

Application of Muon Geotomography to Mineral Exploration

jeudi 19 avril 2012 14:00 (20 minutes)

A novel geophysical imaging method using muon tomography is being developed for mineral exploration. This nondestructive technique, similar in principle to computed tomography, can be used to identify massive ore bodies underground. A proof-of-concept trial has been conducted using a known volcanic massive sulfide deposit at Mt. Myra located on Vancouver Island in British Columbia. Muon flux data from the experimental survey were used to obtain mass lengths from the sensors to the surface. Using an accurate topographical map, the mass lengths were inverted to reconstruct an image of the deposit in good agreement with the known drill-data. Simulations and calculations were also performed to test the inversion software and design the survey. This work demonstrates that muon tomography can be a valuable approach for identifying mineral deposits with high-density contrast compared to the host rock.

Auteur principal: LIU, Zhiyi (AAPS@TRIUMF)

Co-auteurs: Prof. BRYMAN, Douglas (University of BC); Dr BUENO, James (Advanced Applied Physics Solutions)

Orateur: LIU, Zhiyi (AAPS@TRIUMF)

Classification de Session: Applications of muon imaging in geophysics, archeology, civil and industrial engineering

Classification de thématique: Applications of muon imaging in civil and industrial engineering