

ORE VOLUME MEASUREMENT BASED ON 3D LASER SCANNING TECHNIQUE: A CASE STUDY

Kiều Quốc Lập, Nguyễn Tiến Thành, Liu Xiuguo

TÓM TẮT:

In the mining industry, conventional methods such as GPS and total station technology are used most extensively for data collection and in return used to compute volume of extracted materials (ore and waste). In situation where the ore body is bigger in size, and changes dynamically, the use of conventional method to measure volume of ore is not practicable and economically viable because of the workload involved, precision and accuracy of the survey and safety of workers. In this paper a method and work flow of ore heap volume measurement by using 3D laser scanning technique to acquire point cloud data was introduced. RiSCAN PRO and Geomagic studio was used to process the original data (registration, noise elimination, georeferencing, resampling etc.), 3D modeling and volume computations. A comparison on precision of geodetic control points coordinate measured by GPS receivers and 3D laser scanner was carried out. The results indicate that 3D laser scanning technique can effectively be applied to ore output volume measurement since it satisfies the requirement of ore volume measurement.