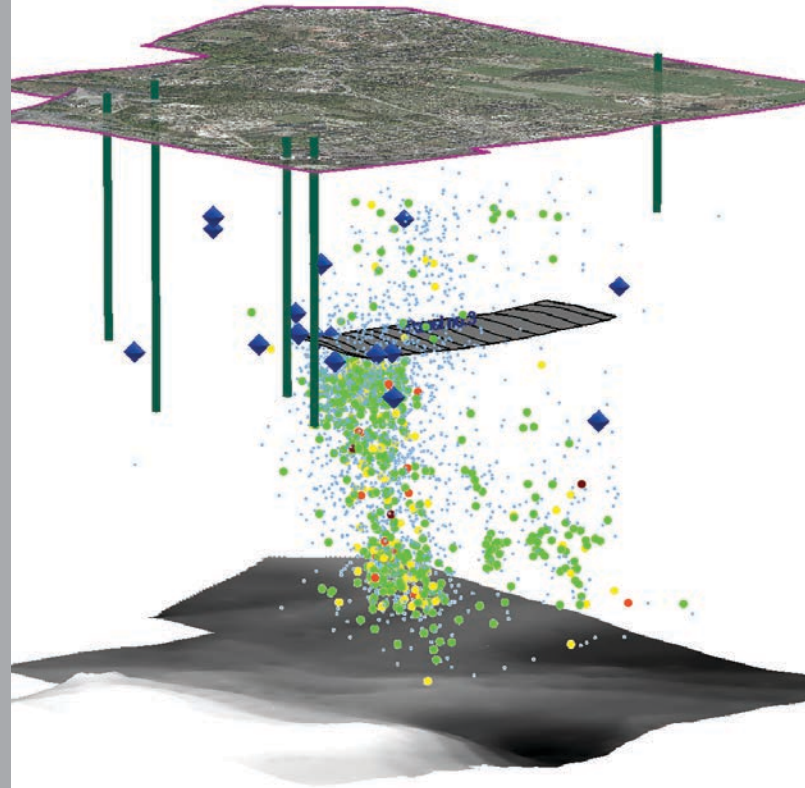


## Seismological observation system

Fot. Lokalizacja 3D zjawiska sejsmicznego  
w kopalni.



### Seismological observation system, SOS (to monitor the behaviour of the rock mass in the mines)

#### Technology description

One of the main goals of seismological monitoring is identification of the risk associated with rock mass instability, the effect of which may be caused by tremors-induced damage in underground mines. The complete microseismic systems, developed and delivered by the Department of Geology and Geophysics (GIG) are extremely easy to use and equipped with a modular, extensible architecture operating in the MS Windows environment.

The Geophysics Mining Laboratory designs and manufactures all equipment and software, including data collection blocks, geophones and accelerometers. It allows full personalization of each system to specific, individual customer needs. SOS systems currently operate in most Polish mines and in Chinese mines, where rockbursts constitute a serious problem for the safety.

#### DEPARTMENT OF GEOLOGY AND GEOPHYSICS

Assoc. Prof. Grzegorz Mutke  
T: +48 32 259 21 89  
E: gmutke@gig.eu

#### Laboratory of Mining Geophysics

Assoc. Prof. Adam Lurka  
T: +48 32 259 25 75  
E: alurka@gig.eu

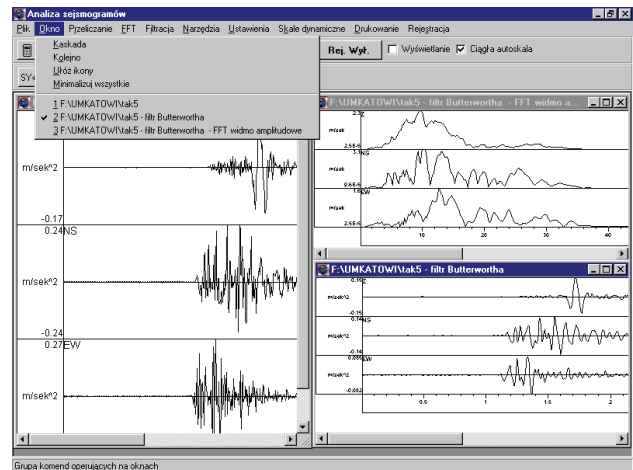
# Seismological observation system

## Equipment

The Seismological Observation System (SOS) is a modern, efficient tool for transmission, recording and analysis of seismic signals generated by seismic sources occurring in underground mines. It consists of a surface and underground part. The underground part contains DLM and DLM3D measuring probes with built-in signal transmission modules. The surface part includes the DLM-SO receiving module, which is connected to the SOS data collection module. The SOS data collection module records the mine's seismic activity in a continuous manner and with automatic triggering. One DLM-SO receiving module includes 16 seismic channels and can be expanded to 256 channels. The Seismological Observation System (SOS) is ATEX certified, which authorizes it to be used in mine environments with gas and methane hazard.

## Software

The Seismological Observation System is equipped with the SEJSGRAM and MULTILOK software integrated with it. The first of these programs mentioned is used for seismological analysis, the other one for the digital analysis of seismogram data, so that a complete set of information on seismic source parameters and 3D location of seismic phenomena in mines can be obtained.



Fot. SEJSGRAM – FFT i analiza filtrów cyfrowych.

