



Międzynarodowa Środowiskowa Szkoła Doktorska
przy **Centrum Studiów Polarnych**
w Uniwersytecie Śląskim w Katowicach

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Title of PhD project: Application of organic compounds to palaeo-wildfires detection

Providing institute: Institute of Earth Sciences, Faculty of Natural Sciences, University of Silesia in Katowice

Requirements:

1. MSc in Geology or Chemistry,
2. Proficiency in MS Office,
3. Knowledge of Corel Draw or another graphic software,
4. Knowledge of basic statistical methods.

Description of the tasks:

1. Fieldwork. Collection of rock material for research.
2. Laboratory work. Rock grinding, extraction, fractionation, derivatisation, methanolysis, hydrolysis.
3. Total organic carbon and total sulphur measurement.
4. Microscopic observations and measurements.
5. Instrumental analysis. Depending on samples, GC-MS, HPLC-MS or GC-MS-MS.
6. Interpretation of data. Manuscripts preparation.

Summary of the doctoral project:

The project is concerned with methods of palaeowildfires reconstruction during global evolutionary perturbations of the Phanerozoic and smaller-scale events, with a particular focus on the use of organic compounds. Problematics relates to the identification of key PAHs that may be robust proxies of wildfires, and polar compounds, including anhydrosaccharides. The most important methods used in the project will be GC-MS, HPLC-MS, GC-MS-MS, and reflected light microscopy. Experience with these methods and the ability to interpret the results will be an asset.

Other information:

The work will be carried out under the supervision of:

prof. dr hab. Leszek Marynowski, e-mail: leszek.marynowski@us.edu.pl, Institute of Earth Sciences, Faculty of Natural Sciences, University of Silesia in Katowice



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Information on the IEDS admissions: <https://www.mssd.us.edu.pl/en/admission-2024-2025/>