

# Analysis of the remote sensing prospecting technology for geological and mineral exploration

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**Abstract:** with the continuous development of science and technology in, the current exploration techniques used in t He traditional society has been optimized based on artificial prospecting technology based on the application of advanced Scientific technology T, support the geological exploration work carried out effectively and to provide abundant L Mineral. Based on the analysis of remote sensing technology in geological and mineral exploration, this paper would provide effectiv e Theoretical reference for improving the comprehensive strength of geological and mineral in.

**Keywords:** Geological and mineral exploration; Remote sensing prospecting technology; Analysis

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Remote Sensing prospecting technology compared to traditional mineral exploration model , A large number of human resources free from prospecting work , while reducing the cost of prospecting Labor , valid Promote prospecting accuracy , to improve the effectiveness of geological and mineral exploration technology in China Technical Fundamentals . however , accompanying science and technology perfection and innovation , geological exploration in China Remote Sensing technology follows innovation development , combined with current geological and mineral exploration Seek flexible response , To lay the foundation for efficient implementation of geological and mineral exploration work . base on this , to make our geological and mineral exploration work more efficient , analysis Geology The implementation strategy and development prospect of remote sensing prospecting technology for mineral exploration are particularly important .

## 1. Overview Remote Sensing prospecting techniques for geological and mineral prospecting

Remote Sensing of mineral prospecting through geological exploration , To explore the existence of surrounding rock alteration in geology geographical , According to the characteristics of surrounding rock alteration , analyzing mineralization , Explore Deposit Types The close connection between the and the surrounding rock alteration geology combination , and then delineate the scope of exploration ,, According to the surrounding rock alteration different form of formation , Explore inner seam distribution rules , with this as prospecting core , Detailed survey of geological and mineral resources for zoned area , To ensure that the Geology Mineral Exploration Remote sensing technology implemented effectively [1] . where , surrounding rock alteration main the refers to The long shadow of the geological environment of near-mine surrounding rock and underground soda water,, magmatic hydrothermal etc. - ring , under chemical and physical persistent reaction , produces a series of material compositions and constructions Build , structure changes , to form Special rocks , This behavior is surrounding Rock alteration , Remote sensing technology is mainly for the exploration of this phenomenon , on this as the starting point , Ensure the system is implemented , Improve prospecting efficiency . in order to make remote sensing technology with the support of the geological prospecting work can be implemented efficiently , requires the following for analysis : ① guided by surrounding

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rock alteration concept , using remote sensing to find mines Technology , to analyze the exception structure that exists within the scope of the survey , On this basis , for small scale map markers for possible mineral lots , In accordance with a wide range of surrounding rock alteration of , Analysis of interaction between strata , then true The technology of the Remote Sensing prospecting is effective, lifting geological prospecting results . ② do well

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Introduction to authors : Genlin , men , Was born 1985, Han , Chongqing Rongchang , Undergraduate , Engineer , Research direction : Regional Geological Survey and mineral exploration . Information Optimization extraction . Prospecting by Remote sensing , can use electronic devices to find The electromagnetic waves generated by geological structures within the mine range collection ,clean up , save , Sub analyze , and then draw conclusions of geological and mineral prospecting , to enhance the comprehensive geological and mineral exploration effect lay the foundation [2]. Remote Sensing prospecting technology through the underground material to the electromagnetic wave's guest the View reflection , to analyze its physical properties , According to the information that is hosted by electromagnetic waves , Scientific analysis of underground structures that cannot be efficiently achieved by human resources .

## **2. Analysis of the application of remote sensing prospecting technology for geological and mineral exploration**

First , through the flexible use of geological and mineral prospecting remote sensing prospecting technology obtained information , Exploring a range of geological structures , Improve geology and minerals Survey Results . information gathered by remote sensing prospecting technology , can take advantage of the Count Computer Technology Create three-dimensional geological space , to Improve geological mineral prospecting Efficiency purpose . second , collect information about vegetation pop features , Solid Scientific application of remote sensing and prospecting technology for geological and mineral exploration . in the local structure presence of Minerals, in the long movement of the Earth's crust. , soil inside will permeate related Mineral Ingredients , make the inner components of plants grown on the soil , have Do not grow plants in ordinary soil , Its entry content is generally large , Benefits using remote sensing prospecting technology, we can analyze the metal material contained in the vegetation ,under spectral feature enhancement processing technology , system analysis for vegetation , makes the The information generated by remote sensing prospecting technology for geological and mineral prospecting is effectively used . last , Transformation and application of information generated by remote sensing prospecting technology . deposit , Although extremely stable , but does not mean the deposit is 10% unchanged , Instead this structure will be space , Environment , temperature Changes , This results in the information formed by using single remote sensing prospecting technology , to Shadow Ring Geology Mineral Prospecting Science , Reduce exploration effectiveness . based on , Mining technology People should be flexible with information in different phases , Remote sensing images, etc. objective letters ,, Using Macro-contrast method , to delineate the extent to which a mineral may appear , Refine where the deposit may appear in the range , Multi-temporal remote sensing fusion of information resources produced by prospecting technology , make up a single information condition under , Increase the mining effectiveness of this technology . addition , Remote Sensing Prospecting technology application procedure

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Prospecting technology

, Remote Sensing images formed by , can have all the objective conditions within the geological scope of exploration condition for systematic feedback , main missing legend , to efficiently supplement , make geo-geological legend more scientific and efficient , laying the groundwork for quick finding of minerals .

## **3. Explore the development prospect of remote sensing prospecting technology for geological and mineral exploration**

(1) Remote Sensing prospecting technology will continue in the field of hyperspectral data and microwave remote sensing development . China as a developing country ,Technology Development and production technology Innovation in a durable and stable development situation , Geological Mineral Exploration Remote sensing prospecting technology also be so , will be popularized and popularized by the cardinal , widening application area , L Apply Comprehensive effect . where , hyperspectral technology in computer technology , Information processing technology , Weak signal detection technology , Precision Optics Mechanical Technology , plus probes etc Development Innovation and application of devices and technologies , Expanding remote sensing reception fan around , Lifting signal reception , To promote remote sensing for geological and mineral exploration in China Mining Technology steady Development purpose , make it more systematic for prospecting , all surface Information [3]. compared to optical remote sensing imaging , Microwave Remote Sensing imaging by the outside world less likely to be , receiving infrared light beams from remote sensing probes , ""---- the device can monitor voltage signals , and then get geological minerals internal physical knot Construction information , This technology has a band range large , Strong penetration , all day and all days The advantages of , and so on , can improve the exploration information system and science , in elevation geologyComprehensive effects of mineral exploration at the same time , for the purpose of promoting the development of remote sensing technology .

(2) Integration of multi-level data through the development of remote sensing prospecting technology . hyperspectral , multi-spectral , Microwave Technology continues to enrich today's remote sensing prospecting technology , information obtained from remote sensing prospecting technology breakthrough single Limitations , can achieve multiple cycle , Large Space scale , Complex spectral range and so on a variety of information collection , to information Diversity , Information System of remote sensing prospecting technology , and then mastering Minerals

Wall Rock alteration , mainly green mud petrochemical , Carbonate . from deep of orebody extension view , more stable , has further work value .

(2) 11-3 orebody . The surface of the orebody is exposed to the middle of the mine . , surface exposed orebody along the long 476m, orebody is veined , Favors North ,produces 340°/40° ~ 60° , controls the deepest orebody skew extension 145 m . orebody Show surface width 1.5 m~1m , orebody average thickness 2.48m , orebody level all grade Cu 0.72%, Pb 0.528%, Zn 0.583%, Ag 13.427 X 6, The orebody is a copper, lead, zinc, polymetallic ore body .

The ore body is stored in the fracture-breaking alteration zone , The main surrounding rock mass is the flashing length rock , flash porphyrite rock . affected by fracture ,ore rock broken seriously , fissure development , become the main place where the ore body is dissolved , near ore wall rock occurrence strong alteration , with green mud petrochemical , limonite , pyrite , carbonation , Peacock Petrochemical etc . "" with small quartz veins or carbonate dikes appearing with orebody , often in carbonate The site where the development of the pulse is prone to clumps of lead-zinc mines , lead grade is relatively high , with high Grade , in a lot of the development of the peacock petrochemical can see the brass mine is Veinlets disseminated distribution . General features , Provides strong support for accurate access to comprehensive information on geological and mineral Resources . letter Fusion not only can enrich information types and sources , Lifting the information processing system sex , also information fusion ,automatically remove duplicate information , useless information, and so on Redundancy Information , Implementing for information content " Purify Lifting Remote Sensing prospecting technology letter analysis capability , supplementing each other with various information , Promote geology and mineral exploration remote Sense Prospecting technology application effect . also , Multi-level data fusion also reflected in image information , parameter settings , Technology Control data analysis and fusion capabilities, Current science and technology continue to

develop , provide conditions for remote sensing prospecting technology innovation , in Existing data analysis platform technology , Additional information software processing platform , extension different format data compatibility , Promote multi-level integration of information data ,reaches promoting the development of remote sensing prospecting technology for geological and mineral prospecting in China .

#### **4. Epilogue**

To summarize , China as a resource country , in national development and social construction procedure , all without geology mineral Resources , to upgrade our geology and Mineral Resources Source Survey results , need flexible and efficient use of remote sensing prospecting technology , at the same time full using this technology during application Technical resources such as information generated by , , , In the elevation of China's geological and mineral exploration capabilities at the same time , To promote China's remote sensing prospecting technology The purpose of benign development . prisons

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