A Big Earth Data Platform for Three Poles

**Quantitative Tescan Integrated Mineral Analyzer (TIMA) data set of tectonite from the North Himalayan Ramba Gneiss Dome**

1、Description

Data content: This data set is the quantitative comprehensive mineral facies analysis data of tectonite from RAMBA gneiss dome obtained by the Tescan Integrated Mineral Analyzer. The data includes the type, content, structural characteristics, distribution characteristics of the whole mineral facies in the tectonite, as well as the type, abundance and main hosted mineral facies information of the full spectrum elements.
Data source and processing method: The data were obtained by four high spatial and temporal resolution EDAX energy spectrometers mounted on a Tescan field emission scanning electron microscope. The electrons outside the atomic nucleus of a measuring point on the mineral surface are bombarded by a high-energy electron beam, the transition between different energy levels or excited to escape into free electrons and release photons with a certain energy. The type and content of the mineral element can be accurately calibrated by the signals captured by different energy channels of the energy spectrum detector. Then, automatic comparison and matching are carried out in the database with nearly 5000 mineral phases, so as to fulfill the accurate determination of mineral phases and the element abundance mapping. The voltage is 25 kV, the working distance is 15mm, and the spot size is 100nm.
Data quality description: Due to four energy spectrum detectors being equipped, the data acquisition time is short, the accuracy is high, the requirements for sample morphology are low, the detection limit is low, the data quality is very high and strongly reliable.
Data application achievements and prospects: Sample size is 27mm x 47mm standard optical thin section, scanning area is full slice scanning with High-resolution scanning mode, and the step size is set to 1μm. Through data analysis, we have obtained the mineral assemblage characteristics of each structural unit of the Ramba gneiss dome, completed the metamorphic grade and metamorphic facies zoning, and put forward the structural thermal evolution model of the Ramba gneiss dome. This technic has been widely recognized and used in structural geology, petrology, geochronology, ore selecting, metallurgy, metal processing and manufacturing, and other disciplines and industries.

2、Keywords

Theme：Gneiss Dome,Rocks/Minerals,Tectonics,igneous rocks,metamorphic rocks
Discipline：Solid earth
Places：North Himalayan Ramba Gneiss Dome, Tibetan Plateau
Time：Cenozoic

3、Data details

1.Scale：None

2.Projection：

3.Filesize：8000.0MB

4.Data format：None

4、Space scope

|  |  |  |
| --- | --- | --- |
| - | north：29.17 | - |
| west：90.0 | - | east：90.25 |
| - | south：28.91 | - |

5、Time frame:None--None

6、Reference method

References to data:

CHEN Siyu. Quantitative Tescan Integrated Mineral Analyzer (TIMA) data set of tectonite from the North Himalayan Ramba Gneiss Dome. A Big Earth Data Platform for Three Poles, doi:10.11888/Geo.tpdc.2718042021

References to articles:

7、Supporting project information

8、Data resource provider

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