

# **Epithermal Neutron Activation Analysis of Soil and Sedimentary Rocks Samples from Azerbaijan**

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Epithermal neutron activation analysis (ENAA) has found its usage in many fields of science. ENAA also is an increasingly important tool in trace element studies of geological materials. In the territory of Azerbaijan over 400 mud volcanoes are present, making Azerbaijan top in the world in the number of mud volcanoes characterized by exceptionally high natural radioactivity. Those deposits in the Caucasus and Transcaspian are associated with large deposits of uranium and rare earth metals. In this study instrumental epithermal neutron activation analysis (ENAA) was applied at the IBR-2 reactor of the FLNP JINR to study soils and geological materials collected in Azerbaijan the south-eastern part of the Greater Caucasus. The 43 samples (15 soils, 24 sedimentary rocks and 4 mud volcanoes) were collected. Soil sampling sites were chosen in ten different locations characterized in the interval of altitudes of 200-650 meters above the sea level, at depth of 20-30 cm in the area not affected by any mining and industrial activity. Sedimentary rocks such as clay, sandstone, argillite, marl, were collected from the geological outcrops. A total of 45 elements including lanthanides and actinides (Th and U) were determined in soils. In sedimentary rocks (clay, sandstone, argillite, marl, mica) and mud volcanoes, were determined 35 (major, REE and trace) elements.

*Keywords:* Instrumental Neutron Activation Analysis; Azerbaijan; major elements; trace elements; soils, clay, sandstone, argillite, marl

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