Contribution ID: **103**   Type: **Oral**

Comprehensive geophysical survey technique in exploration for deep-buried hydrothermal type uranium deposits in Xiangshan volcanic basin, China

Thursday, 26 June 2014 11:30 (30 minutes)

According to recent drilling result, uranium mineralization has been found underground more than 1000m deep in Xiangshan volcanic basin, in where the uranium exploration has been carried out for over 50 years. This paper presents a comprehensive geophysical survey technique, including audio magnetotelluric method (AMT), high resolution ground magnetic and radon survey, which aims to prospect deep-buried and concealed uranium deposits in Xiangshan volcanic basin. Based on research and application, a comprehensive geophysical technique consisting of data acquisition, processing and interpretation has been established. Concealed rock and ore-controlling structure buried deeper than 1000m can be detected by using this technique. Moreover, one kind of anti-interference technique of AMT survey is presented, which can eliminate the interference induced by the high-voltage power lines. Result of AMT in Xiangshan volcanic basin is demonstrated as high-low-high mode, which indicates there are three layers in geology. The upper layer with high resistivity is mainly the react of porphyroclastic lava. The middle layer with low resistivity is metamorphic schists or dellenite whereas the lower layer with high resistivity is inferred as granite. The interface between middle and lower layer is recognized as the potential zone for occurrence of uranium deposits. According to the corresponding relation of the resistivity and magnetic anomaly with uranium ore bodies, the tracing model of faults and interfaces between the different rocks, and the forecasting model of advantageous area for uranium deposits have been established. In term of the forecasting model, some advantageous sections for uranium deposits were delineated in the west of Xiangshan volcanic basin. As a result, some achievements on uranium prospecting have been acquired. High grade industrial uranium ore bodies have been found in several boreholes, which are located in the forecasted zones.

Primary author: Dr KE, Dan (CNNC Beijing Research Institute of Uranium Geology)

Co-author: Prof. CHENG, Jixing (CNNC Beijing Research Institute of Uranium Geology)

Presenter: Dr KE, Dan (CNNC Beijing Research Institute of Uranium Geology)

Session Classification: Advances in exploration and uranium mineral potential modelling - 2

Track Classification: Advances in exploration and uranium mineral potential modelling