



Institute of Geology and Paleontology

Prof. RNDr. Jiří Žák, Ph.D.

+420 221 951 475 | jirizak@natur.cuni.cz

Albertov 6, Prague 2, CZ-12843, Czech Republic, EU

<http://ctg.cuni.cz>



RESEARCH AREA & EXCELLENCE

Tectonics, structural geology, magmatic processes and volcanology, rock magnetism

- Tectonic development of active continental margins and collisional orogens
- Interactions of plate motions, crustal melting, magmatism, and tectonic deformation
- Tectonics of sedimentary basins
- Magnetic properties and fabric analysis of geomaterials

Mission

Our goal is research excellence and a better understanding of how the Earth works, with a particular emphasis on orogenic processes and crustal magmatism.

KNOW-HOW & TECHNOLOGIES

Content of Research

- Magma transport and emplacement in the Earth's crust
- Evolution and dynamics of collisional and accretionary orogens and magmatic arcs
- Paleotectonic reconstructions
- Applications of the anisotropy of magnetic susceptibility (AMS) method in geosciences

Main Capabilities

Field geology, geological mapping, tectonics and structural geology, optical methods, AMS, image analysis, computer-based geological data processing, GIS

EXPECTATIONS & OFFERS

Offers

We offer long-term experience and knowledge across a wide range of Earth Science disciplines with potential applications in:

- Geological and structural mapping
- Fabric and strain analysis of geological bodies in 3D
- Analysis and interpretation of brittle fractures and paleostress evolution
- Advanced geological data processing, interpretation, and modeling

Requirements

We seek cooperation with academia or industry on interesting tectonic and structural geology problems.

KEY RESEARCH EQUIPMENT

- Laboratory of Rock Magnetism: high-end facility for measuring the magnetic susceptibility of oriented specimens, statistical data processing and interpretation (multi-function Kappabridge MFK-1A with 3D rotator, CS4 Furnace Apparatus, and CS-L Low-temperature Cryostat Apparatus)
- Optical microscopy: Nikon Eclipse 100LVPol microscope mounted with a high-resolution Canon camera and supported by the NIS-Elements D 3.2 software for image processing and analysis



- Field work and expeditions: complete sampling equipment including hand-held drills for taking oriented cores, expedition gear for field work in wilderness and remote areas

PARTNERSHIPS & COLLABORATIONS

Czech Geological Survey | Institute of Geology, Czech Academy of Sciences | Czech Technical University in Prague | National Museum Prague | University of Salzburg, Austria | Goethe University, Frankfurt am Main, Germany | University of Houston-Downtown, USA | University of Southern California, USA | University of California, Northridge, USA | New Mexico Highlands University, USA

Research Projects

- Sedimentary record and mechanics of collapse of orogenic belts (2016–2018, Czech Science Foundation)
- Post-collisional plutonism in the south-western Bohemian Massif (2015–2017, Austrian Science Fund)
- Dynamics of Precambrian accretionary wedges and mélanges (2014–2016, Czech Science Foundation)
- Calderas as indicators of thermal-mechanical evolution of subvolcanic magma chambers (2012–2014, Czech Science Foundation)
- The origin of compositional and textural zoning in shallow-level granitoid plutons: a quantitative approach (2011–2013, Czech Science Foundation)
- Relationship between faults and plutons: implications for interactions between tectonic and magmatic processes in magmatic arcs and orogenic belts (2007–2009, Czech Science Foundation)

ACHIEVEMENTS

Vigorous publication activity in highly ranked international journals, regular contributions to international conferences, organizing international meetings, workshops, and field trips, a variety of educational activities in geology

