



SEG Bucharest Student Chapter  
Maramures, Romania

# "IDENTIFICATION OF GEOTHERMAL WATER BEARING FORMATIONS AFTER GEO-DATA ANALYSIS AND INTERPRETATION"

## SEG BUCHAREST STUDENT CHAPTER FIELD CAMP REPORT 2021



SOCIETY OF EXPLORATION  
GEOPHYSICISTS



Bucharest Student Chapter

### Objectives

The main goal of the project is to train students how to perform geological and geophysical investigations in order to unravel the subsurface geological structure and to identify possible geothermal water-bearing formations in this area.

### Geological setting

In the study area is a pre-Neogene basement covered by Neogene sedimentary deposits and Neogene magmatites. The pre-Neogene basement is made of metamorphic rocks of Precambrian and Paleozoic ages, sedimentary rocks of Jurassic, Upper Cretaceous and Paleogene ages. The Neogene sedimentary cover contains shales, marls, sandstones, limestones with intercalations of igneous rocks. The magmatic activity started in Badenian age followed by Sarmatian and Pannonian ages eruptions of basaltic and andesites (Săndulescu, 1984). The igneous rocks cut and interbed with Neogene sedimentary deposits.

### Methodology

#### • Passive and active seismics

For the passive and active seismic surveys, students used 60 Smart Solo Geophones receivers which were placed at 12.5 meters from one to another. For the active seismic survey the source used was a sledgehammer.

#### • Magnetotellurics

For the magnetotellurics measurements, we used a GEPARD-8 AGCOS receiver. Each day, one team of students had the opportunity to learn how the receiver is prepared for the daily measurement.

#### • Magnetometry

Students carried the equipment along the lines of the established survey grid. The data obtained will help us identify subsurface igneous structures.

#### • Geological Mapping

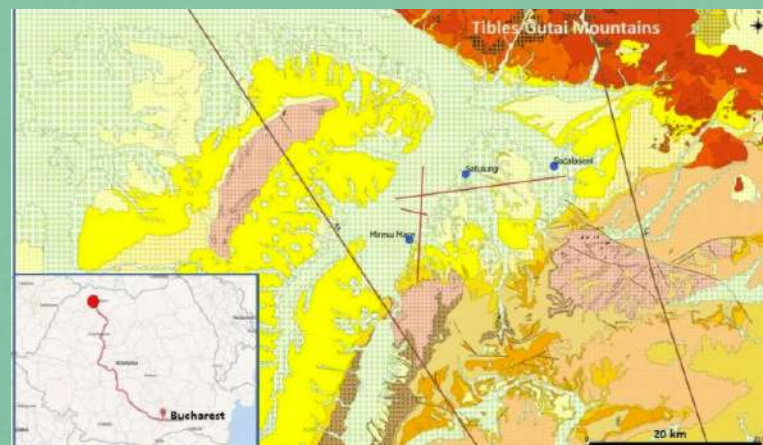
Students went on the field to analyse key geological structures such as outcrops and faults in a preliminary study of the structural geology of the area.



Magnetic survey conducted by students from University of Bucharest and trainers



MT training for students by trainers



Geological map of the study area (Săndulescu, 1984). Acquisition lines of geophysical data - red lines, Geological sections 4A and 5A - brown line. Inset - map of Romania with indication of the study area (red); source of the map: [www.distanta.ro](http://www.distanta.ro)



Seismic lines represented in Google Earth



Passive seismic survey conducted by students from University of Bucharest and trainers

### Workshop



Presentation of the area of interest



Thin section visualised using the microscope

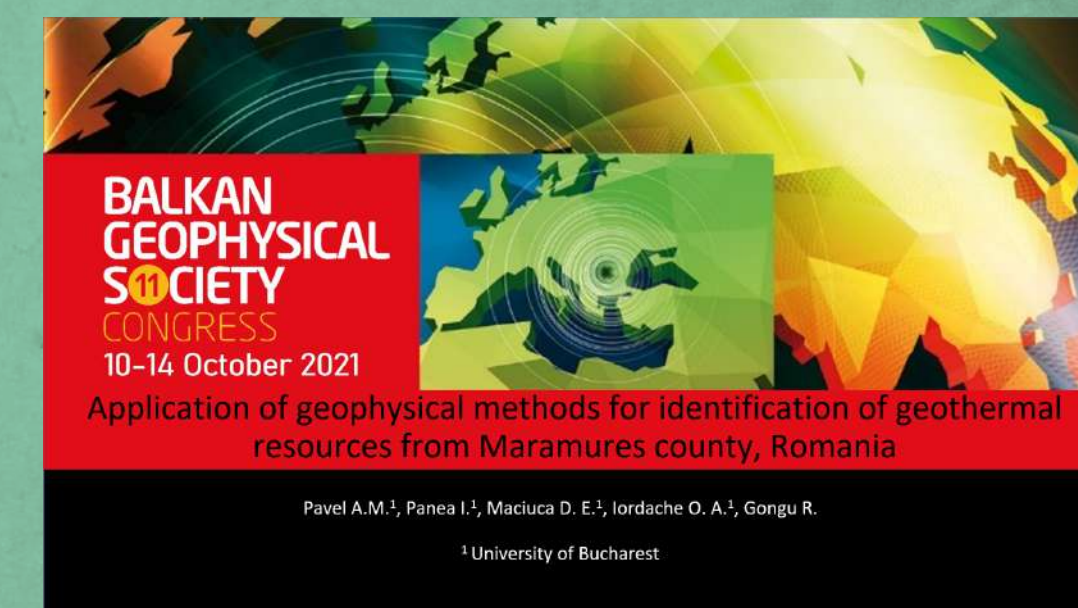
On 4th and 11th of December 2021, SEG Bucharest Student Chapter organized the data processing and interpretation workshop. In this workshop the data from the SEG 2021 Field Camp held in Maramures county, Romania was analyzed. Together with Lect. Dr. Eng. Denisa Jianu and Lect. Dr. Eng. Ioan Munteanu we discussed about the geology of the area of interest and analyzed the thin section made from the samples of rock collected from Maramures county.

During the seismic data processing and interpretation workshop, our field camp coordinator, Assoc. Prof. Dr. Eng. Ionelia Panea presented to us the data we acquired using the passive and active seismic.

After a short introduction about the fundamentals of seismic data processing, we started to process the data using MATLAB software.

The workshop was attended by 23 participants from different years of studies. The data acquired in this field camp will be used for writing the bachelor and master thesis and scientific papers which will be presented at national and international conferences.

### Promoting the SEG 2021 Field Camp



Presentation at the BGS Congress 2021

On the 14th of October, we presented at the 11th Balkan Geophysical Society Congress the SEG 2021 Field Camp organized by SEG Bucharest Student Chapter with help from sponsors and partners. The presentation was focused on how this field camp helped students To have a better understanding of the geophysical methods we applied and to correlate the geophysical and geological data from the field.

### Contact us



SEG Bucharest Student Chapter



[seg.bucharest](https://www.instagram.com/seg.bucharest)



SEG Bucharest Student Chapter



[bsc.of.seg@gmail.com](mailto:bsc.of.seg@gmail.com)



University of Bucharest SEG Student Chapter

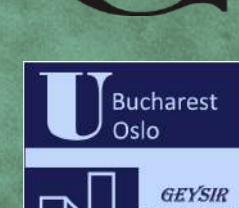
### Main sponsors



SOCIETY OF EXPLORATION  
GEOPHYSICISTS



Societatea de Geofizică Aplicată din România



### Partners