

Open Access Journals of Geo-science for Electrical and Electromagnetic Exploration

Guo-Qiang Xue*

Institute of Geology and Geophysics, Chinese Academy of Sciences, Bei-Tu-Cheng-Xi-Lu 19, Chao-Yang District, Beijing, China

Electrical and electromagnetic exploration is an application geoscience, which are used in gas-oil structure, hydrographic, coal, and engineering geology detection, deep sea environmental investigations, groundwater studies, and geothermal exploration as well as disaster forecasting.

The technique of electrical and electromagnetic exploration has a high speed development to meet the demand of geology and engineering geology domain. To meet this demand, worldwide researchers need to communicate and cooperate with each other in an efficient and effective way. In recent years, geophysical prospecting occupation has become a kind of hot work, especially in China, the number of geophysical study students is rapidly increase, Electrical and electromagnetic exploration become a hot research field in China.

High resolution direct current resistivity method has more sensibility to underground cavities such as old mine areas, it could provide rapid, accurate and visual interpretation technique to realize image.

Magneto Telluric (MT) method used to image the earth structure. In china today, the applications of the MT method covers a very large geological domain, such as oil industries, engineering, geothermal, crustal studies, volcanoes, environmental studies.

The Controlled Source Audio-Frequency Magneto Telluric (CSAMT) technique uses an artificial signal source; it provides a stronger and more reliable signal and enables imaging of buried targets.

The main applications of CSAMT in China includes:

- Mineral exploration: detection of massive sulphides, base, precious metals, petroleum, and geothermal resources
- Hydrogeology mapping: Searching for sources of groundwater and groundwater contamination
- Geotechnical investigation: Tracing the migration of conductive fluids or locating fault

Transient Electromagnetic Method (TEM) is a time-domain electromagnetic method. TEM has many advantages, such as

- Fast work efficiency: There is one transmitting device accompanied with two or more acquiring machines for loop-source or grounded source TEM, which can be used on various surveying conditions
- High-resolution: TEM observed only secondary field, which is separated from primary field
- TEM has small volume, especially for loop source
- TEM has high penetrability to high-resistivity medium and high resolution for low-resistivity medium
- TEM is not sensitive to the topography and can observe in near-field zone

TEM is widely used in hydrogeology, oil and borehole data study, sea investigation resource exploration, engineering studies, disaster surveys and water conservation. TEM is also used in hydrogeology and

environment engineering, such as geological hidden troubles of high-rise buildings, nuclear power station, water power station, highway and bridge. It is also potential for TEM to be used in building lossless monitoring, water source development, railway construction, sea water intrusion, ground precipitation and prediction of geologic hazards.

Traditional academic journals provide a platform for researchers to publish their problems and their solutions to geological problems. However, traditional academic journals are usually not open access publications and can not provide a suitable communication platform for worldwide researchers, especially young people. Therefore, new types of publications are needed, in particular in electrical and electromagnetic exploration domain.

In recent years, there has been a tremendous boost to connect the world through internet. Open Access act as a role of accelerating scientific discovery by providing free and unrestricted access of scientific knowledge through the internet web and keeping the long-term preservation of peer-reviewed scholarly journal articles. Through Open Access publications, scientists and engineering workers as well as other users from all over the world can avoid subscription fees and copyright restrictions to access free scholarly literature application article which means that it grant to all users, such as students, researchers, a free, worldwide, and perpetual right of access to copy, use, distribute, transmit and display the work publicly.

Now an open access journal of OMICS Publishing Group, Journal of Geology & Geosciences, has appeared. Authors has the chance to publish their newly research achievement and reader get a free way to benefit from OMICS Publishing G roup's publications, especially journal of Geology & Geosciences, it is built upon the principles of open access and is determined to provide free and unrestricted access of research articles to all users for the advancement of geo-science and geological engineering technology.

***Corresponding author:** Guo-qiang Xue, Institute of Geology and Geophysics, Chinese Academy of Sciences, Bei-Tu-Cheng-Xi-Lu19, Chao-Yang District, Beijing, China, E-mail: ppxueguoqiang@163.com

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