

Title: Change Detection in Underground Limestone Mines Using LiDAR and Photogrammetry: Successes and Lessons Learned

Abstract:

LiDAR and Photogrammetry are both tools that can be used to great effect for tracking the spatio-temporal changes of rock masses, but not without significant limitations that should not be overlooked. Several case studies are presented where these techniques were being used to track rock movements in underground mines, as well as the difficulties and successes experienced with each. One case study is LiDAR monitoring at an underground limestone mine in central Pennsylvania and another is LiDAR and Photogrammetry monitoring at an underground limestone mine in eastern Ohio, both of which saw significant ground movements over a period of 1-3 years. Landslides come with a variety of unique conditions not experienced underground, such as weather, vegetation, lighting, accessibility, and more that will also be discussed as they relate to the ease of monitoring.

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