

# VOID AND CAVITY MONITORING SURVEYS FOR MINES



*"Your Complete Survey Solution Provider"*

## VOID AND CAVITY MONITORING SURVEYS FOR MINES:

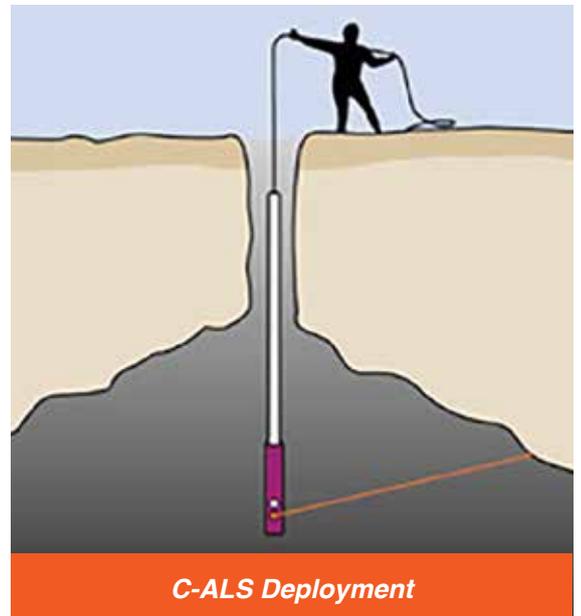
Abandoned mine workings are an environmental hazard for the general public, government agencies, developers & mining companies alike. Voids and cavities in mines can pose a serious potential threat to worker and public safety due to the possibility of failure and collapse.

The most serious threat relates to the effects of void collapse, subsidence & migration of voids to the surface due to natural & man-made causes. To pre-empt problems, accurate surveys of these cavities / voids is imperative.

Proactive solutions need to be developed in order to minimise subsidence risk where mine workings are present. The structural integrity, the geometry of the voids, their depth and condition, and the nature of the overlying strata must be determined.

However, conventional survey techniques are costly, dangerous to undertake & time consuming and in many cases not practical or possible.



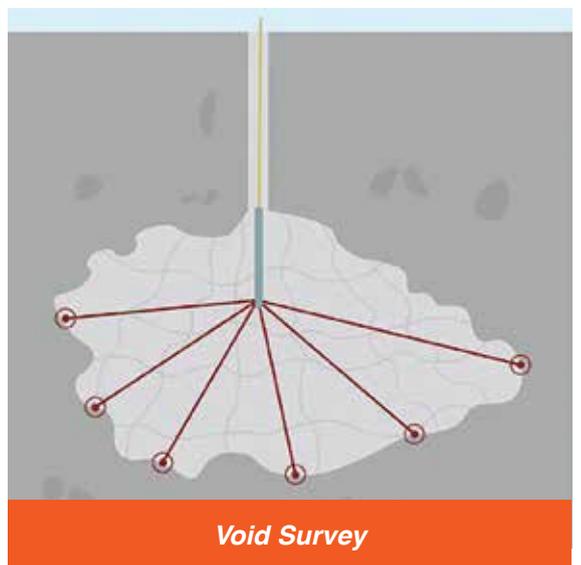


Our unique investigations services can help Mine managers assess the stability of mine works and judge whether or not a cavity needs to be filled, whether work can proceed, and what operational plans should be put in place to maximise productivity and safety.

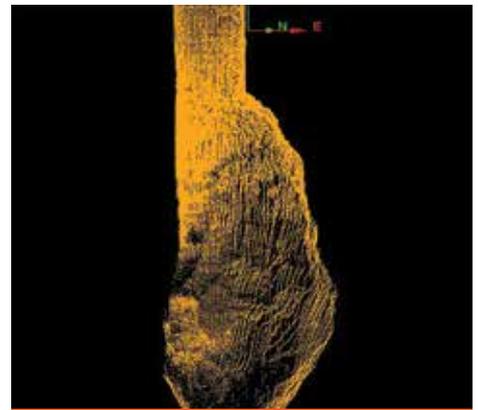
We have the unique robotic borehole deployable cavity scanner (C-ALS) for a 360° view of underground voids. An underground camera and borehole geophysical logging can also be used to complement the information. This enables laser scanning of voids in order to create full geo-referenced 3D models of subsurface conditions.

The 'Robotic Laser Surveying System' capable of being inserted into voids & cavities via predrilled boreholes to quickly and safely survey old workings. This system is known as the Cavity-Autoscanning Laser System (C-ALS).

With a diameter of just 50mm, the unit can be deployed down pre-drilled boreholes of 65mm or more, from where it employs a miniaturised laser scanner to measure the three-dimensional shape of the void together with its surface reflectivity.



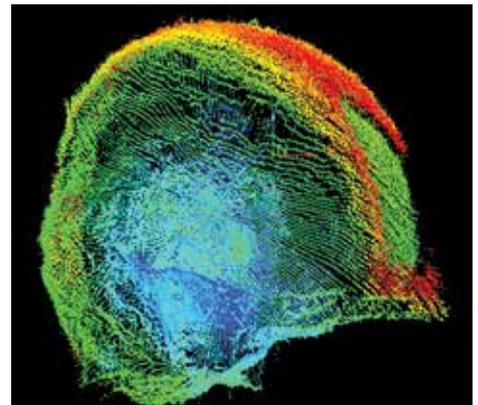
*Void Investigation*



*3D Image of the Shaft*

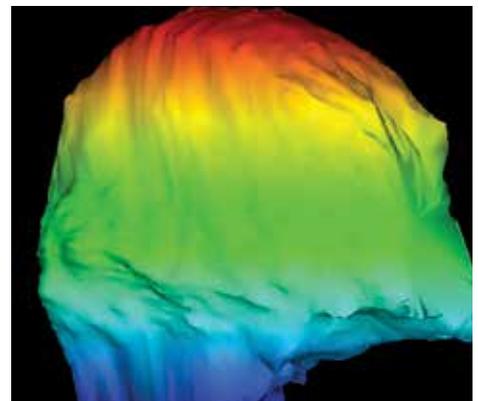
## The surveys include:

- Cavity and void assessment and management
- Stability monitoring
- Ore pass monitoring
- Stope Surveys
- Limited & hazardous access surveys
- Subsidence investigations
- Collapsed mine workings
- Volumes of voids



*Survey Data in Point Cloud*

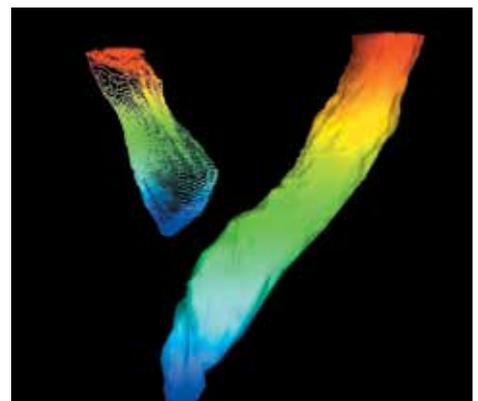
We are able to deliver the raw data or edited in closed 3D model and within minutes of finishing the survey. Point cloud data can be delivered and exported to client's modelling software on site.



*Survey Data - Solid*

## Benefits:

1. Survey dangerous underground Mine workings incomplete safety
2. Precise and accurate cavity / void measure
3. 360° scan converge of the cavity with no blind spot
4. View results in minutes



*Void Data Model*



*"Your Complete Survey Solution Provider"*

## About Austech Surveying & Mapping Pty Ltd (ASM)

ASM delivers valuable and often inaccessible information through the use of Auto Scanning Robotic Laser Technology. Our products and services, which include LiDAR, terrestrial scanning equipment and ground based survey techniques, are among the most reliable and comprehensive in the business. Despite the advanced technology, a key emphasis of their range of services is to gain a deep understanding of the client needs and produce deliverables that match expectations.

Austech's team of highly qualified Surveyors and Mine Engineers work directly with our clients and provide them with the tools they need to confidently make critical decisions that result in increased operational safety and productivity. For additional information, please visit our website [www.austechsurvey.com.au](http://www.austechsurvey.com.au)

For more information please contact:

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