

Detection of land degradation caused by historical Zn-Pb mining using geophysical methods

In the proposed workshop students will have the opportunity to get knowledge about the largest and most significant historic underground lead-silver-zinc mine in Poland. The workshop also will present the impact of mining on the environment (wash dump, post-mining meadows - post-mining forms, drainage shafts, exploration shafts, tunnels) and the effects of the carried out reclamation. As part of the planned classes, the GPR method will be presented and used to locate old mining shafts and to identify shallow geological structures. The workshop will also present the results of environmental tests already carried out - with the electrical resistivity method, and the results of chemical analyses (the determination of the current contamination of the environment). Computer workshop will consist of processing the obtained results, comparing them with historical data and other results of geophysical measurements.

Who are we looking for (discipline, competences, motivations)

PhD students in environmental science, environmental engineering, environmental management, ecology, environmental chemistry, geochemistry, geophysics, geology, biology

Number of participants:

5-7

Goal(s) of the workshop

Use of geophysical methods to locate the remains of the former mining activities of zinc-lead ores in Tarnowskie Góry.

Knowledge, skills and competencies to be achieved

Knowledge about: Zn-Pb mining, land degradation due Zn-Pb mining, geophysical methods, integration chemical, physicochemical analysis with the geophysical data,

Skills: analytical, skills, problem-solving skills,

Competencies: environmental epidemiology, environmental science, environmental protection

Teachers

dr Marta Kondracka

Schedule:

Day 1: Introduction to the history of the Zn-Pb mining (Sosnowiec)

Day 2: Field excursion (Sosnowiec - Tarnowskie-Góry - Sosnowiec)

- Sightseeing: (the area of the former Fryderyk mine - a mound in the Kunszt Park in the district in Bobrowniki Śląskie in Tarnowskie Góry, spoil heap of the Fryderyk mine, post-mining landscape (19th century),

- field workshops - performance of geophysical measurements using the GPR method

- visiting Black Trout Adit

Day 3: Computer workshop – interpretation, presentation and evaluation of the conducted results in the field (classes in IES in Sosnowiec)