Contributor ID这种自己给编成不一样的字段。
- 注意空值认为也是一种重复，故不要选空值多的字段。

Figure 84? ? ? ?



### 重复数据处理选项

- 每录入一条数据，会以前面选择的字段与库中数据查重，如不重复则顺利录入。
- 推荐第一次选择Skip and Pick out to file，会将一条或多条重复的数据列一起返回excel，可以检查编辑这个excel处理重复后继续入库。
- Merge and Return conflicts  
如果有一条重复，则逐个字段去比对库中条目，如有冲突则两条都导出供检查。如果无冲突，则用正入库的这条补充库中缺项。（实际操作因为不同人录入的参考文献字符串字段很容易冲突，所以比较适合用自己上传的数据条目后续有补充的情况，其它请查看反馈文件人工合并操作后谨慎覆盖）  
如果与库中多条重复，则不做合并操作，全部导出。
- Delete and Use Mine 会把库中的一条或多条重复全部删除，用入库的这条替换。请确保先Pick出所有重复，查看处理合并后再慎重进行此操作。字段的选择对这个选项尤为重要，请在前述检查的基础上选择尽量多的一致字段保证不要误伤。

**Import Config:**

☐ If Exists, Merge and Return conflicts   
 ☐ If Exists, Delete and Use Mine   
 ☐ If Exists, Skip and Pick out to file

TIPS: The filter field is used for duplicate checking, that is, when the selected field exists in the database, the corresponding record is considered to be the same. When they belong to the same record, the data will be merged and updated.

过滤字段是用来查重的，也就是当选择的字段在数据库中存在时即认为对应的记录是同一条。当属于同一条记录时，数据将进行合并与更新。

**Select Filter Fields to Identify Record:**

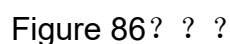
<input type="checkbox"/> Contributor	<input type="checkbox"/> DatabaseID	<input type="checkbox"/> ContributorSampleID
<input checked="" type="checkbox"/> SampleNo	<input checked="" type="checkbox"/> Longitude	<input checked="" type="checkbox"/> Latitude
<input type="checkbox"/> Elevation	<input type="checkbox"/> Way of getting location	<input type="checkbox"/> Tectonic Domain
<input type="checkbox"/> Tectonic Belt	<input type="checkbox"/> Tectonic Region	<input type="checkbox"/> Locality
<input type="checkbox"/> Lithology	<input type="checkbox"/> Occurrence	<input type="checkbox"/> Rock Texture
<input type="checkbox"/> Rock Structure	<input type="checkbox"/> Dataset Source	<input type="checkbox"/> Analyzed Age
<input type="checkbox"/> Analyzed Age Error	<input type="checkbox"/> Age Dating Method	<input type="checkbox"/> Age material
<input type="checkbox"/> Age	<input type="checkbox"/> Age Error	<input type="checkbox"/> Era

最后点Save to DB。等候片刻，左下角会有正在处理的条目，当条目较多（上万）时，入库和返回结果需要较长时间，请耐心等待。一定记得每次入库操作完成后都检查返回的结果文件，如果没有自动打开，就去程序目录下的import目录中找

Figure 85? ? ? ? (from Yinghui Zhang)

## Appendix 2: Sample Knowledge Tree and Data Filling Rules



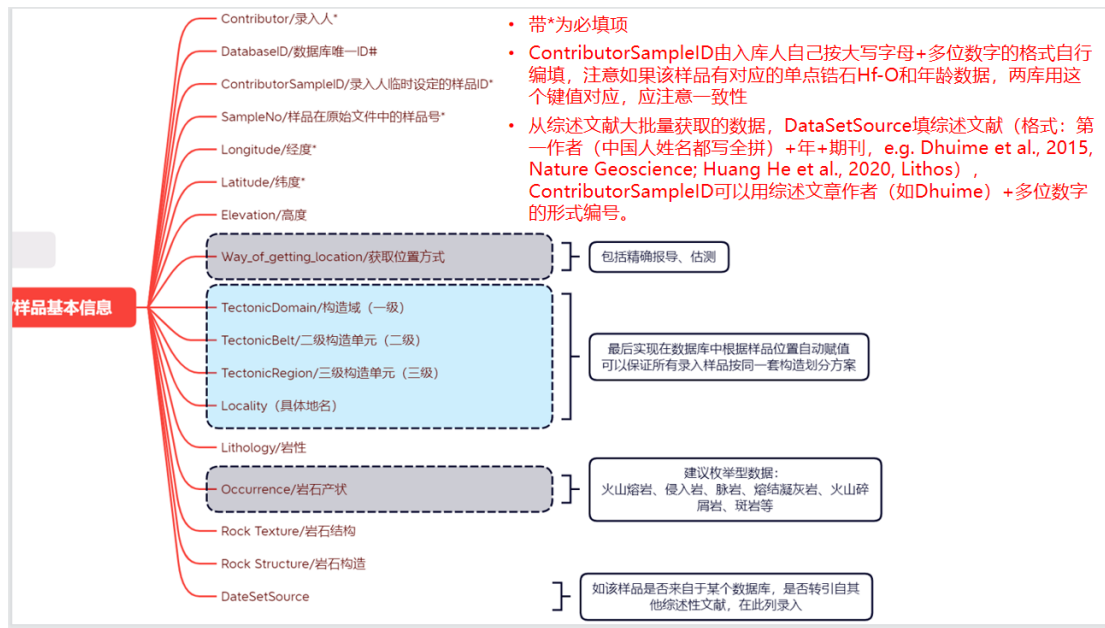


Figure 87 ? ? ?

- 实测样品年龄填给Analyzed Age和Error后, Age和Age Error也填一样的, 一定要填!
- 保证有Analyzed Age (& Error) 的一定也有Age (& Error) 且一至

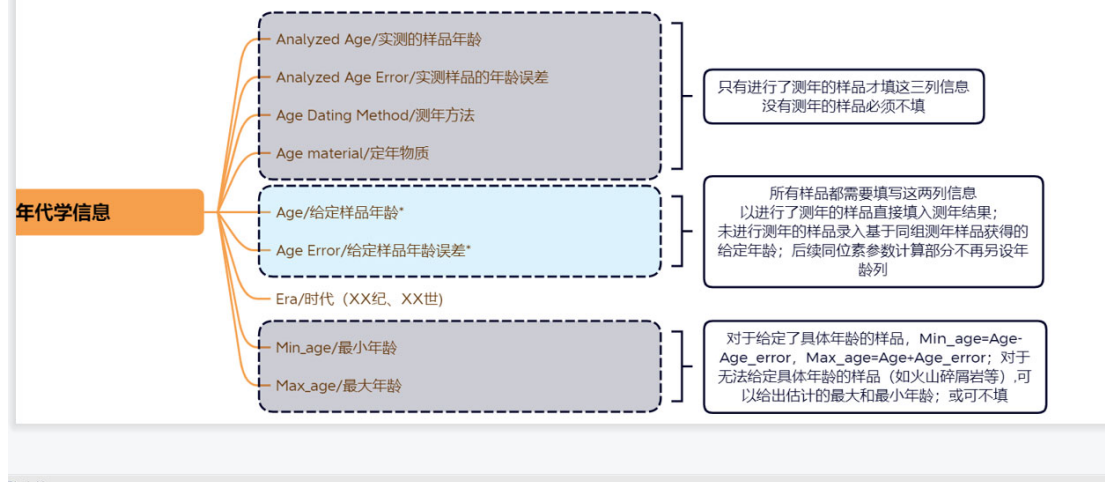


Figure 88 ? ? ?

- 参考文献（第一作者（中国人姓名都写全拼）+年代+期刊）为必填项
- 后面分项的能填全最好，起码Ref\_All info. 和Ref\_Title标题要有一个后续好查找补全。

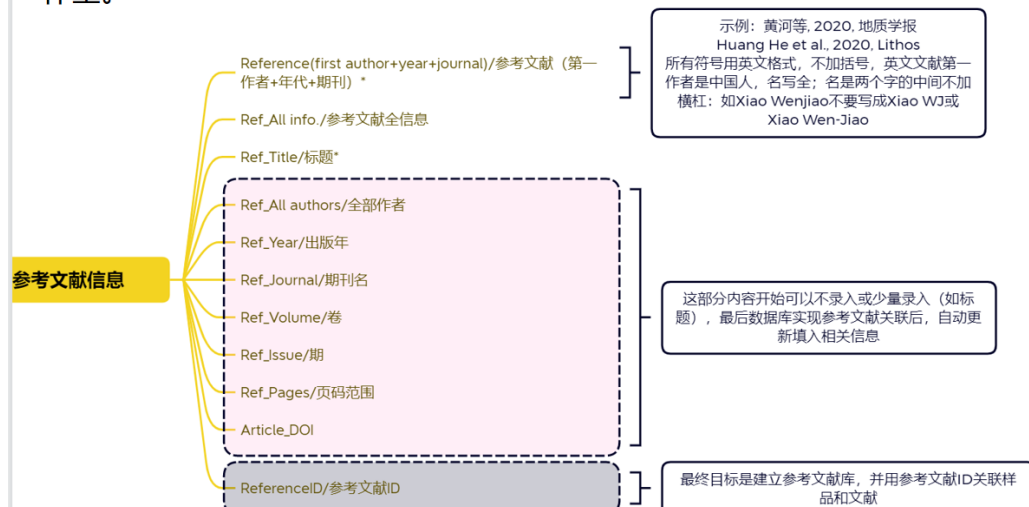


Figure 89? ? ? (by Yinghui Zhang)