

# Exploration and exploration of geological and mineral resources

Liu bin

Fifth geological team of Henan nonferrous Metals Geological and Mineral Bureau, Zhengzhou

**Abstract:** In view of the application of prospecting and prospecting methods, a simple discussion is made. At the present stage, the stock of mineral, has been reduced continuously, which makes it continue to increase the strength of geological exploration and rationally exploit. In the rational use of prospecting the efficiency of prospecting and reducing the cost of geological and mineral. Based on this, it is of the practical significance to analyze the subject and put forward some suggestions on the use of prospecting and prospecting methods.

**Keywords:** Geological and mineral resources; exploration and prospecting Method; Mining cost; Detection Technology

from the actual development of geological and mineral Resources , Prospecting Difficulty increases by plus , make the industry continue to strengthen the research of prospecting technology . by summarizing metallogenic rules and ore control elements , for Geology and mineral prospecting work , providing strong Theoretical support for the is "" . by summarizing the effective prospecting and prospecting methods , for mine worker The provides powerful tools .

## 1. application Principles for mineral prospecting methods

based on geo-scientific theory , Collection and collation of geological and mineral related resources material , Combining Geological Survey , Geophysical and geochemical methods , getting geology mining letter information . in actual work , Clear Prospecting Route , Combining geological conditions , Use the crossing method and recourse method or other method , to start the prospecting job . total come say , Apply Exploration prospecting method , to adhere to the following principles : 1) security Policy . Clear after the exploration route and prospecting method , According to the geologic section, Clear Geology points Cloth situation , forecast exploration risk ,Develop an early warning scheme . 2) scientific principles . base on scientific development concept , do reconnaissance investigation and co-ordination work , guarantee Prospecting survey The efficiency and quality of the job . summarizes source distribution and regularity developing Minerals Geological Survey work , for mineral prospecting and development work , provides technical support .

## 2. Common methods used in prospecting for geology and mineral Resources

### 2.1 Geological mapping

from geology and mineral exploration actually , Geological mapping method is more commonly used , because of its wide scope of application . in actual application , mining theory capacity , as a solution to geological mineral prospecting problems , can get a good effect fruit . The application of this method , is a comprehensive analysis of the geological characteristics of the base , Package include geological structures and rocks , summarizing metallogenic rules , Guidance for prospecting work . In recent years , with the development of science and technology , make digital geological mapping technology wide The generic application . collect and organize data information ,use computer to

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Introduction to authors : Liu , Was born 1985 Year , men , Henan Zhengzhou People , Engineer , Research Direction : mine Production Census and exploration , Geo Engineering , multivariate exploration techniques and applications . output image , Greatly improved the efficiency of geological mineral exploration work .

Apply Essentials : ① Prepare for the preliminary work . conducting field survey operations , have effect correction data , to synthesize various types of information ,includes physical remote sensing information and the Earth Chemical information, and so on . ② Build database . conducting geological and mineral exploration operations ,need to be shipped uses a lot of data information , work out a reasonable exploration and prospecting scheme , Guarantee Prospecting work goes smoothly . to combine the actual situation of the exploration area , According to the writing requirements and geographic conditions , Writing related content . ③ handles the collection of foreign industry information . pass observe topography and geological phenomena , Get accurate information , guarantee Geology mine Quality and efficiency of the production survey job . ④ using computer , for field access material , parsing and handling , guarantees the quality of the prospecting check .

## 2.2 Gravel Prospecting

Geology and mineral exploration operations , using gravel for prospecting , is based on geology and minerals Form principle . because of weathering effects , The ore surface will produce a certain rock conglomerate or gravel , distributed around the deposit . usually , gravel distribution the scope is wider, is outside the deposit scope . No matter what prospecting method is applied , are affected by different factors in practical applications , so you need to do a full Control <sup>[1]</sup>. affected by mineral resource implantation in natural environment , For example Mountain and Sen Forest etc , Making application of prospecting method , is severely restricted . in forests face Geological prospecting work , Use remote sensing geology as far as possible , conducting measurement jobs .

## 2.3 Remote Sensing prospecting method

in geology and mineral exploration operations , Using remote sensing technology , based on remote sense to know the specific reflection or radiation of electromagnetic waves and infrared. , recognize probe target , get relevant information . using remote sensor , currently , available Remote sensing prospecting technology is as follows : ① hyperspectral Remote sensing technology . in visible and hot infrared bands scope , for narrower spectral and image data . in practical use , to get Survey area spectral information and radiation information , detecting wide spectral range -hard to detect substances , Improve efficiency and quality of remote sensing detection . ② Multi-lightSpectrum Remote sensing technology . for electromagnetic spectrum sections , through Remote sensing photography , gets different bars The image information under the item . based on image , analysis Geology , access to mineral distribution

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## Prospecting technology

Condition . Applying remote sensing for prospecting for minerals in geology and mineral exploration , (RS) , as a helper with, has high efficiency . with the advancement of Science and technology , to improve its probing capability level and resolution <sup>[2]</sup>.

# 3. application of prospecting and prospecting methods for geology and mineral Resources

## 3.1 doing theoretical research

Development of geological and mineral prospecting work , needs to be supported for prospecting methods , in order to reduce the cost of exploration , improve exploration and prospecting efficiency , requires no break-up theory research . with a team example , on 2012 year -2016 year period , by summarizing metallogenic regularity and ore control elements , New Metallogenic model , revealing research Regional tectonic evolution of Pb-Zn polymetallic ore-collecting areas in the region , mineralization and ore control rules Law , provides theoretical support for prospecting breakthroughs , summarizes multiple sets of effective prospecting method combination . to improve the

efficiency of prospecting and prospecting methods , need from Theoretical research start , for prospecting area , Complete Survey work . Science Research Geo Environment , to improve geological and mineral exploration efficiency , has a positive effect . when conducting geo-environmental research , Pay attention to the investigation of the surrounding environment of mining area , Clear crustal Movement and geological environment , for Geological Survey workers Launch The, provides data information based on .

### 3.2 using scientific prospecting methods

At this stage , greater energy consumption on Earth , need for new mineral resources development seek Greater . and easily exploited minerals are running out ,remaining mineral resources source still unknown , Plus mineral development environment complex , increases the difficulty of prospecting degree . is based on this , in geology and mineral exploration , for efficiency and accuracy of prospecting

### 3.3 Prospecting Outlook analysis

The Ore area has good metallogenic conditions , According to existing geological information and the area that has been obtained the mining breakthrough ,Comprehensive Research analysis , To establish the mining area field with large porphyry copper ore metallogenic Advantage , should focus on research .

(1) yishijilike Copper , Molybdenum , a gold polymetallic metallogenic belt is a large of the deposit (). to construct location , zone with fracture construction feature . Zone Volcanic Gold polymetallic ore and copper deposits with volcanic eruptions and the pull-sheets in the zone in close contact , Copper Such mineralization, especially in the fault zone, is more prominent in,, Silver,, gold . The magma activity and volcanic activity in the area are very intense ., and has very long time between , Presents the characteristics of a multi-stage cyclotron eruption . mineralization in the area with volcanic activity in the area Dynamic and magmatic activities There is very close connection .

(2) Halajun Group ( Lower Carboniferous ) develops a set of island arc volcanic rocks build , is the main ore-level of the area . stream Rock and dacite and An Shan rock is its main rock combination , The content of the sulfur-forming elements is higher , Main Package surround :Mo and Zn and Cu and Au , and so on , These elements have very high change Out of the factor , metal into minerals very rich , These minerals with the region's different periods of volcanic activity and tectonic impact , migrating rich integrated mines .

(3) granitic rock Mass has a very close relationship with the copper mineralization in the area , Rock Mass and fracture reciprocal handover to form a clear control of orebody , inside and outside of rock mass The site where the intersection of the is the main output of the orebody is also . carbonate and silica and green curtain Petrochemical and sericite are its main alteration features . FAI-mo Mine and yellow iron ore and Porphyry copper deposits are their main metal sulphides , Curtain Petrochemical and silicide and The also has a very close connection . fully analyze its mineralization as Porphyry copper ( molybdenum mine on . clusters and small porphyry bodies distributed in the region's surface locations , possible sex , with higher requirements . using multiple prospecting methods , Comprehensive applied GeologyProspecting method , to improve efficiency of prospecting . first , to delimit survey scope . Select Select ore belt , ensure mineral presence in exploration area <sup>[3]</sup>. the also guarantees that the exploration area Internal low-level fracture constructs , because it is for the bed area . if geology and mineral prospecting Check the scope to meet the above requirements , Explicit exception conditions exist , The The area is the focus of the survey location . second , Doing preliminary investigation work , clear landformsform and natural environment . Combining Facts , using various methods , Develop mining area Prospecting job , Expand Investigation Scope . last , Reasonable choice of prospecting method , combine Apply various methods , Guaranteed productivity , reducing geology and mineral prospecting difficulty . value and mention the , Development of computer technology , Open for geological mineral prospecting work show , offers great help . by building a mining information sharing platform , make phase close units to obtain mineral distribution information in a timely manner , Scientific deployment of geological mineral exploration operations .

## 4. Epilogue

To summarize , Geology and mineral exploration operations , available prospecting methods than more . If you want to ensure the quality and efficiency of geological mineral exploration operations , need Strengthening theory of geology and Mineral Resources , Clear metallogenic regularities and geological conditions , Reasonable selection using prospecting method , The scientific and orderly conduct of geological and mineral prospecting work . solid

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