Academy of Sciences of the Czech Republic

Institute of Geology Annual Report 2005

Praha, September 2006

Academy of Sciences of the Czech Republic

Institute of Geology
Annual Report 2005

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Editorial Note: This report is based on contributions of the individual authors; contents and scientific quality of the contributions lies within the responsibility of the respective author(s).
The report was compiled and finally edited by L. Slavík and P. Bosák. The English version was kindly revised by J. Adamovič.

KATALOGIZACE V KNIZE - NÁRODNÍ KNIHOVNA ČR

Geologický ústav (Akademie věd ČR)
Institute of Geology - annual report. 2005 / Academy of Sciences of the Czech Republic. -- Prague : Institute of Geology of the Academy of Sciences of the Czech Republic, 2006. – 87 s.
ISBN 80-903511-4-X. L.K

55 * 550.8 * (437.3)
- **geologie**
- **geologický výzkum -- Česko**
- **ročenky**

55 – Vědy o Zemi. Geologické vědy

Published by © the Institute of Geology of the Academy of Sciences of the Czech Republic
Praha, **September** 2006
Printed by VÍTOŠ, Ltd.
Suchdolská 13, Praha 6
ISBN 80-903511-4-X. L.K
200 copies

1. Preface

In the year 2005, the Institute of Geology of the Czech Academy of Sciences continued to function in a traditional way that can be best described as „business as usual“. Its activities are reflected by the list of published papers presented in this volume. However, several important events took place. The first one was an organizational re-arrangement in the closely related Institute of Rock Structure and Mechanics, which finally resulted in the attachment of their whole research unit – Laboratory of Rock Mechanics seated at Puškinovo náměstí in Praha 6 – to the Institute of Geology at the beginning of 2006. Other changes were related to the preparation of the coming transformation of mainly academic research institutes into the so-called “public research centres”. The existing project of a new building of the Institute appeared to be too expensive, and new calculations and modifications of the project had to be performed. In spite of this, the outcome is still unclear. At least two scientific projects appeared to be generally exciting. First, Prof. Roček proposed an experiment in which anuran amphibians are sent into cosmic space, and the effect of zero gravity on the evolution of their skeletons is observed. The second project won a wide audience: a joint speleological expedition of the Institute and the Faculty of Science of Charles University to the salt karst region in Iran discovered a continuation of the Cave of Three Nudes, which has thus become the second longest salt cave in the world. As the longest one (until 2005) was located in Israel, the discovery of a long Iranian cave raised unexpected interest in the Islamic world, especially when a new expedition of 2006 seems to assure the first place in the world for the Iranian cave. Continuation of this exciting story will be given attention in the next Annual Report of the Institute. Other important results relate to the river activity in response to climate change, or various aspects of paleobiological and paleoecological evolution. The industrial projects included an evaluation of materials for kaolin production, and a geological expertise for the planned 35km tunnel between Prague and Beroun, traversing most stratigraphical units of the Prague Basin including deeply karstified Paleozoic limestones.

With best wishes

Václav Cílek, Director of the Institute of Geology

2. General Information

The Institute of Geology AS CR concentrates on the scientific study of the structure, composition and history of the Earth’s lithosphere and the evolution of its biosphere. Although the Institute does not have the opportunity to cover all geological disciplines (in the widest sense) or regionally balanced geological studies, the methods of its activity span a relatively broad spectrum of problems in geology, geochemistry, paleontology and paleomagnetism. The Institute takes part in the understanding of general rules governing evolutionary processes of the lithosphere and biosphere at regional as well as global scale; for this purpose, the Institute mostly employs acquisition and interpretation of relevant facts coming from the territory of the Czech Republic.

The Geological Institute of the Czechoslovak Academy of Sciences (ČSAV) was founded on July 1, 1961. Nevertheless its structure had developed in period of 1956 to 1960. During 1956 and 1957, several independent departments originated: Cabinet for Cartography, Laboratory of Paleontology, Laboratory of Engineering Geology, Laboratory for Pedology and Cabinet for Crystallography. In 1958, they merged, together with geographical departments, into Workplaces of Geological and Geographical Section of the ČSAV. On July 1, 1960, Institute of Geochemistry and Raw Materials of the ČSAV was established. This Institute covered technical and organization affairs of adjoined geological workplaces until their unification into Geological Institute of the ČSAV on July 1960.

On August 1, 1964 the Institute of Geochemistry and Raw Materials of the ČSAV was integrated into

the Geological Institute. On July 1, 1969 the Institute of Experimental Mineralogy and Geochemistry of the ČSAV was established. A part of the staff of the Geological Institute joined the new institute. On January 1, 1979 the Institute of Experimental Mineralogy and Geochemistry was integrated into the Geological Institute.

On March 1, 1979, the Geological Institute was united with the Mining Institute of the ČSAV under the Institute of Geology and Geotechnics of the ČSAV, and finally split from the latter on March 1, 1990 again. On January 1, 1993 the Academy of Sciences of the Czech Republic (AS CR) was established by the transformation from the ČSAV, and the Geological Institute became a part of the AS CR.

The Institute of Geology is a wide-spectrum institute developing essential geological, paleontological, petrological, mineralogical and other disciplines, lately accentuating environmental geology and geochemistry. The major research areas covered by the Institute are:

- Petrology and geochemistry of igneous and metamorphic rocks
- Lithostratigraphy of crystalline complexes
- Volcanology and volcanostratigraphy
- Structural geology and tectonics
- Paleogeography
- Terrane identification
- Taxonomy and phylogeny of fossil organisms
- Paleobiogeography of Variscan Europe
- Paleoecology (incl. population dynamics, bioevents)
- Paleoclimatology as evidenced by fossil organisms and communities
- Biostratigraphy and high-resolution stratigraphy
- Basin analysis and sequence stratigraphy
- Exogenic geochemistry
- Exogenic geology, geomorphology and (paleo)karstology
- Quaternary geology and landscape evolution
- Paleomagnetism
- Magnetostratigraphy
- Petromagnetism

Scientific laboratories

The research potential of the Institute is divided into 7 units:

1. Laboratory of Terrane Architecture and Lithosphere Evolution
2. Laboratory of Platform Evolution
3. Laboratory of Paleoebiology and Paleoecology
4. Laboratory of Environmental Geology
5. Laboratory of Environmental Geochemistry
6. Laboratory of Paleomagnetism
7. Laboratory of Physical Methods

Specialized laboratories

The following specialized laboratories have been set up:

1. Paleomagnetic laboratory (Head: Ing. Petr Pruner, DrSc.)
2. Micropaleontological laboratory (Heads: RNDr. Jiří Bek, CSc. and RNDr. Ladislav Slavík, CSc.)
3. X-ray and DTA/TG laboratory (Head: RNDr. Karel Melka, CSc. until February 2005, RNDr. Roman Skála, PhD. since March 2005)
4. Electron scanning and microprobe laboratory (Head: Ing. Anna Langrová)
5. Laboratory of rock processing and mineral separation (Head: Václav Sedláček)
6. Laboratory for thin and polished sections (Head: Ing. Anna Langrová)
7. Microscopic laboratory (Head: Mgr. Michal Filippi)
8. Sedimentary laboratory (Head: RNDr. Anna Žigová, CSc.)
9. Fission track laboratory (Head: Mgr. Jiří Filip, CSc.)
10. Laboratory of liquid and solid samples (Heads: RNDr. Jan Rohovec, PhD. and RNDr. Miloš Burian)

The scientific concept of the Institute of Geology and the evaluation of its results lie within the responsibility of the Scientific Council that includes both the internal and external members. Besides research, staff members of the Institute are involved in lecturing at universities and in the postgraduate education system. Special attention is also paid to popularization of the most important scientific results in the public media.

***

3. Connections

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Management

RNDr. Václav Cílek, CSc .	Director of the Institute
Prof. RNDr. Pavel Bosák, DrSc.	1st Deputy Director
Ing. Ottomar Gottstein, CSc.	Deputy Director (finances)
Doc. RNDr. Jindřich Hladil, DrSc.	Chairman of the Scientific Council

Administrative departments

Management Section

Jana Pořtová (assistant to the Director)

Information Centre and Library

Lenka Kulhavá – Head (librarian)
Mgr. Václava Škvorová (librarian)

Technical-Economic Section

Ing. Ottomar Gottstein, CSc. – Head until September 2005
Ing. Kamila Křemenová – Head since October 2005
Alena Sokolová – Deputy Head

Technical Department

Ing. Ottomar Gottstein, CSc. – Head
Lubomir Arandjelović (computer specialist)
Ing. Miroslav Fridrich (computer specialist)
Karel Jeřábek (garage attendant, driver)
Petr Vachalovský (technical service)
Tomáš Valter (computer specialist)

Economic Department
Alena Sokolová – Head (accountant, human resources)
Karel Jeřábek (storeman)
Jana Klímová (accountant)
Ing. Kamila Křemenová (chief accountant)
Božena Trenzeluková (phone operator, mail service)

Operation and Maintenance Department
Jiří Dobrovolný – Head (technician, X-ray, thermal analyses)
Antonín Čejka (technical service)
Magdaléna Čejková (janitor)
Karel Jeřábek (janitor)
Ivana Konopáčová (janitor)
Jaroslav Kratochvíl (technical service)
Martin Mráček (boiler operator)
Věra Plešáková (janitor)

Scientific laboratories

Laboratory of Terrane Architecture and Lithosphere Evolution

Scientific Staff:

Doc. RNDr. Jindřich Hladil, DrSc. – Head (basins in orogens, terranes, carbonate sediments)
Mgr. Martin Svojtka, PhD. – Deputy Head (petrology of deep crustal rocks, fission track methods, geochronology, geochemistry)
Ing. Jiří Fiala, CSc. (petrology and structure of lithosphere, western and northern Bohemian Massif)
Mgr. Jiří Janečka (structural geology, strain modelling)
Mgr. Leona Koptíková (sedimentary petrology, metasediments, magnetic susceptibility)
Mgr. Jiří Sláma (metamorphic petrology, isotope dating)
RNDr. Ladislav Slavík, CSc. (Silurian-Devonian stratigraphy, conodont biostratigraphy, sedimentary sequences, paleogeography)
RNDr. Petr Štorch, DrSc. (graptolite stratigraphy, stratigraphy in general, sedimentary sequences, paleogeography)
RNDr. Zdeněk Vejnar, DrSc. (lithospheric units, metamorphic overprint, regional geology of the Bohemian Massif)

Technical Staff:

Ing. Jaroslava Pavková (secretary, data processing and preparation of outputs)
Josef Forman (topography, geodetic maps, GPS)

Laboratory of Platform Evolution

Scientific Staff:

Doc. RNDr. Jaromír Ulrych, DrSc. – Head (igneous petrology, geochemistry)
Mgr. Jiří Adamovič, CSc. – Deputy Head (basin analysis, tectonics)
Mgr. Lukáš Ackerman (geochemistry, mantle mineralogy)
RNDr. Vladimír Cajz, CSc. (volcanology)

Mgr. Jiří Filip, CSc. (fission track dating)
RNDr. Miloš Lang, CSc. (igneous petrology, mineralogy)
Mgr. Karel Malý (petrology of hydrothermal processes)
prom. geol. Jiří Novák, CSc. (petrology)

Technical Staff:
Ing. Jaroslava Pavková (secretary, technician)
Jana Rajlichová (technician)
Václav Sedláček (technician)

Laboratory of Paleobiology and Paleoecology

Scientific Staff:
RNDr. Radek Mikuláš, CSc. – Head (ichnofossils)
RNDr. Marcela Svobodová, CSc. – Deputy Head (Cretaceous palynology)
RNDr. Jiří Bek, CSc. (Devonian and Carboniferous spores)
RNDr. Petr Čejchan, CSc. (paleoecology)
Mgr. Jiřina Dašková (Cenozoic palynology)
prom. geol. Arnošt Galle, CSc. (Devonian corals and paleogeography)
RNDr. Václav Houša, CSc. (Jurassic and Cretaceous stratigraphy, calpionellids and ammonoids)
RNDr. Magda Konzalová, CSc. (Proterozoic, Jurassic, Tertiary palynology)
Doc. RNDr. Zbyněk Roček, DrSc. (origin and evolution of the Amphibia, Tertiary Anura and Sauria)
RNDr. Miloš Siblík, CSc. (Mesozoic brachiopods)
RNDr. Milada Vavrdová, CSc. (Proterozoic, Paleozoic and Mesozoic palynology and plankton)
RNDr. Jaroslav Zajíc, CSc. (Carboniferous and Permian vertebrates and stratigraphy, acanthodians)
RNDr. Jiří Žítt, CSc. (Cretaceous and Tertiary paleoecology and sedimentology, echinoids and crinoids)

Technical Staff:
Ing. Bronislava Vávrová (secretary, technician)
Josef Brožek (photographer)
Michaela Uldrychová (technician)

Laboratory of Environmental Geology

Scientific Staff:
Mgr. Jaroslav Hlaváč – Head (Quaternary geology, malacozoology)
Mgr. Michal Filippi – Deputy Head (mineralogy, environmental geochemistry)
Prof. RNDr. Pavel Bosák, DrSc. (karstology, paleokarstology, basin analysis)
RNDr. Václav Cílek, CSc. (Quaternary geology)
Mgr. Eva Kadlecová (Cenozoic vertebrate paleontology)
Mgr. Lenka Lisá, PhD. (Quaternary sedimentology)
RNDr. Vojen Ložek, DrSc. (Quaternary geology, malacozoology)
RNDr. Eliška Růžičková (petrology, Quaternary geology)
Mgr. Zuzana Vařilová (geochemistry)
Mgr. Ondřej Zeman (hydrogeology)
RNDr. Karel Žák, CSc. (Quaternary geology, environmental geochemistry)
RNDr. Anna Žigová, CSc. (pedology, paleopedology)

Technical Staff:
Jana Macháčková (secretary, technician)
Miroslav Karlík (technician)

Laboratory of Environmental Geochemistry

Scientific Staff:
RNDr. Tomáš Navrátil, PhD. – Head (aquatic and environmental geochemistry)
RNDr. Jan Rohovec, PhD. – Deputy Head (analytical chemistry, ICP analyses)
Mgr. Petr Drahota (environmental geochemistry)
Ing. Ottomar Gottstein, CSc. (geochemistry of magmatic and metamorphic rocks)
RNDr. Maria Hojdová (environmental geochemistry)
Ing. Petra Kubínová (biogeochemistry)
Ing. Luděk Minařík, CSc. (geochemistry)
Doc. Ing. Petr Skřivan, CSc. (exogenic and environmental geochemistry)
Mgr. Jitka Špičková (environmental geochemistry)
Mgr. Marek Vach, PhD. (environmental geochemistry)

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Jana Macháčková (secretary, technician)
RNDr. Miloš Burian (chemical analyst)
Ing. Irena Dobešová (environmental monitoring)

Laboratory of Paleomagnetism

Scientific Staff:
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Mgr. Martin Chadima, PhD. – Deputy Head (geophysics, paleomagnetism)
RNDr. Jaroslav Kadlec, Dr. (Quaternary geology)
RNDr. Günter Kletetschka, PhD. (paleomagnetism, geophysics)
Mgr. Tomáš Kohout (physical properties of meteorites)
prom. fyz. Otakar Man, CSc. (geophysics)
Mgr. Petr Schnabl (geophysics)
Mgr. Stanislav Šlechta (geophysics)

Technical Staff:
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Jiří Petráček (technician)
RNDr. Daniela Venhodová (technician)

Laboratory of Physical Methods

Ing. Anna Langrová – Head (microprobe and scanning microscope analyst)
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Ing. Vlasta Böhmová, PhD. (microprobe and scanning microscope operator)
Jiří Dobrovolný (X-ray and thermal analyses)
RNDr. Roman Skála, PhD. (X-ray and thermal analyses)
Jaroslava Jabůrková (preparation of thin/polished sections)
Ivana Konopáčová (preparation of thin/polished sections)

Scientific Council

Doc. RNDr. Jindřich Hladil, DrSc. (Institute of Geology AS CR) – Head of the Council
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Mgr. Lenka Lisá, PhD. (Institute of Geology AS CR)
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RNDr. Vladimír Rudajev, DrSc. (Institute of Rock Structure and Mechanics AS CR)
RNDr. Lilian Švábenická, CSc. (Czech Geological Survey)
Doc. RNDr. Jaromír Ulrych, DrSc. (Institute of Geology AS CR)

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Prof. Petr Černý (Department of Earth Sciences, University of Manitoba, Winnipeg, Canada)
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Note: Czech scientific and pedagogical degrees are equivalents of:

Czech degree	**Equivalent**
prom.geol., prom. fyz., Mgr.	M.Sc.
RNDr., PhDr.	no equiv.
CSc.	PhD.
DrSc.	DSc
Doc.	Assoc. Prof.
Ing.	Dipl.-Ing.

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5. Staff News

January

Jan 1, 2005 Ing. Petra Kubínová joined the Institute

Jan 31, 2005 RNDr. Karel Melka, CSc. left the Institute

March

March 1, 2005 RNDr. Karel Žák, CSc. joined the Institute

March 1, 2005 RNDr. Roman Skála joined the Institute

April

Apr 1, 2005 Dr. Masaki Murakami joined the Institute

May

May 15, 2005 Miroslav Karlík left the Institute

July

July 31, 2005 RNDr. Helena Purkyňová left the Institute

October

Oct 1, 2005 Ing. Kamila Křemenová joined the Institute

December

Dec 31, 2005 Dr. Masaki Murakami left the Institute

***

6. Undergraduate and Graduate Education

Undergraduate and Graduate Courses at Universities given by Staff Members of the Institute of Geology AS CR:

Bosák P.: *Principles of Karstology and Paleokarstology*. Undergraduate and Graduate course, Faculty of Science, Charles University, Prague.

Cílek V.: *Landscape and memory*, Collegium Hieronymi Pragense, 4+0 course.

Cílek V.*: Roots of modern landscape*. Undergraduate and Graduate course (optional seminar), Academy of Fine Arts, Prague.

Cílek V.*: Summer Field School,* Simon Fraser University, Vancouver, Canada in cooperation with Faculty of Philosophy, Charles University, Prague.

Chvátalová A. & **Cajz V.**: *Geology for geographers.* Undergraduate Course, Faculty of Science, University of Jan Evangelista Purkyně, Ústí nad Labem.

Čížková V. & **Roček Z.**: *Systematics and Phylogeny of vertebrates.* Undergraduate Course, Faculty of Science, Charles University, Prague.

Dašková J.: *Micropalaeontology.* Undergraduate and Graduate (optional) Course, Faculty of Education, Charles University, Prague.

Kadlec J.: *Causes and consequences of the Quaternary climatic changes.* Undergraduate Course, Faculty of Science, Charles University, Prague.

Melichar R. & **Hladil J.**: *Carbonate sedimentology and diagenesis.* Undergraduate (optional) Course, Faculty of Science, Masaryk University, Brno.

Mikuláš R.: *Ichnology and ichnofabric of sedimentary rocks.* Undergraduate course and practice (optional), Faculty of Science, Charles University, Prague.

Musil R. & **Lisá L.**: *Methods of Quaternary research.* Undergraduate and Graduate (optional) Course, Faculty of Science, Masaryk University, Brno.

Musil R. & **Lisá L.**: *Loess of Euroasia.* Undergraduate and Graduate (optional) Course, Faculty of Science, Masaryk University, Brno.

Pruner P.: *Paleomagnetism in plate tectonics.* Undergraduate and Graduate Course, Faculty of Science, Charles University, Prague.

Roček Z.: *Comparative anatomy of vertebrates.* Undergraduate Course, Faculty of Science, Charles University, Prague.

Roček Z.: *Comparative anatomy of vertebrates.* Undergraduate and Graduate Course, Faculty of Science, Charles University, Prague.

Roček Z.: *Morphology of animals.* Undergraduate Course, Faculty of Science, Charles University, Prague.

Roček Z.: *Review of fossil vertebrates.* Undergraduate Course, Faculty of Science, Charles University, Prague.

Štorch P.: *Principles and methods of stratigraphy.* Undergraduate (optional) Course, Faculty of Science, Charles University, Prague.

Ulrych J.: *Systematic Mineralogy.* Graduate Course, Technological Faculty, Institute of Chemical Technology, Prague.

Vach M.: *Air Protection.* Undergraduate Course, Faculty of Forestry and Environment, Czech University of Agriculture, Prague.

Vach M.: *Environmental Chemistry.* Undergraduate Course, Faculty of Forestry and Environment, Czech University of Agriculture, Prague.

Žigová A.: *Geography of soils and protection of soil resources of the Czech Republic.* Undergraduate Course, Faculty of Science, Charles University, Prague.

Supervision in Undergraduate Studies

Bokr P. (MSc. thesis), Institute of Geology and Paleontology, Charles University, Prague (*co-supervisor **R. Mikuláš***)

Dobrý M. (MSc. thesis), Faculty of Science, Charles University, Prague (*supervisor **Adamovič J.***)

Doležalová L. (MSc. thesis), Faculty of Science, Charles University, Prague (*supervisor **Adamovič J.***)

Hlásková T. (MSc. thesis), Faculty of Science, Charles University, Prague (*supervisor **Lisá L.***)
Horváthová L. (MSc thesis), Faculty of Science, Charles University, Prague (*supervisor **Navrátil T.***)
Kučerová K. (MSc. thesis), Faculty of Science, Masaryk University, Brno (*supervisor **Hladil J.***)
Šulcová B. (MSc. thesis), Faculty of Science, Charles University, Prague (*supervisor **Ackerman L.***)

Supervision in Graduate Studies

Ackerman L. (PhD. thesis), Faculty of Science, Charles University, Prague (*supervisor **J. Ulrych***)
Čáp P. (PhD. thesis), Faculty of Science, Charles University, Prague (*supervisors J. Marek and **P. Štorch***)
Danko P. (PhD. thesis), Faculty of Science, Charles University, Prague (*supervisor **Z. Roček***)
Dašková J. (PhD. thesis), Faculty of Science, Charles University, Prague (*supervisor O. Fatka and **M. Konzalová**)*
Drábková J. (PhD. thesis), Charles University, Prague (*supervisor **J. Bek***)
Drahota P. (PhD. thesis), Faculty of Science, Charles University, Prague (*co-supervisor **P. Skřivan***)
Ekrt B. (PhD. thesis), Faculty of Science, Charles University, Prague (*supervisor O. Fejfar*, *co-supervisor **J. Zajíc***)
Geršl M. (PhD. thesis), Faculty of Science, Masaryk University, Brno (*supervisor **J. Hladil***)
Gilíková H. (PhD. thesis), Faculty of Science, Masaryk University, Brno (*supervisor **J. Hladil***)
Havelková P. (PhD. thesis), Faculty of Science, Charles University, Prague (*supervisor **Z. Roček***)
Hlaváč J. (PhD. thesis), Faculty of Science, Charles University, Prague (*co-supervisors **V. Ložek** and **V. Cílek***)
Hojdová M. (PhD. thesis), Faculty of Science, Charles University, Prague (*supervisor **T. Navrátil***)
Janečka J. (PhD. thesis), Faculty of Science, Masaryk University, Brno (*supervisor **J. Hladil***)
Koptíková L. (PhD. thesis), Faculty of Science, Charles University, Prague (*supervisor **J. Hladil***)
Kubínová P. (PhD. thesis), Faculty of Forestry and Environment, Czech University of Agriculture, Prague (*supervisor **P. Skřivan**, co-supervisor **M. Vach***)
Malý K. (PhD. thesis), Faculty of Science, Charles University, Prague (*co-supervisor **J. Adamovič***)
Piras S. (PhD. thesis), Dipartimento del Museo di Paleobiologia e dell Orto Botanico, Universita di Modena e Reggio Emilia (*supervisor E. Serpagli, co-supervisor **P. Štorch***)
Pokorný R. (PhD. thesis), Institute of Geology and Paleontology, Charles University, Prague *(supervisor **R. Mikuláš***)
Schnabl P. (PhD. thesis), Faculty of Science, Charles University, Prague (*supervisor **P. Pruner***)
Šlechta S. (PhD. thesis), Faculty of Science, Charles University, Prague (*co-supervisor **J. Kadlec***)
Špičková J. (PhD. thesis), Institute of Geology AS CR, Prague (*supervisor **P. Skřivan***)
Vacek F. (PhD. thesis), Faculty of Science, Charles University, Prague (*supervisor **P. Bosák***)
Vařilová Z. (PhD. thesis), Faculty of Science, Charles University, Prague (*supervisor **V. Cílek***)

Membership in scientific and academic boards

Prof. RNDr. Pavel Bosák, DrSc. – Vice-Chairman, Committee for degree of Doctor of Sciences (DSc.) in geological sciences at Academy of Sciences of the Czech Republic; Member, Committee for Interdisciplinary study of Quaternary at the Board of Graduate Studies in Geology, Faculty of Science, Masaryk University, Brno, Czech Republic; Member, Board of Graduate Studies in Geology, Faculty of Science, Charles University, Prague, Czech Republic; Supervisor for PhD studies, Faculty of Science, Masaryk University, Brno, Czech Republic; Member, Scientific Council of Faculty of Science, Masaryk University, Brno, Czech Republic; Member, Committee for State Doctoral Examinations for Interdisciplinary study of Quaternary at the Board of Graduate Studies in Geology, Faculty of Science, Masaryk University, Brno, Czech Republic, Member of the Academic Assembly of the Academy of Sciences of the Czech Republic.
RNDr. Václav Cílek, CSc. – Member of the Scientific Board, Faculty of Humanistic Studies, Charles University, Prague.
Doc. RNDr. Jindřich Hladil, DrSc. – Alternating Member of the Committee for Degree of Doctor of Sciences in Geological Sciences, Academy of Sciences CR; Member of the Board of Graduate Studies

in Geology, Faculty of Science, Charles University, Prague; Member of the Board of Graduate Studies in Geology, Faculty of Science, Masaryk University, Brno; Member of the Committee for Finals of Undergraduate Students in Geology, Faculty of Science, Masaryk University.
RNDr. Jaroslav Kadlec, Dr. – Member of the Board of the Graduate Studies in Geology, Faculty of Science, Charles University, Prague.
Ing. Petr Pruner, DrSc. – Member of the Board of the Graduate Studies in Geophysics, Faculty of Science, Charles University, Prague; Alternating member of the Commitee for degree of Doctor of Sciences (DSc.) in geological sciences.
Doc. RNDr. Zbyněk Roček, DrSc. – Member, Committee for degree of Doctor of Sciences (DSc.) in geological sciences at Academy of Sciences of the Czech Republic; Member, Committee for degree of Doctor of Sciences (DSc.) in zoology and physiology at Academy of Sciences of the Czech Republic.
Doc. Ing. Petr Skřivan, CSc. – Member of the Board of Graduate Studies in Applied and Landscape Ecology, Faculty of Forestry, Czech Agricultural University, Prague.
RNDr. Marcela Svobodová, CSc. – Member of the Grant Agency of Academy of Sciences, council No. 3 Earth and Space Sciences, Member of the Academic Assembly of the Academy of Sciences of the Czech Republic.
RNDr. Petr Štorch, DrSc. – Member of the Scientific council of the Geological Division, Faculty of Science, Charles University, Prague.
Doc. RNDr. Jaromír Ulrych, DrSc. – Member of the Board of Graduate and RNDr. Studies in Mineralogy and Geochemistry, Faculty of Science, Charles University, Prague.
RNDr. Karel Žák, CSc. – Member of Czech Science Foundation, Discipline Committee No. 205 "Earth and space sciences"; Member of the Work Group "Geology" of the Accreditation Commission of the Ministry of Education, Youth and Sports.
RNDr. Anna Žigová, CSc. – Member of the Board of Graduate Studies in Physical Geography, Charles University, Prague; Member of the Section of Soil Science of Scientific Council of Research Institute of Ameliorations and Soil Conservation, Prague.

Degrees obtained by the staff of the Institute of Geology AS CR

PhD.
RNDr. Roman Skála: *Shock metamorphism of calcite, dolomite and anhydrite in nature and experiments*. Department of Mineralogy, Geochemistry and Natural Resources, Faculty of Science, Charles University, Prague (November 2005)

7. Awards and Fellowships

Awards:

Prof. RNDr. Pavel Bosák, DrSc.: Corresponding Member of the Slovenian Academy of Sciences and Arts, IV. Class – natural sciences. Elected May 5, 2005.

RNDr. Vojen Ložek, DrSc.: Award of the Minister of the Environment of the Czech Republic 2005, and the Medal of Merit of the Faculty of Science, Charles University, Prague.

Fellowships:

RNDr. Jaroslav Kadlec, Dr.: NSF–NATO Post-doc Fellowship at Michigan Technological University, USA.
Mgr. Lenka Lisá, PhD.: Royal Society Research Fellowship, England.
RNDr. Ladislav Slavík, CSc.: Alexander von Humboldt Foundation, Germany: Research Fellowship.

8. Positions in International Organizations and Editorial Boards

Bek J.: General Secretary-Treasurer, International Federation of Palynological Societies, since 2005.
Bek J.: Councillor, Organization of Czech and Slovak palynologists, since 1994
Bosák P.: Vice-President and Treasurer, the International Union of Speleology (elected in 2005)
Bosák P.: Secretary General, the International Union of Speleology (1993-2005, elected in 1993, re-elected 1997, 2001, until August 2005)
Bosák P.: Member, the Commission on Paleokarst and Speleochronology, the International Speleological Union (since 1986)
Bosák P.: Member, the Commission for Physico-Chemistry and Hydrogeology of Karst, the International Speleological Union (since 1978)
Dašková J.: Member, Organization of Czech and Slovak palynologists, since 2002.
Drahota P.: Member, Society for Geology Applied to Mineral Deposits, since 2002.
Drahota P.: Vice-President, SGA Student Chapter Prague, since 2002.
Galle A.: Czech representative of the International Paleontological Association, since 1995.
Hladil J.: Vice-Chairman (1994-2004), Web Administrator, Czech National Committee for IGCP, since 1994.
Hladil J.: Corresponding Member, Subcommission on Devonian Stratigraphy of the IUGS, since 1993.
Houša V.: Member of International working group on the Jurassic/Cretaceous Boundary, IUGS International Stratigraphical Commission, since 1987.
Kadlec J.: Co-ordinator for the Czech Republic, IGBP - PAGES Project, since 1998.
Kadlec J.: INQUA – member of the Commission for terrestrial processes.
Mikuláš R.: Czech Representative, IGCP 471, Evolution of Western Gondwana during the Late Paleozoic, since 2003.
Mikuláš R.: Working Group of the Treatise on Invertebrate Paleontology, Part W, Trace Fossils, since 2001.
Ložek V.: Foreign Member, Polish Academy of Arts and Sciences, election approved by the Polish President in 1999.
Ložek V.: Member, Commission on Holocene, INQUA – Commission of Loess Studies, since 2003.
Mikuláš R.: Czech Representative, IGCP 471, Evolution of Western Gondwana during the Late Paleozoic, since 2003
Mikuláš R.: Working Group of the Treatise on Invertebrate Paleontology, Part W, Trace Fossils, since 2001
Roček Z.: Member of the Executive Committee, International Society of Vertebrate Morphology, since 2001.
Roček Z.: Member of the Executive Committee, World Congress of Herpetology, since 1994.
Roček Z.: Vice-president, Societas Europaea Herpetologica, elected in 1998.
Růžičková E.: Corresponding member of COGEOENVIRONMENT, since 1992 (Commission on Geol. Sciences for Environmental Planning), since 1992.
Růžičková E.: Member, the IGBP National Committee, since 1993.
Siblík M.: Corresponding Member, Subcommission of Triassic stratigraphy, since 1981.
Skála R.: Member, The Meteoritical Society, since 1992.
Skála R.: Member, European Crystallographic Association, Special Interest Group on Mineralogical Crystallography, since 1999.
Slavík L.: Corresponding Member, Subcommission on Devonian Stratigraphy of the IUGS, since 1999.
Štorch P.: Titular Member, Subcommission on Silurian Stratigraphy of the IUGS, since 2004.
Ulrych J.: Member, Permokarboner Kreis (Würzburg, FRG).
Žigová A.: Member, International Union of Soil Sciences, since 1995.
Žigová A.: Member, European Clay Groups Association, since 2000.
Zajíc J.: Member, Czech National Committee for International Geological Correlation Programmes (IGCP), since 2003.

Editorial Boards

Bosák P.: *Geologica Carpathica*, international journal of the Carpatho-Balkanian Association, published by Geological Institute, Slovak Academy of Sciences, Bratislava; Member of the Executive Committee, since 2005.
Bosák P.: *International Journal of Speleology*, international journal, published by Union Internationale de Spéléologie and Societá Speleologica Italiana, L'Aquilla, Italy; Member of Advisory Board, since 1994.
Bosák P.: *Acta Carsologica*, international journal, published by Slovenian Academy of Sciences and Arts, Ljubljana, Slovenia; Member of Advisory Board, since 2004.
Bosák P.: *Theoretical and Applied Karstology*, scientific journal published by Speleological Institute „Emil Rakoviţa", Bucuresti – Cluj, Romania; Member of editorial board, since 2000.
Bosák P.: *Kras i Speleologia*, scientific journal published by Silesian University, Sosnowiec, Poland; member of editorial board, since 2004.
Bosák P.: *Geologos*, scientific journal published by Faculty of Geology, Adam Mickiewicz University, Poznań, Poland; Member of editorial board, since 2000.
Bosák P.: *UIS Bulletin*, information bulletin of the International Union of Speleology, Praha, Czech Republic; Editor-in-Chief, since 1993)
Bosák P.: *Speleo* (Praha), society bulletin published by the Czech Speleological Society, Praha, Czech Republic; Member of editorial board, since 1990.
Bosák P.: *Český kras* (Beroun), regional journal published by the Museum of the Czech Karst in Beroun, Czech Republic; Co-editor, since 1976.
Bosák P.: *Annual report of the Institute of Geology*, Academy of Sciences of the Czech Republic, Co-editor, since 1998
Cajz V.: *Essentia*; member, since 2003.
Cílek V.: *Slovenský kras*, Liptovský Mikuláš, Slovakia; Member of Editorial Board, since 2000.
Hladil J.: *Geological Quarterly*, Warszaw, Poland; Consulting Editor, since 2004.
Hladil J.: *Geologica Carpathica*, Bratislava, Slovakia; Member of Editorial Board, since 2001.
Hlaváč J.: *Malacologica Bohemoslovaca* – electronical journal, Prague, Member of Editorial Board, since 2003, http://www.mollusca.sav.sk/index.html
Ložek V.: *Studia Quarternaria*, Krakow, Poland; Member of Editorial Board, since 1999.
Mikuláš R.: *Geolines*, Institute of Geology, AS CR, Member of Editorial Board, since 1998
Mikuláš R.: *GEO* – Czech Version, Prague, Member of Scientific/Editorial Board, since 2005
Pruner P.: *Acta Universitatis Carolinae, Geologica*; Member of Editorial Board, since 2000.
Pruner P.: *Geolines*; Member of Editorial Board, since 1997.
Roček Z.: *Biota* (Slovenia); member of the editorial board, since 2003.
Slavík L.: *Annual report of the Institute of Geology*, Academy of Sciences of the Czech Republic, Editor in Charge, since 1999
Svojtka M.: *Geolines*; Editor in chief, since 1996.
Svojtka M.: *Acta Universitatis Carolinae Geologica*; Member of editorial board, since 2001.
Štorch P.: *Geological Journal* (Liverpool, Manchester); Member, since 1993.
Štorch P.: *Newsletters on Stratigraphy* (Berlin, Stuttgart); Member, since 1999.
Štorch P.: *Journal of the Czech Geological Society* (Prague); Member, since 1998.
Štorch P.: *Geolines*; Member, since 1995.
Ulrych J.: *Academia*, Member of Editorial Board since 2004
Zajíc J.: *Bulletin of Geosciences* (Prague); Member of the Editorial Board, since 2001.

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9. List of Grants and Projects undertaken in the Institute of Geology

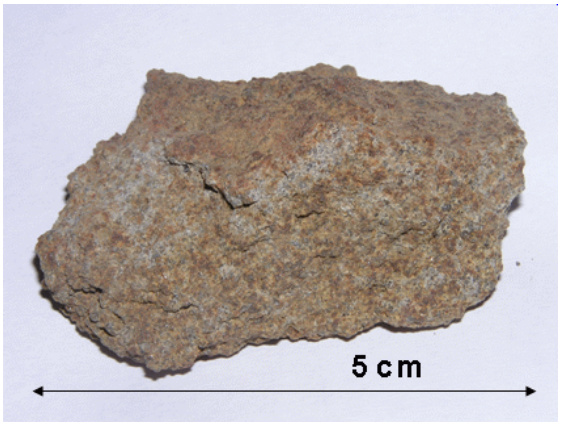
Foreign Grants and Joint Projects

Czech-Finnish Joint project: European meteorite research trip (***T. Kohout**; Institute of Geology AS CR, Prague and Department of Applied Geophysics of Charles University in Prague, Division of Geophysics, University of Helsinki, Finland, **P. Schnabl, S. Šlechta,** Tiiu Elbra, L. Pesonen, Division of Geophysics, University of Helsinki, Finland & M. Kobr, Department of Applied Geophysics of Charles University in Prague*)

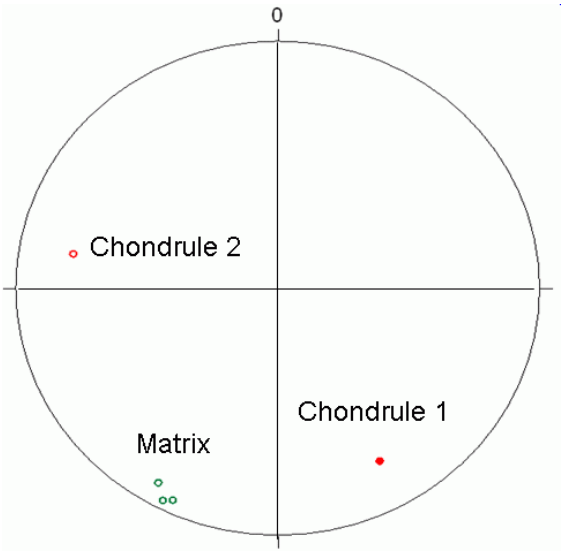
The aim of the European meteorite research trip was to perform measurement of bulk physical parameters (density, magnetic susceptibility, magnetic remanence, porosity) of meteorites in situ in the museum collections using harmless, non-destructive methods. The necessary instrumentation and methodology was prepared and tested in laboratory facilities of the Division of Geophysics in 2004 and first half of 2005. Finally, the mobile laboratory facility was prepared in order to perform the research trip. The research tour itself was conducted in October 2005. During the trip, the 6-member team visited 13 institutions in 8 countries and measured around 200 individual meteorite samples (figure 1). The results of the project will be used to enhance the existing database of physical properties of meteorites. The petrophysical parameters obtained on meteorites can be applied in rapid and harmless classification of meteorites, early Solar System history studies, data interpretation of planetary and asteroid space missions, in the future sample-return research and in asteroid mitigation efforts.

Czech-Finnish Joint project: Characterization of physical properties of selected meteorites (***T. Kohout,** Institute of Geology, AS CR, Prague and Department of Applied Geophysics of Charles University in Prague, Division of Geophysics, University of Helsinki, Finland, **G. Kletetschka**, Institute of Geology, ASCR, Prague and Laboratory for Extraterrestrial Physics, NASA Goddard Space Flight Center, L. Pesonen, Division of Geophysics, University of Helsinki, Finland, & M. Kobr, Department of Applied Geophysics of Charles University in Prague*)

The detailed laboratory studies of meteorite physical properties focused on three meteorites in 2005. The Neuschwanstein EL-6 chondritic meteorite was subject to magnetic paleofield studies in order to determine the conditions in the Solar System history and to evaluate the sensitivity of the magnetic record to artificial magnetic contamination during meteorite handling. The results indicate that the meteorite was exposed to strong magnetic fields in its history and the significant artificial magnetic contamination cannot be ruled out due to soft magnetic nature of the EL meteorites.



The Avanhandava H4 chondrite fragment was subject to extensive studies (T. Kohout).



Stereo-plot projection of magnetic directions for matrix and individual chondrules of Avanhandava H4 chondrite. The plot reveals the uniformly magnetized matrix and randomly magnetized chondrules (T. Kohout).

On the other hand, chondrules extracted from Bjurbole L4 (in cooperation with Laboratory for Extraterrestrial Physics, NASA Goddard Space Flight Center) and Avanhandava H4 (figure 2) chondrites represent promising material with relatively hard magnetic nature and no evidence of artificial magnetic contamination. Both meteorites are outstanding in their porosities (~15–25 %) among other meteorites of the same class. The friable nature of these meteorites allows separation of individual chondrules (fig). The magnetic conglomerate test applied to the chondrules showed random orientation of magnetization direction of individual chondrules. The magnetic paleofield estimation revealed significant paleofields (~20 μT) during the meteorite formation period. The research group will continue in these studies in 2006.

EU – INTAS Program, No. 03-51-4152: Subproject Speleothems and other cave sediments from Siberia: an archive from the boreal climate zone with the potential for climate reconstruction on an annual to decadal basis (SPELEOARCH). (*H. Oberhaensli, GFZ Potsdam, Leader of the Project,* ***J. Kadlec & L. Lisá***)

The cave sediments exposed in the Dolganskaya Yama Cave system, Central Siberia, Russian Federation, were studied in order to determine the source of the sedimentary material and the mode of its transportation into the cave system. Such information can be interpreted in terms of governing paleoclimatic conditions in this particular area of Central Siberia. Sedimentary conditions in the Dolganskaya Yama and Delfin Caves have been significantly influenced by climatic changes. These changes are evidenced by the apparent existence of a deep permafrost during some earlier climatic phase and by increased rainfall, probably sometime at the end of the Pleistocene or beginning of the Holocene.

NSF-NATO Post-doc Fellowship, No. NGE-0411426: Subproject Climatic and human impacts on the intensity and frequency of Late Holocene flood events – case study of the Morava River flood deposits (Czech Republic). (*Leader of Project J.F. Diehl, MichiganTech University &* ***J. Kadlec***)

The thickness of the flood deposits exposed in the erosion banks of the Morava River ranges between 400 and 600 cm. Three vertical sections located at distances ca. 5 km downstream from one another were sampled. At each section, triplicate samples were collected at each stratigraphic level using plastic boxes (6.7 cm^3) with a vertical separation of less than 0.5 cm between sampling horizons for a

total of 1806 samples. The increase in χ, NRM, ARM, SIRM in the uppermost 200 cm of each section is probably the consequence of more intense erosion, which was triggered by colonization in the Central Europe connected with extensive deforestation started in the 12th century. This is documented by a higher concentration of charcoal (age A.D. 990–1160 with 95.4% probability) positioned approximately 220 cm below the top of the flood sequences. The sedimentation rate has dramatically increased to 220 cm.ka^{-1} since then.

Czech – Polish Joint Programme. Agreement of scientific co-operation between Czech and Polish Academies of Sciences. Programme No 14: Correlation of the fossil floras of the Czech and Polish Republics. Investigation of differences in development of fossil vegetation pattern in Poland and Czech Republic (***M. Konzalová*** *& E. Zastawniak, Institute of Geology, PAS*)

The research concentrated on the woody plants of the Caucasian–Iranian provenance in Poland and the Czech Republic. Taxa restricted to Asia and some of the extinct taxa showed appropriate elements for correlation. Among them, *Pterocarya* (Juglandaceae, *Juglandeae*) displayed a very similar distribution (often in frequency) in both territories, namely in the Zytawa and Hrádek n. N. area (Lower Miocene), whereas *Engelhardia* (Juglandaceae, *Engelhardieae*), the evergreen forest element, showed relatively lower frequency in Poland, higher in Bohemia. Differences were recognized also in the distribution of *Platycarya (*Juglandaceae*, Platycaryeae)*. North-West Bohemian basins display more records of *Platycarya* (and related taxa of *Platycaryeae,* probably extinct) in their spectra than it could be traced in the Polish southern and central basinal deposits. This points to some differences in temperature and paleoclimatic conditions in the Polish territory during the Lower Miocene, expressed mainly in the Upper Miocene. In contrast to the paleotropical Juglandaceae, quercoid representatives, particularly *Quercoipollenites henrici* (R. Pot.) R. Pot., demonstrate a fitting example of corresponding distribution and analogous proportions in general pollen spectra within their extensive records. The pollen of probably evergreen oaks were widely distributed in the Miocene basins in Bohemia as well as in Poland and other Central European territories, wherefrom they have been known since the last century (R. Potonié 1931, the Rhine Basin). They are accompanied by *Quercus* macroremains at many localities. On the contrary, the recorded macroremains of *Cyclocarya* (Juglandaceae) are not evidenced by pollen either in Poland or in Bohemia. As for other elements, both territories display representatives of special ferns and angiosperm woody plants (lianas) in common, e.g., *Lygodium* (Schizaeaceae), *Pteris* (Pteridaceae), *Neogenisporis* (Gleicheniaceae), *Calamus* (Calamoideae), *Parthenocissus* (Vitaceae) and many others. Saxifragaceae, pollen assigned to *Itea,* are more widely distributed in the Polish Lowland than in the Bohemian Basins, where they are extremely rare. The present research was based predominantly on the comparative morphology of fossil and modern plants, spores, pollen, leaves, fruits, seeds and their distributions in fossil assemblages in the Czech and Polish Neogene (central and southern Poland).

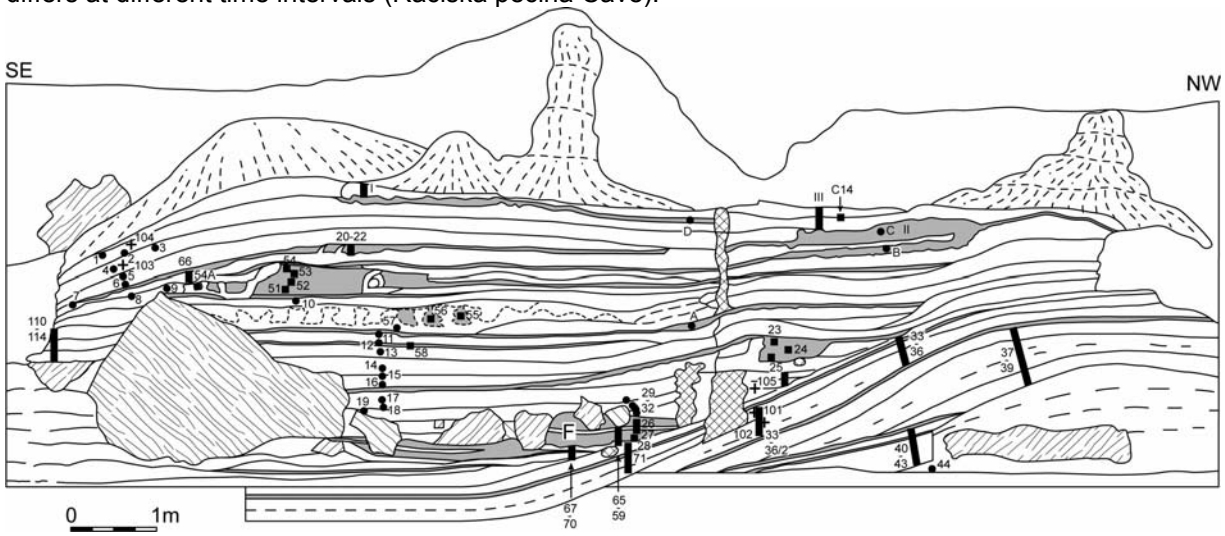
IGCP Project 471 Evolution of Western Gondwana during the Late Paleozoic (*Project leaders C.O. Limarino, L.A. Buatois (INSUGEO, Argentina)*

Subproject: The Culm Facies of the northern Moravia, Czech Republic: Environmental and paleogeographic constraints (***R. Mikuláš****, J. Zapletal, O. Bábek & T. Lehotský, Faculty of Science, Palacký University, Olomouc)*

The study of trace fossils from the eastern part of the Culm facies (Viséan) in Moravia (Czech Republic) showed more diversified assemblages in the northeastern part of the basin, compared to the southwestern part. Although the general characteristics in terms of classical “Seialcherian” Ichnofacies are the same (combined Cruziana – Nereites ichnoassemblages), the density of colonization windows and overall diversity of ichnoassemblages tend to increase to the northeast. The same trend can be observed from the older sequences (Moravice Fm.) to the younger ones (Hradec-Kyjovice Fm.). The ichnosaaemblages generally support the idea of a relatively rapid shift of the maximum sedimentary rates in the basin to the northwest, and of the lowering of sedimentary rates in the uppermost Viséan and Namurian.

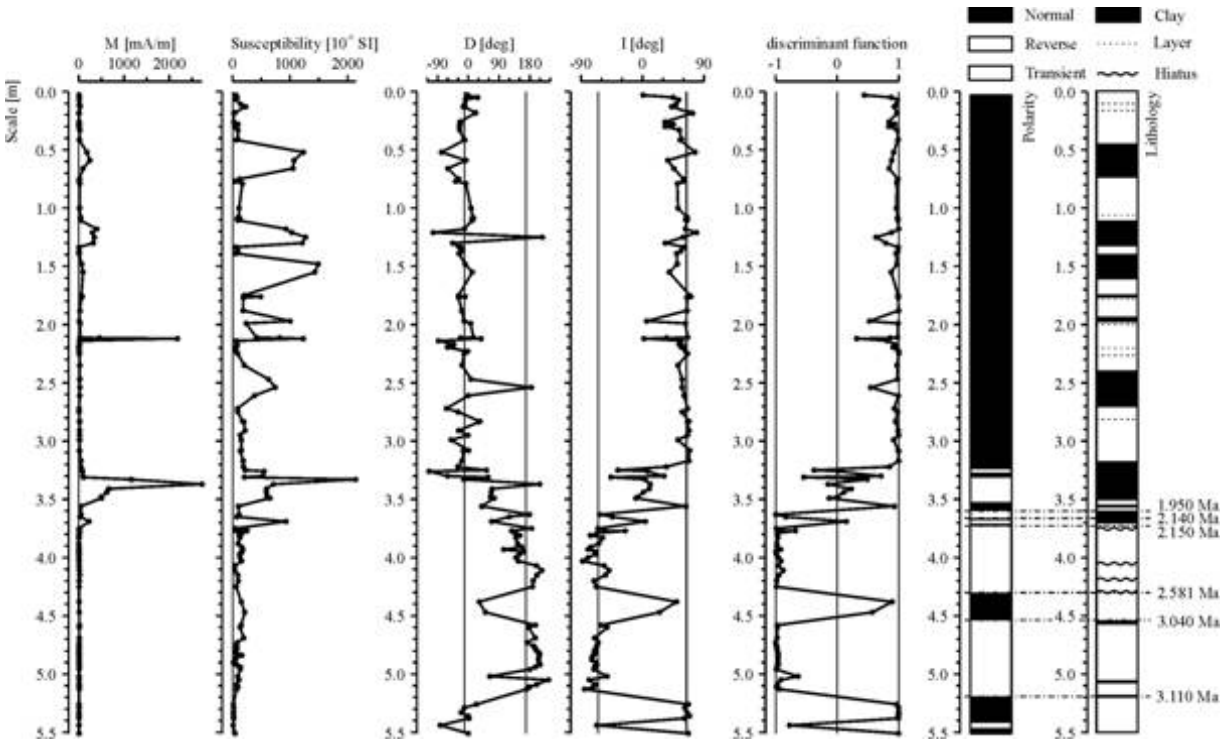
Czech-Slovenian Joint Programme "KONTAKT" Ministry of Education, Youth and Sports CR
No. 13/2005-06: Paleomagnetic studies of sediment in karst areas of Slovenia: implications for paleotectonic reconstruction. (***P. Pruner, P. Bosák, P. Schnabl****, N. Zupan Hajna & A. Mihevc, Karst Research Institute, SAZU, Postojna, Slovenia*)

The obtained data clearly indicate that a combination of paleomagnetic and other dating methods (direct and/or indirect) offers a basis for the interpretation of speleogenesis and geomorphological evolution of broader areas in Slovenia (Classical Karst). It was proved that the last filling event in most studied caves is much older than expected earlier: e.g., fills older than 3 Ma were detected in Slovenia – Račiška pečina Cave, in spite of the models of Gospodarić, who expected only Middle Pleistocene age of such infills. Based on paleomagnetic results, it was proved that the geomorphic evolution of the Classical Karst (Slovenia) is not connected with fluviokarstic model, but that rest of fluvial deposits represent cave sediments open to the surface by chemical denudation forming the so-called unroofed caves sensu Mihevc. Some paleomagnetic parameters (inclination, declination) showed that, since the deposition of karst sediments, the respective tectonic block has rotated (Slovenia) and that the rotation differs at different time intervals (Raciska pečina Cave).



Račiška pečina Cave is situated in the SE part of the Matarsko podolje, SW Slovenia.

The studied section is about 13 m long. The composite thickness of the sampled profile is 527 cm, nevertheless, the real uncovered thickness is only about 1.80 m. The section is vertically composed of three principal parts. The lower part, 152 cm thick, is built of 3 sequences, representing the growth stages of a huge vaulted stalagmite (sequences I to III). They consist of massive but porous speleothems with interbeds of red clays (1–2 cm) and two angular unconformities. At the top of sequences II and III, broken rests of stalagmites are preserved. The second part (sequence IV; 3.75 m) consists of subhorizontally laminated, mostly porous flowstones intercalated by flowstone with gours, red clays and calcitized silts. Collapsed roof blocks cover clays with finds of fauna (F). The top part is built of huge stalagmites, which were not studied.



Results of paleomagnetic and magnetostratigraphic investigation. M – natural remanent magnetization; magnetic susceptibility; D – declination, I – inclination of characteristic paleomagnetic component.

The obtained data have high-resolution character with distance of samples in centimetres. Most of sequence IV shows normal-polarized magnetization. A boundary with a reverse-polarized magnetozone lies inside the clay layer with fauna (F). Reverse polarity prevails to the profile bottom. Three normal-polarized zones were detected within the reverse-polarized one.

International project supported by the Alexander von Humboldt Foundation. Late Silurian and earliest Devonian Conodont faunas – taxonomy and biostratigraphy (***L. Slavík***, *P. Carls, Institut für Umweltgeologie, TU Braunschweig, Germany & J.I. Valenzuela-Ríos, Departamento de Geología, Universitat de València, Spain*)

Several errors were implied into the conodont biostratigraphy around the Silurian/Devonian boundary. Global applications of the zonal concepts concerning the so-called standard conodont zones are questioned. The late Silurian development of spathognathodontan conodont taxa requires a more detailed taxonomic subdivision than has been practised until now. Biostratigraphic controls must not rely on conodonts only, not condidering other evidence.

Detailed correlation of conodont faunas from the Barrandian, Frankenwald and Baltic regions revealed several important points: (1) In the Baltic regions and in the Požáry section, the entry of *Delotaxis* "*detorta*" plexus is closely associated to *Zieglerodina? ivochlupaci* n. sp. A corresponding zone is not recommended. (2) *Zieglerodina? zellmeri* n. sp. closely marks the Ludlow/Přídolí boundary in the Baltic and at Požáry section. (3) *Zieglerodina? klonkensis* n. sp. is erected for a taxon found by Jeppsson (1988, 1989) and considered an off-shore variant of the (actually younger) *Zieglerodina remscheidensis*.

Reference to the conodont zonation aiming at global correlation and control of geological features in the late Silurian and near the Silurian/Devonian boundary requires thorough taxonomic revisions in order to avoid the continuation of the confusion that has dominated in the last three decades.

Ministry of Education Youth and Sports, Project KONTAKT No. 2004/28
Subproject: The Gosau Group between the Wolfgangesee and Traunsee. (*Leader of Project: L. Hradecká, Czech Geological Survey, Prague, H. Lobitzer, Geologische Bundesanstalt, Wien &* ***M. Svobodová***)

The first occurrence of angiosperm pollen *Trudopollis* sp. together with nannofossil species *Eiffellithus eximius* and *Lucianorhabdus maleformis* (nannofossil zone UC8, Burnett 1998) confirmed the Middle Turonian age for the transgression of the Lower Gosau Group in the eastern part of Traunsee). Grey siltstone of the locality Schwarzenbach/Tiefengraben near St. Wolfgang provided only palynomorphs and macroflora, most probably of the Coniacian age. Rare microforaminifers, acritarchs and green and red algae document slight marine influence. No calcareous nannofossils were recorded.

Czech-French Joint programme KONTAKT (Ministry of Education, Youth and Sports), Project BARRANDE No. 2003-2004-014-2: Volcanic, sedimentary and fossil record of the Barrandian area and its bearing on recognition of principal events in evolution of the Lower Paleozoic extensional basins of the Variscan Europe (*Ch. Pin, J.L. Paquette, Université de Blaise Pascal, Clermont-Ferrand;* ***P. Štorch*** *& V. Kachlík, Faculty of Science, Charles University, Prague*)

Following the geochemical studies on well biostratigraphically dated Cambrian and Ordovician-Middle Devonian siliciclastics of the Barrandian area (published by Patočka and Štorch in 2004), isotopic $^{147}Sm/^{144}Nd$ and $^{143}Nd/^{144}Nd$ data were obtained from nine characteristic Ordovician and Silurian basaltic volcanics (Ch. Pin and P. Štorch, in prep.). Other manuscript under preparation (Pin, Kachlík, Musil and Waldhauserová) deals with petrology, geochemistry and isotopic characters of the upper Cambrian volcanic Křivoklát-Rokycany Complex.
Dramatic sedimentary and faunal changes across the Ordovician/Silurian boundary interval have been studied in Montagne Noire (in collaboration with R. Feist). Large boudins of black graptolitic shales of the earliest Silurian age, almost free of folding and any cleavage, were discovered near the village of Gabian in the eastern part of Montagne Noire. Rich and well preserved graptolite assemblage of the basal Silurian *Parakidograptus acuminatus* Biozone (14 species) was found in Gabian 1 Section, graptolite fauna of the succeeding *Cystograptus vesiculosus* Biozone (16 species) was revealed at Gabian 2 Section.
The *acuminatus* Zone assemblage corresponds well with coeval graptolite faunas in other parts of the peri-Gondwanan Europe (including Barrandian) whereas the *vesiculosus* Zone assemblage exhibits links to supposedly mesopelagic, and/or warm-water, faunas of SW Avalonia and Baltoscandinavia - the presence of *Paraclimacograptus innotatus* (Nicholson), *Rhaphidograptus extenuatus* (Elles and Wood), *Dimorphograptus* cf. *decussatus* Elles and Wood (n.sp.), *Dimorphograptus elongatus* Lapworth, *Dimorphograptus erectus* Elles and Wood, „*Monoclimacis*“ cf. *galeritus* Melchin and Koren and *Huttagraptus* n.sp., sp. 1 *sensu* Koren and Bjerreskov. Deep-water graptolitic shale of the earliest Silurian unconformably overlies mid-Ashgillian limestones related to the Bodo Event. Hirnantian rocks are missing in Montagne Noire, either primarily or due to tectonic displacement.

Project of the University of Málaga (2004-2007), Ministerio de Educación y Cultura del Reinado Espaňol BTE 2000-1150: Factors controlling low-grade metamorphic reactions in natural paragenesis (transition between the Maláguide and Alpujárride Complexes) and in experiments between 200 °C and 450 °C

Subproject: Metamorphic evolution of Triassic rocks from the transition zone between the Maláguide and Alpujárride complexes (Betic Cordilleras, southern Spain) (*M.D. Ruiz Cruz, Universidades de Málaga y Granada &* ***J.K. Novák***)

Two sections in the Sierra Arana Mts., at Diezma and El Mollinillo northeast of Granada, representing a transitional zone between separate depositional basins (now juxtaposited nappes) of the Maláguide and of the Alpujárride, show a gradual change from burial diagenesis to low-grade metamorphism. This

sector originated during the thrusting of the Maláguide over the Alpujárride complexes and must have started to be the site of crustal extension and rifting.
The diagenetic zone characteristic of the upper slices (constrained by illite crystallinity and by the presence of dickite) is more widely distributed in the Molinillo section than that in the Diezma one. A dickite-bearing assemblage originated in conglomerate and sandstone matrices is replaced by sudoite and pyrophyllite assemblages. “Alpujárride-type” samples from the deepest-thrust slices consist of the so-called blue phyllite with well developed slaty cleavage, blue-to-white schist, calcareous schists, and marbles. Trioctahedral chlorite-rich assemblages are characteristic of most of the blue phyllites, whereas paragonite coexisting with K-mica is restricted to the blue-purle phyllites only. Sudoite appears partially replaced by white mica (phengite and muscovite), pyrophyllite and finally by paragonite. Occasional growth of chloritoid does appear to be partly controlled by the alumina concentration in the rocks.

Czech Science Foundation

No. 205/05/0105 Peat swamp ecosystems of the Radnice Member (Westphalian) from Late Paleozoic basins of the central and western Bohemia (*S. Opluštil, Faculty of Science, Prague, **J. Bek, J. Dašková**, J. Pšenička, West Bohemian Museum, Plzeň, M. Libertín, National Museum, Prague, J. Drábková & Z. Šimůnek, Czech Geological Survey, Prague*)

Coal-bearing strata of the Radnice Member represent fills of incised or tectonically formed river valleys. They were deposited during a short interval approximately coinciding with the Lower Bolsovian. Besides local tectonics, compaction and pre-sedimentary paleotopography, the deposition was controlled by regional tectonic subsidence described in terms of base-level changes. It was responsible for the formation of basin-wide isochronous horizons (Radnice Group of Seams and its equivalent) and changing facies pattern. Periods of significant base-level rise are marked by the development of extensive peat bogs occasionally grading upward into lakes during the maximum base-level rise. The most important base-level fall led to a short-term hiatus and varying depth of erosion of previously deposited sediments. The resulting erosional surface with significant relief of max. 20 m divides the Radnice Member into two units corresponding to its formal subdivision into the Lower and Upper Radnice members. Lower unit (Lower Radnice Member) is marked by the upward transition from colluvial and fluvial deposition at or near the base to peat deposition (Radnice Group of Seams) terminated by lacustrine transgression, reflecting the period of maximum base-level rise. Filling of the lake was followed by a short-term hiatus and varying depth of erosion of previously deposited lacustrine sediments and coal due to a rapid base-level fall. The upper unit (Upper Radnice Member) is characterized by base-level fluctuations, which resulted in predominance of coarse-grained clastics while flood-plain deposits are poorly developed (?preserved). The periods of maximum base-level rise are marked by the presence of overbank deposits locally passing into coal seams of the Lubná Group. Extractable coal seams are developed only in minor depressions with low rates of clastic input due to paleotopography configuration (so-called ”sedimentary shadows”). The proposed scheme is valid for incised valleys of the SE part of the Kladno–Rakovník Basin where the regional tectonic subsidence was the main mechanism controlling the deposition of this unit. Its validity in valleys with similar tectonic setting outside the study area has to be proved yet. However, this model is not applicable to the NNE-trending grabens driven by local tectonics, which occur in the axial part of the Plzeň Basin and Rakovník part of the Kladno–Rakovník Basin.

The studied coal seams were formed in rheotrophic mires with open water table or with water table corresponding to the peat surface and with high to limited clastic input. Due to permanently favourable edaphic conditions in mires (medium to high-ash coals), the vegetation changes (documented by changes in dispersed spore assemblages or petrographic composition) are mainly related to base-level changes induced by water-table fluctuations. Only minor changes in vegetational composition are related to the ash-fall event. They are characterized by an alternation of the assemblage dominated by arborescent lycophytes (genera *Lepidodendron* and *Lepidofloyos*) with the assemblage of sub-arborescent lycophyte plants of the genus *Omphalophloios*. The absence of ombrotrophic mires may have been related to seasonally drier climate within the Variscan hinterland. Dispersed spores are divided into few groups according to their parent plants. The number of parent plants species is estimated. The reconstruction of paleaoecological conditions is supported by the diagram of relative abundances of miospores of the *Densosporites* type and the genus *Lycospora.*

Coal-forming flora cannot normally be directly studied from the coal due to intensive decomposition and diagenetic processes, which transformed original plant tissues into coal matter. Except for dispersed spore spectra analysis, the only direct insight is possible only where early diagenetic permineralized peat concretions (coal balls) occur. An alternative method, which provides high-quality data on the structure and composition of plant assemblages, is the study of plant remains (mostly compressions, locally petrifactions) buried *in situ* by volcanic ash-fall.

No. 205/03/1124 Biochronology and taxonomy of the Middle Devonian polycystine Radiolaria of the Barrandian (***P. Čejchan***)

Three-dimensionally preserved radiolarians were extracted from different rock types (limestones, cherts, shales) of the Choteč Fm. (Eifelian) of the Prague Basin, Barrandian, Czech Republic, using standard techniques for conodonts, and the technique of Newport & Pessagno (1972). The biota was originally observed in thin sections by Fabian (1935), Petránek (1946), Prantl (1940), Čejchan (1987), and Braun & Budil (1999). The radiolarian biotas belong to conodont zones *Polygnathus costatus partitus*, *Tortodus kockelianus australis*, and *Tortodus kockelianus kockelianus*. Ascertained radiolarians belong to taxa *Entactiniidae*, *Astroentactiniidae*, *?Spongentactiniidae* and *Ceratoikiscidae*. Several species are new. Several intervals of biota diversity depletion were ascertained within the Choteč Fm., not correlated with visible changes in lithology/bathymetry. At the very top of the *T. kockelianus kockelianus* Zone, at the base of the 'Kačák Crisis interval', a significant radiolarian biota turnover was observed: ceratoikiscids, incl. holoeciscids are becoming extinct, the biota is depleted to a few species, new to the area. The biota of the Choteč Fm. is compared to that of coeval limestone olistoliths of the locality Tamworth-Hospital Quarry, NSW, Australia (Hinde 1899). The age of this biota was misinterpreted as Late Devonian by Aitchison (1998), who interpreted the olistoliths as contemporaneous limestone lenses within Late Devonian Yarramie Fm.

205/04/0151 Trace fossils and ichnofabrics of the Ordovician depositional sequences of St Petersburg Region (Russia) (***R. Mikuláš, J. Žítt & J. Hladil***)

The “bed-by-bed” characteristics of the ichnofabric of the Early/Middle Ordovician at the Tosna and Sablinka rivers (S of St Petersburg) was compared to the analogous data from the Putilovo site which is located 70 km E from the previous locality. The comparison shows that lateral changes of ichnofabrics in the basin are very slow to negligible; if they occur, they are quite specific for each bed and do not show any long-time development or environmental trend in the basin.

205/05/0917 Upper Cretaceous oceanic red beds in the Czech part of the Outer Western Carpathians; biostratigraphy, sedimentology and geochemistry (*P. Skupien, Z. Vašíček, D. Matýsek, Technical university Ostrava, L. Švábenická, M. Bubík, Czech Geological Survey, Prague &* ***R. Mikuláš***)

The sequence of Upper Cretaceous strata containing a large portion of red beds at Bystrá site shows relatively diversified ichnofabrics. Dark hemipelagic to pelagic claystones to siltstones are present in several horizons. These are completely bioturbated at/below distinctive colonization windows, and show two well-preserved tiers of burrows. Reddish claystones show only sporadic (several metres distant) and low-density colonization windows (*Chondrites*, and rarely also *Planolites-Chondrites* succession). Coarse-grained flysch facies are attributable to “Seilacherian” Cruziana and Nereites Ichnofacies.

No. 205/05/2593 Chemical composition of moldavites from the Cheb Basin and their relationship to other tektites of the Central European strewn field (***R. Skála***)

A private collection of M. Čada containing over 250 individual moldavite samples from the Cheb Basin was used to characterize local moldavite finds in terms of their weight, shape, sculpture and colour. Considering an estimated number of moldavites found in this region, this collection is a statistically representative data subset.
A set of 24 moldavites from the Cheb Basin and additional 12 moldavites representing localities in southern Bohemia and western Moravia were gathered for analytical purposes. All these collected moldavites were analysed for major elements using a microprobe (defocused beam) and for minor and trace elements with a LA-ICP mass spectrometer. The data acquired for moldavites from the Cheb Basin resemble those given earlier for moldavites from other parts of the Central European tektite

strewnfield (and also currently measured for reference samples), particularly they are similar to composition of south Bohemian moldavites.
Results summarizing the basic characteristics of the Cheb moldavites were presented at the 68th Annual Meeting of the Meteoritical Society (September, Gatlinburg, TN, USA). Abstract of the talk was published in the journal Meteoritics and Planetary Science, Vol. 40.

205/03/1123 Brachiopods of the Northern Calcareous Alps in the fossil record at the Triassic/Jurassic boundary (***M. Siblík***)

Final samplings at the Triassic/Jurassic sections were made in the Schlossgraben in the vicinity of Hinterriss (Tirol). The first find of *Oxycolpella oxycolpos* was made in the Kössen Beds. This species is characteristic of the uppermost levels of the Kössen Beds. Together with this big oxycolpellid, the specimens of *„Rhynchonella“ subrimosa* (Schafh.) and *Zugmayerella* sp. were ascertained. The nearby basal levels of the Hettangian clastic carbonates contain the *Lobothyris* fauna only.
The Lower Hettangian ochre- and yellow-coloured nodular limestones at the classical locality of Fonsjoch (Karwendl Mts.) contain big ammonites but only very rare brachiopod fauna of *Calcirhynchia* sp. The below lying Kössen Formation yielded numerous specimens of brachiopods. The micritic limestone beds contain prevailingly *Oxycolpella oxycolpos* (Suess) and *„Rhynchonella“ subrimosa* (Schafh.), the marly intercalations delivered frequent *Fissirhynchia fissicostata* (Suess) and rare *“Rhynchonella” subrimosa* (Schafh.).
New brachiopod localities were ascertained in the area of Grimming Mt. (Styria). The lowermost Liassic is represented by siliceous sandstones and siliceous limestones with abundant brachiopods. The most common among them are smooth terebratulids and small ribbed rhynchonellids (*Calcirhynchia* Buck.?). The occurrence of the Lower Liassic brachiopods in similar siliceous facies is quite uncommon. This brachiopod fauna will be studied in detail later.

No. 205/04/0060 Inorganic pollutants in selected types of precipitation and their impact on natural biogeochemical cycles in a model catchment (***M. Vach,*** *contributions* ***T. Navrátil, P. Skřivan, M. Burian & J. Špičková***)

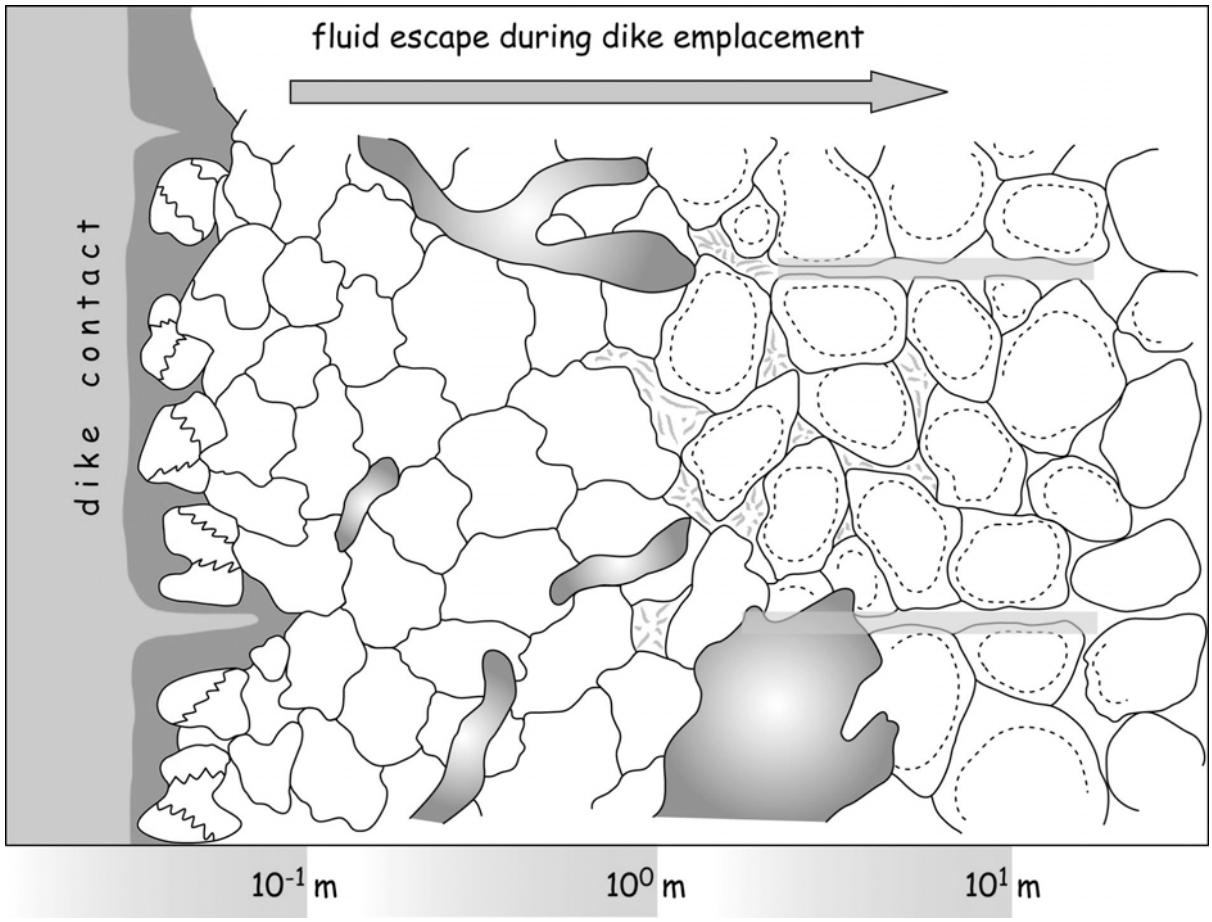
A systematic collection of wet-only samples has been running since 2004 in the area of the Voděradské bučiny beech stands. Since 2005, the sampling devices have been supplied with the collector of deposited precipitation (the fog sampler). The “wet only” sampling runs parallel with the sampling of deposited precipitation at the localities of Milešovka and Kopisty in NW Bohemia.
Chemical compositions of precipitation events are statistically evaluated in connection with meteorological data available for specific times these events. The most significant parameter is the trajectory of possible transport of contaminants. The trajectories are derived from meteorological satellite data by HYPSLIT (HYbrid Single-Particle Lagrangian Integrated Trajectory) model calculations
(http://www.arl.noaa.gov/ready/hysplit4.html).
A systematic collection of the precipitation bulk samples on an open place and below tree canopies (throughfall) at the above mentioned localities is also a part of the project. The measured precipitation amount in hydrological year 2005 was 28 % in excess of 2004, which represented higher deposition fluxes in most of surveyed elements in particular in the summer months. This increase in fluxes of individual elements was more manifest in throughfall which corresponded to

the capture of solid aerosol particles from the above-ground layer of the atmosphere, by sorption of gaseous reactive acidifiers and, last but not least, also by the wash-out of metabolites from the trees assimilatory organs (leaves and needles).

Grant Agency of the Academy of Sciences CR

No. A3013302 Tectonic and volcanic controls on hydrothermal silicification in marginal zones of the Ohře Rift (***J. Adamovič, J. Ulrych, V. Cajz, J.K. Novák, R. Mikuláš, K. Malý &*** *J. Zachariáš, Faculty of Science, Charles University, Prague*)

The study of hydrothermal cementation of Cretaceous sandstones at contacts with volcanic dykes near the SE rift margin continued with petrographic and pore-distribution studies to characterize fluid flow along an emplaced dyke. The observed effect of host-rock columnar jointing along both primary heat sources (dyke contacts) and secondary heat sources (high-permeability planes in sandstone) suggests a convective rather than conductive heat transfer around the dyke, and implies water-saturated host rock, not necessarily a shallow intrusion as believed by previous authors. Classical sites of hydrothermal silicification were compared with newly studied flat-lying quartzite bodies in the axial part of the Ohře Rift. Some of these occurrences were proved to be associated with silica mobilization in sandstones beneath hot pyroclastic flows, with several short-lived stages of silica precipitation (Skalice, ?Stránce). Others show features typical for pedogenic silcretes (Křemencový vrch) or groundwater silcretes (Krásný Dvůr). A special group is posed by quasi-tabular bodies of silicified sandstone and chert following major faults (Písečný vrch), often combining, besides silica, other hydrothermal minerals like goethite, fluorite, barite, anatase (Salesiova výšina, Jeníkov). The continued study of fluid inclusions and O and H isotope compositions of selected mineral phases permits to constrain temperature conditions of the hydrothermal process mostly below 50 °C.



A scheme of sandstone alteration processes along a basaltic dyke (J. Adamovič). Ferruginous cement concentrates to dyke contacts (left) while silica cement is precipitated in a broader zone along the dyke, both in the form of quartz overgrowths and chalcedony and microquartz fillings of voids. Secondary silica is generated by quartz dissolution by heated alkaline fluids in sandstone proximal to the dyke, where cavities are formed.

Columnar jointing may be formed in sandstone at distances of 1–10 m from the dyke (right), although it is controlled especially by the distribution of pre-existing high-permeability zones in the host rock.

No. IAA300130505 Carboniferous fructifications and their spores from the Upper Silesian Basin (Namurian–Westphalian D) from the Czech Republic and Poland (***J. Bek,*** *J. Pšenička, West Bohemian Museum, Plzeň, S. Opluštil, Faculty of Science, Prague, M. Libertín, National Museum, Prague & J. Drábková, Czech Geological Survey, Prague*)

The first palynological results characterize spore assemblages from the Czech part of the Upper Silesian Basin. Palynological samples from twenty-one boreholes drilled in the eastern part of the Upper Silesian Basin in the Czech Republic during more than last fifty years were examined. Coal samples from the Jaklovec, Poruba, Saddle, Lower and Upper Suchá members of Namurian (Arnsbergian) to Westphalian (Langsettian) age were palynologically studied. Increasing diversity of the spore asssemblages and the changes in the dominance of the two principal miospore groups, lycospores and densospores, are the most significant criteria for the determination and characterization of dispersed miospore assemblages.

No. IAA3013201 Magnetomineralogical and magnetostratigraphical investigation of cave and fluvial sediments in the Central European region. (***Bosák P., Pruner P., Kadlec J.,*** *N. Zupan Hajna & A. Mihevc, Karst Research Institute, SAZU, Postojna, Slovenia, Bella P., Administration of Slovak Cave, Liptovský Mikuláš, Slovakia*)

Sections in cave sediments and surface karst sediments were sampled in detail both for paleomagnetic and sedimentological analyses in the Czech Republic (CZ), Slovakia (SK), Hungary (H), Slovenia (SK), Italy (I) and Korea (KOR):

State	*Type of profile*	*Number of caves*	*Number of profiles*	*Number of samples*
CZ	Caves, active, fossil, surface fluvial deposits	9	18	350
SK	Caves, active, fossil	25	56	810
H	Caves, active	1	5	95
SLO	Denuded caves, active and fossil caves, karst sediments	12	20	1 210
I	Denuded caves	1	1	60
KOR	Caves, active and fossil	4	7	292

Research in ***Slovenia*** substantially contributed to the knowledge of age of cave fills and the age of caves and denuded caves, especially in the Classical Karst (ca. 300–600 m a.s.l.), mountainous karst (about 1000–1300 m a.s.l.) and high-mountainous karst (above 1500 m a.s.l.). Paleomagnetic and magnetostratigraphic research was based on high-resolution sampling, which was applied in karst for the first time and in such extent. Based on principal results, we can conclude that the development of principal cave systems in all three geographical settings was very similar. The ages of cave fills were nearly always higher than 1.77 Ma, sometimes up to 3.5 Ma; i.e., the origin of cave void itself was much older, as we are documenting only the result of the last filling stage in cave evolution. Most of the caves were fossilized. The different altitudinal positions were achieved by differential tectonic movements since 5 Ma (i.e., during the Pliocene and Quaternary as indicated by dates from Kamnik-Savinja Alps) – the area is neotectonically active in the collision zone of African and Eurasian plates. Values of rotation of individual tectonic blocks since the deposition of the karst fill clearly document

counterclockwise block rotations from the Classical Karst (on the NW) to Periadriatic Fault Line (in the NE) in the last 6 Ma, i.e. in accordance to Istria block rotation. New karstogenetic model, based on the existence of denuded caves, indicates the rate of chemical denudation of 40 to 60 m per 1 Ma in the Classical Karst. Here, the evolution of karst and caves is connected with two important events after the regression of the Middle Badenian sea (ca. 14 Ma) with the Messinian Crisis (6–5 Ma) and differential tectonic evolution of the Istria block and its foreland, and not with the Plio-Pleistocene history as expected by older "fluviokarstic" model.
The most important data from ***Slovakia*** were obtained from the Nízke Tatry Mts. The deposition of fluvial deposits in caves of three principal mountain valleys took place during the mountain uplift in Neogene and Pleistocene and it was connected with valley entrenchment. The cave deposits in caves developed before recent hydrological network belong to Gilbert Chron (over 3.5 Ma). The deposits in the highest cave level belong to Gauss Chron (over 2.581 Ma). Sediments in cave levels at 30–185 m above Halley bottoms can be dated to Matuyama Chron (2.581–0.78 Ma). The deposits of the lowest cave levels (up to 25 m above valley bottoms) belong to Brunhes Chron (less than 0.78 Ma). The paleomagnetic dating allows to estimate the velocity values of valley incision at 2.581–1.95 Ma (Gauss/Matuyama boundary – Olduvai) – 0.05 m.1 ka^{-1}; 1.95–1.07 Ma (Olduvai – Jaramillo) – 0.06 m.1 ka^{-1}; 0.07–0.78 Ma (Jaramillo – Matuyama/Brunhes boundary) – 0.32 m.1 ka^{-1}; 0.78 Ma to Recent – 0.04 m.1 ka^{-1}. It is highly probable, that the infilling processes in the Demänovská Cave System are connected with the evolution of the terrace system of the Váh River, but the speleologenetic process is connected with other (older) evolution stages.
Besides sampling in caves, the project focused on the testing of anthropogenic-induced variations of paleomagnetic parameters in fluvial flood deposits. The Morava River (***Czech Republic***) was selected. Flood deposits document the last 10 ka. The deposition rate was slow during the Holocene up to the period of Velká Morava (ca 3 mm per 100 a) due to low intensive erosion in forested catchments. Since the the 9^{th} century, when the anthropogenic-induced deforestation started, the situation changed. The content of ferromagnetic minerals increased due to increased erosion on arable land. Intensive anthropogenic activity since the beginning of the 20^{th} century accelerated erosion and accumulation of flood sediments (up to 45 mm per 100 a).

No. IAA300130505 The erosional, accumulational and postdepositional processes in flood plain after great flood 2002 (***V. Cílek***)

The activities of the research team were focused on several topics such as molluscs as indicators of hydrological changes in the landscape, ichnofabrics in recent flood sediments, the role of terraced fields in the prevention of early spring floods caused by meltwaters. However the most important part of the project concentrated on the mineralogy and geochemistry of flood "muds" and other unconsolidated sediments. The quantity and chemical composition of suspended particulate matter was monitored during flood events in the Litavka River, a local stream draining the mining district of Příbram. Even moderate (5-years) floods can transport several tons of Pb and Zn in suspended form from the Litavka River further into the river system. The Litavka River is therefore one of important sources of heavy metals in the Berounka, Vltava, and Labe rivers. The other important aspects of this geochemical contamination are the leachibility and mobility of trace elements under contemporary pH conditions.

No. IAA3013306 Paleoecological pattern of Coal Seams of the Lampertice Member, Jan Šverma Mine, Intra-Sudetic Basin (Langsettian) (***J. Dašková, J. Bek,*** *J. Pšenička, West Bohemian Museum, Plzeň, S. Opluštil, Faculty of Science, Prague, M. Libertín, National Museum, Prague & J. Drábková, Czech Geological Survey, Prague*)

Based on previous studies and on new data from opencast mines in the Žacléř area, sediments of the Lampertice Member can be interpreted as a fill of tectonically controlled system of piedmont river valleys drained generally to the NE. These valleys were occupied by a fluvial system which is interpreted as a low-sinuosity braided meandering river with lateral bars and wandering gravel-bed river. This fluvial style is characterized by a well-developed floodplain with clastic to peat swamps.

Three plant associations, autochtonous, sub-autochtonous and allochtonous were recognized, based on the taphonomical research of the assemblage of plants from one lithofacies. These associations are subdivided into several phytocoenoses based on the combination of diagnostic plant taxa (leaves and fructifications) and their ecological needs. Such subdivision corresponds to coenological character of original biotopes. Four phytocenoses were recognized: plant assemblage of channel banks, plant assemblage of floodplain (swamp), bog forest and valley shrub side plant assemblages.
Only two species of pteridosperms, i.e. *Paripteris gigantea* (Sternberg) Gothan and *Mariopteris muricata* (Schlotheim) Zeiller were more tolerant to different ecological conditions. Majority of plants of several phytocenoses, i.e., species *Pecopteris plumosa* (Artis) Bek and Pšenička, *Calamites* (*Diplocalamites*) *carinatus* Sternberg, *Palmatopteris furcata* (Brongniart) H. Potonié, *Linopteris neuropteroides* f. *major* Goeppert, *Sphenophyllum cuneifolium* (Sternberg) Zeiller, *Lepidodendron acutum* (Presl in Sternberg) Kidston, *Lepidodendron selaginoides* Sternberg, *Calamites schützeiformis* Kidston and Jongmans, *Annularia radiata* (Brongniart) Sternberg, preferred specialized ecological conditions.
Other plant taxa are characteristic for each phytocenoses. Simple zonation of the vegetation is based on the determination of phytocenoses and their characteristics. It is evident, that hydrophile and mesophile elements were mixed in phytocenoses, that is typical for modern gallery forest.

No. B301110501 Subproject Evolution and dynamics of the salt karst in Zagros Mts., Iran: Denudation rates, age of karst forms, governing factors (*J. Bruthans, Department of Hydrogeology, Engineering Geology and Applied Geophysics, Charles University, Prague &* ***M. Filippi***)

The age and depositional history of the Holocene marine terraces covering parts of the Hormoz and Namakdan salt diapirs in the Persian Gulf were studied. Their relative altitudes above recent sea level result from a combination of general marine transgression/regression affecting the whole area, and of local uplift related to salt diapirism. Differential uplift rate of the studied diapirs in center-to-rim profiles was calculated from: (1) Radiocarbon ages of skeletal remains of benthic faunas, which originally grew mostly close to sea level; (2) Original altitude of samples, estimated from general sea-level oscillation curves for the last 10 ka, and (3) present sample altitude measured in the field.
The calculated uplift rates on both diapirs increase from rim to center in the range from: 2 mm ka^{-1} at the rim to 5–6 mm ka^{-1} in the interior of Hormoz, and 1–3 mm ka^{-1} on the rim to 3–5 mm ka^{-1} in the interior of Namakdan. The depositional history on both salt diapirs is similar although they are situated more than 100 km apart. Marine sedimentation started at about 9.3 ka BP on Hormoz and at 8.6 ka BP on Namakdan. Owing to rapid transgression, the sea partially truncated both salt diapirs, rapidly deepened, and carbonate mud was deposited on the peripheries of both salt diapirs. Between 7 and 5 kyr BP, beach deposition replaced carbonate mud. Soon after 5 ka BP, the sea retreated from most of the marine terraces on both salt diapirs.

No. IAA3048201 Geochemistry of phonolitic-trachytic magmas: their sources and fractionation trends (examples from Bohemian Massif) (*Z. Řanda, J. Frána, J. Kučera, Nuclear Physics Institute AS CR,* ***J.K. Novák, J. Ulrych & M. Lang***)

Subproject*:* Petrography and mineralogy of two coexisting alkaline series from the České středohoří Mts. (***J.K. Novák, J. Ulrych, M. Lang, L. Ackerman,*** *J. Frána J. & Z. Řanda*)

Geochemical and petrographical features of the phonolite and trachyte types as well as associated rocks were examined in order to (1) improve our understanding on composition of the felsic alkaline eruptives in the České středohoří Mts., (2) to recognize fractionation trends, and (3) to evidence the mineralogical differences between contrasting rock suites. The exposed phonolite laccoliths and dykes of the České středohoří Mts. originated by low-pressure fractional crystallization from parental basanite magma via trachybasalt, basaltic trachyandesite, trachyandesite to transitional trachyte (i.e. mildly alkaline association). Prior to our study, one has belived that a strongly alkaline trend consisting of tephrites, phonotephrites, and tephriphonolites to phonolite is essential.No evidence of significant wall-rock assimilation can be found. The K-Ar dating manifests the similar ages in a range from 26 to 31 Ma

for both series and the isotopic measurements ($^{87}Sr/86^{Sr}/t/=$ 0.7036–0.7043) show that crustal contamination was negligible.
The rock-forming minerals of the above mentioned rock types are mostly similar to each others, the variations are, however, in mineral chemistry and in modal proportions of zoned anorthoclase, Na-sanidine, minor andesite-oligoclase plagioclases, feldspathoids, diopsidic clinopyroxenes amphiboles, and Fe-Ti oxide-clinopyroxene clusters. The most evolved nepheline-normative phonolites (A.I. = ca. 1.0) are usually affected by late-magmatic fluids and contain alkali amphibole (e.g., richterite, Mg-arfvedsonite) instead of common kaersutite-pargasite, aegirine-augite instead of augite or diopside (e.g., Želenický vrch Hill, Rytířov, Rýdeč). In some of the q-normative trachytes (e.g. Valkeřice) there are characteristic phlogopite flakes. Mixing of tephritic and phonolitic magmas seems required for some of the mafic phonolites with tephriphonolite to phonotephric affinity, because the disequilibrium textures and resorption phenomena are visible. Aphyric or glassy phonolitic rocks (e.g., devitrified into tinguaite-like texture) are extremely rare.

Subproject Instrumental neutron and photon activation analysis of phonolites: an important tool to distinguishing the common and anomalous phonolite types from the Ohře (Eger) Rift, Czech Republic. (*Z. Řanda, J. Frána, J. Mizera, J. Kučera, Nuclear Physics Institute AS CR,* ***J.K. Novák, J. Ulrych****, A.G. Belov & O.D. Maslov, Joint Institute for Nuclear Research, Flerov Laboratory of Nuclear Reactions, Dubna, Russia*)

Two instrumental activation techniques, INAA and IPAA, were optimized to determine forty-two major, minor and trace elements in representative whole-rock samples. Especially geochemical variations comprising Rb, Sr, Ba, and homologues Y-REE, Zr-Hf-Th and Nb-Ta are most important in a support of the petrogenetic interpretation.
The INAA (short-term and long-term mode) enables determinations of wide set elements with a high sensitivity and selectivity. However, determination of some trace elements, such as Y, Nb, and Pb, is not possible and determination of Mg, Ca, Ti, Ni, Sr, and Zr is less sensitive. That is why the instrumental photon (so-called gamma) activation analysis utilizing a MT-25 microtron, was used as a complemantary method. Analytical procedures and problems connected with particular determination were tested in detail for both INAA and IPAA analytical modes. Compared to common phonolites, anomalous (i.e., geochemically most evolved) types are characterized by a depletion in Sr, Ba, and Mg and by an enrichment in Rb, LREE, Zr, Hf, Nb, Ta, Th, U, and volatile phases, such as H_2O, Cl, F, CO_2, and SO_2.

No. IAA3013406 Structural and paleotectonic development of the Barrandian Prague basin (***P. Pruner****, R. Melichar, Faculty of Science, Masaryk University in Brno & P. Kraft, Faculty of Science, Charles University in Prague*)

Objective: Paleomagnetism, rock-magnetic and multicomponent analyses, paleogeographic implications
Issue Group: ***P. Pruner, P. Štorch, P. Schnabl, M. Chadima & O. Man*** *in cooperation with P. Kraft, Faculty of Science, Charles University, Prague*.

The Hirnantian and Llandovery sedimentary succession of the Barrandian area has been assigned to middle and outer clastic-shelf depositional settings respectively. Deposition was influenced by the remote Gondwanan glaciation and subsequent, long-persisting post-glacial anoxia triggered by a current-driven upwelling system. High-resolution graptolite stratigraphy, based upon 19 formally defined biozones – largely interval zones – and 5 subzones, enabled a detailed correlation between 42 surface sections and boreholes, and enabled linking of the sedimentary record, graptoloid fauna dynamics, organic-content fluctuations and spectral gamma-ray curves. The Hirnantian and Llandovery succession has been subdivided into four biostratigraphically dated third-order sequences (units 1–4). Time-spatial facies distribution recorded early and late Hirnantian glacio-eustatic sea-level lowstands separated by a remarkable mid-Hirnantian rise in sea-level. A major part of the post-glacial sea-level rise took place within the late Hirnantian. The highstand of the Unit 2 is apparrently at the base of the

Silurian succession. Short term relative sea-level drawdown and a third-order sequence boundary followed in the early Rhuddanian upper acuminatus zone. Early Aeronian and late Telychian sea-level highstands and late Aeronian drawdown of likely eustatic origin belong to units 3 and 4. Sea-level rise culminated in the late Telychian, which may be also considered as a highstand episode of a second-order Hirnantian-early Silurian cycle. Facies and sequence-stratigraphic analysis supports recent interpretations on nappe structures in the core part of the Ordovician-Middle Devonian Prague Synform of the Barrandian.

Paleogeographic reconstructions based on new inferred paleomagnetic data on the pre-Variscan formations in the territory of the Barrandian are solved in the Paleomagnetic laboratory in Průhonice. The centre of field work is in the Barrandian area formed by non-metamorphosed Ordovician to Devonian rocks. The Devonian rocks are mainly represented by carbonate of the Lower and Middle Devonian. From the paleomagnetic point of view, these rocks constitute an uneasy problem of their generally low magnetization at the time of Variscan orogeny and generally because of number of secondary magnetization components that originated in the course of geological history. For this reason, an appreciable volume of work was devoted to studies of the origin of individual magnetization components, their separation and inference of the pre-Variscan components of remanent magnetization. The thermal demagnetizer MAVACS (Magnetic Vacuum Control System) which provides a highly non-magnetic demagnetization environment or AF (alternating field) LDA 3A demagnetizer were used to laboratory investigations.

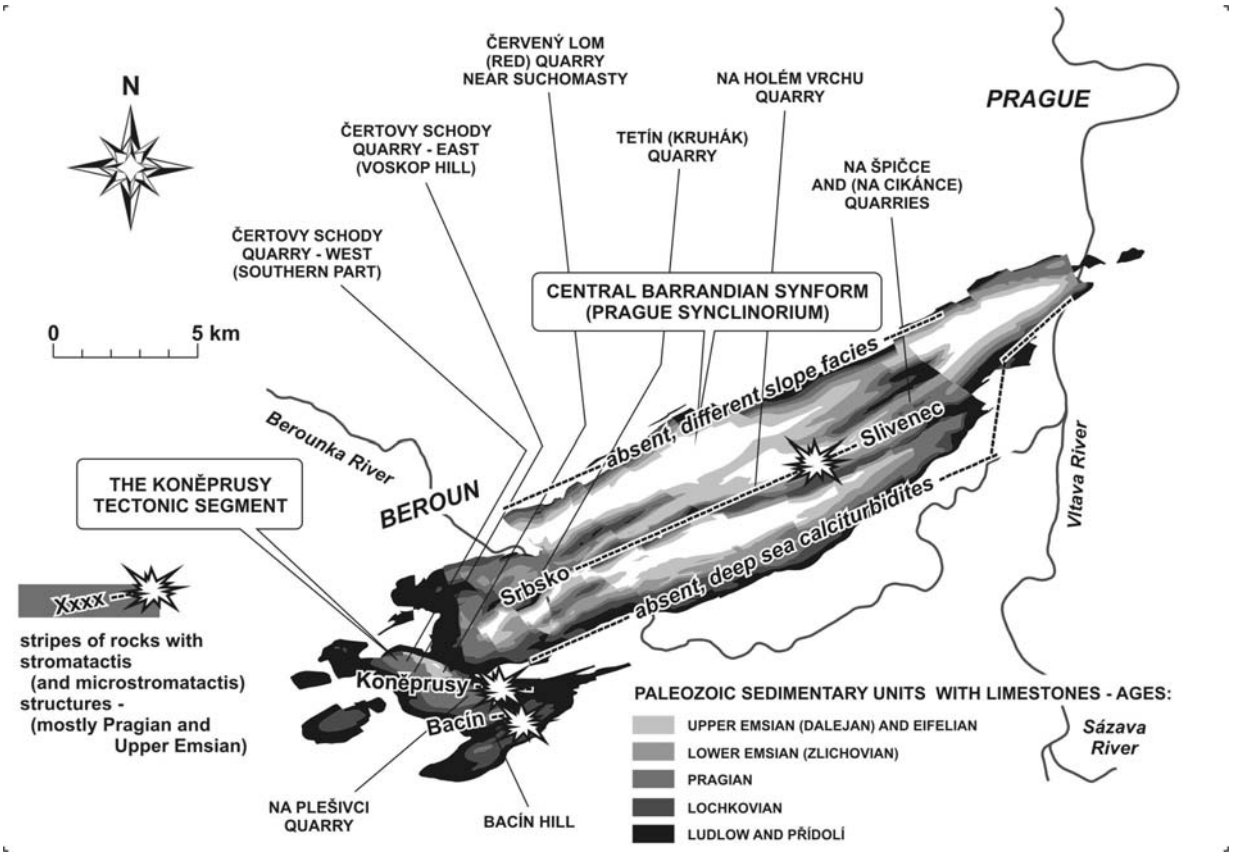
Samples were collected in such a manner to allow fold tests to be made in inferring pre-Variscan paleomagnetic directions. Paleomagnetic data shown that the majority of Devonian rocks of the Barrandian had been totally remagnetized at the time of Variscan orogeny, or that Devonian rocks contained strong magnetization components which originated at the time of Variscan folding. For this reason, the multicomponent analysis of the magnetization components was necessary and the sample collection was made accordingly. Under the term site we understand a collection site involving several layers within a locality or an exposure, separate sites being different geographically. The primary Devonian paleomagnetic directions could be inferred only on 3 sites (out of 15). All samples were subjected to a detailed analysis of magnetization components, predominantly with the use of thermal demagnetization so that in a number of cases minerals – the magnetization carriers could be identified. In the samples of reddish colour, haematite pigment was proved. In some grey and white limestones, the presence of magnetite (of very low content) was proved. The A-component of remanence, Recent in origin, was interpreted in the temperature interval of 20–120 °C, the B-component, corresponding to the Late Variscan overprint, was interpreted in the interval of 120 (160) – 360 (400 °C) and the C-component, corresponding to paleomagnetization, was separated in the interval of 360 (400) – 550 °C. The devonian C-component was acquired on 7 oriented limestone samples collected at the Srbsko-Karlštejn road cut, 4 samples collected in the Čeřinka Quarry and 1 sample from the “Zbuzanská (Chýnická) mramorka” Quarry. These samples produced relevant data for the inference of the paleomagnetic pole position and clearly indicate prominent horizontal paleotectonic rotations during the Variscan orogeny. The above data were inferred only for the Prague Synform. Peri-equatorial paleolatitude of 18°S was derived from data obtained from the Devonian rocks.

Objective: Sedimentary rock fabrics and their applications for paleomagnetic and rock deformation analyses

Issue Group: ***J. Hladil, L. Slavík, J. Janečka*** & ***L. Koptíková*** *in cooperation with L. Kalvoda, Faculty of Nuclear Science and Physical Engineering, M. Růžička & R. Bunganič, Institute of Chemical Process Fundamentals ASCR.*

A critical analysis of stromatactis-type cavities in certain limestone beds of the central Barrandian synform (and comparable rock structures worldwide), including the composition of the host carbonate sediments, led to the formulation of a novel hypothesis that swarms of stromatactis might originate during the process of rapid, uninterrupted sedimentation. The rationale behind this possibility concerns several points. First, the stromatactis sediment has the characteristics of particulate materials that are typically polydisperse, with enhanced multimodal frequency distributions. Also the shapes of the particles are extremely diversified and complex – the grains are often subangular, platelet-like or acicular, porous, soft, or irregularly indented. This seems to be valid not only for relatively coarse

banks with stromatactis (with visible amounts of sand- and even fine gravel-sized grains), but surprisingly also for the finest available varieties, which consist rather of calcisiltites than of muds and also provide a large variety of shapes and internal fabrics (alterations), even in the finest fractions.
According to experimental studies, the principal precondition for development of stromatactis cavities (i.e., a special sort of unsheltered primary hollows in the sediment) is connected with the evolution of lateral instabilities in a settling suspension. More specifically, the stromatactis-producing sedimentary materials have unusual mechanical properties, of which increased values of yield stress (in suspension layers) and increased values of internal friction (in deposited beds) are most likely the critical parameters determining the development of stromatactis structures in general. The swarms of stromatactis fenestrae develop typically in the mid-layer, where the mottled appearance of sediment is caused by self-generated suspension flow irregularities, as well as internal redistributions of fine particles in the intergranular pore spaces (during and immediately after the sedimentation). The mid-layer with stromatactis cavities is often underlain by a coarser, graded base and covered by a sealing layer of fine-grained material, both without any visible hollows.
The effect of so-called "snowing", in which the remaining part of ultrafine particulate suspensions (confined in the pores) deposit on floors of the stromatactis cavities (as the first internal sediment), is constrained to first seconds to minutes after the deposition of the bed, and this internal sediment deposited in calm microenvironments of almost closed stromatactis cavities. It is a unique material that combines remarkable features of areally significant, momentary-phase – geopetal-fill sediment with favourable characteristics of its composition (ultrafine grains of sediment, presence of organic matter, bacteria). These early-stage, internal stromatactis sediments must, at least theoretically, be very important materials for assessing the paleomagnetic properties.



The Central Barrandian synform, units with limestones: The tectonic-stripe dependent occurrences of stromatactis-bearing limestone facies of upper to middle parts of two different carbonate slopes were marked in a map-view diagram of the present day geological structures (J. Hladil et al.).

Direct implications of the most important results are as follows:

1. The sediments with stromatactis do not represent mud-mound facies in a narrow sense, but are an integral part of event-deposition processes, i.e., they deposited from thick, nearly stopped, extremely polydisperse/multimodal suspensions which developed from turbulent gravity flows and, perhaps, also plumes of other origin.
2. The Devonian stromatactis-bearing sediments were abundant on moderately inclined, slightly terrace-like undulated carbonate slopes, at presumably medium, facies-derived depths of about 40 to 400 m, certainly below the open-sea fair-weather wave-base (FWWB ~20–50 m), and in majority of cases also under or at the base of hurricane storm wave base (HSWB ~150–300 m), with a few larger depths of up to 700–800 m (?).
3. In the Central Barrandian synform, the outcrops of these stromatactis-bearing limestone facies are almost exclusively arranged in two (or three) belts: Bacín and Koněprusy, and Srbsko – Slivenec. Belts of Svatý Jan pod Skalou – Řeporyje and Karlštejn – Třebotov (Barrandov) differ in the nearly complete absence (or considerable reduction) of stromatactis structures. This further documents the dimension of the gaps between the facies assemblages in separate tectonic stripes of rocks.
4. With technical solutions for high-resolution paleomagnetic analyses of relatively low-magnetism carbonate materials, the "snowed stromatactis floors" must be considered an important source of paleomagnetic information. This is highly relevant for the knowledge of synsedimentary configurations and, consequently, the degree of tectonic shortening in this structure.

No. IAA3013405 Lower Silurian of the Hlinsko Zone (E Bohemia): graptolite fossil record, biostratigraphy and paleogeographical links (***P. Štorch*** *& P. Kraft, Faculty of Science, Charles University, Prague*)

Heavily tectonized and poorly exposed epizonal and contact-metamorphic black siliceous slates and silicites of the Mrákotín Formation have been known as the only fossiliferous rocks in the Hlinsko Zone, situated in the northeastern interior of the Variscan Bohemian Massif. The majority of graptolite zones, so far recognized in the Llandovery succession of the classical Barrandian area of central Bohemia, have been identified in the Hlinsko Zone by means of large graptolite material collected by bulk sampling of loose boulders and few outcrops. Early Llandovery (Rhuddanian) *C. vesiculosus* Biozone succeeded by *D. triangulatus*, *D. pectinatus*, ?*M. simulans*, *P. leptotheca, L. convolutus* and *S. sedgwickii* biozones of middle Llandovery (Aeronian) age and *R. linnaei*, *S. turriculatus*, *S. crispus*, *M. griestoniensis*, *T. tullbergi* and *O. spiralis* zones of the late Llandovery (Telychian) age were identified in loose boulders, late Telychian *T. tullbergi* and *O. spiralis* biozones were found in situ, in the abandoned quarry. No Wenlock taxa occur among 84 graptolite species that were recorded in the black-shale succession of the Hlinsko Zone. The original sedimentary succession of the Mrákotín Formation was reconstructed, in particular by means of detailed biostratigraphic correlation with graptolite successions in the Barrandian area, Thuringia and other well understood areas abroad. There is no apparent difference between the graptolite fauna of the Hlinsko area and that of the Barrandian area. Lithological successions of the two areas, however, are different. Barren greenish mudstone beds which, in the Barrandian area, intercalate black graptolitic shales of the late Llandovery Litohlavy Formation are missing in the Hlinsko Zone. There, the whole Llandovery sequence is composed of more or less siliceous black shales. It is assumed that the Mrákotín Formation of the Hlinsko Zone was not deposited in the same basin as coeval formations of the Barrandian area.

No. KJB3111305 Spatial and temporal changes of sandstone provenance in the Krkonoše Piedmont Basin and their tectonosedimentary implications (*K. Martínek, Faculty of Science, Charles University Prague,* ***M. Svojtka & R. Mikuláš***)

The Krkonoše Piedmont Basin (KPB) belongs to a system of post-orogenic extensional/transtensional basins, which formed in the Bohemian Massif in the early post-orogenic phase, between the Westphalian and Saxonian times (ca. 310–280 Ma). The older parts of the KPB fill underwent partial deformation during the formation of the Trutnov–Náchod sub-basin (Permian–Triassic), which is indicated by the angular unconformity at the base of the Trutnov Formation, the lowermost unit of the sub-basin infill.

In the KPB, detrital apatites were studied by the fission-track (FT) method. Thermal histories of individual sub-basins were extracted from apatite FT data by modelling ages and horizontal confined tracks. Time-temperature modelling reveals two areas with different T-t histories in the Trutnov–Náchod sub-basin. Different timing of three main stages and differences in erosional rates are interpreted as an earlier major uplift (1st stage) in the northern part of the sub-basin (Jurassic–Early Cretaceous) compared to its southern part, where major phase of uplift took place in the Late Cretaceous. The last phase of rapid uplift (3rd stage) is similar in both areas (northern and southern), and is dated to c. 25 Ma to present, which corresponds to Miocene deformation phases in the Ohře Rift.

No. IAA3013403 The character of mantle/lower crust beneath the Bohemian Massif based on geochemical signatures of (ultra)mafic xenoliths in Cenozoic volcanics (***J. Ulrych, J.K. Novák, M. Lang, J. Adamovič, V. Cajz, M. Filippi, V. Musil, L. Ackerman,*** *E. Jelínek & M. Mihaljevič, Faculty of Science, Charles University Prague*)

Subproject: Petrogenesis of alkali pyroxenite and ijolite xenoliths from the Tertiary Loučná–Oberwiesenthal Volcanic Centre, Bohemian Massif in the light of new mineralogical, geochemical, and isotopic data (***J. Ulrych****, F.E. Lloyd, University of Bristol, Great Britain, K. Balogh, Institute of Nuclear Research, Hungarian Academy of Sciences, Debrecen, E. Hegner, University of Munich, Germany,* ***A. Langrová, M. Lang, J.K. Novák****, Praha, & Z. Řanda, Nuclear Physics Institute, ASCR, Řež*)

Alkali pyroxenite and ijolite xenoliths occur in ca. 37–30 Ma old nephelinite of the Loučná–Oberwiesenthal Volcanic Centre. The latter is located on the uplifted shoulder of the Ohře/Eger Rift within the Variscan basement of central Europe. The alkali pyroxenites and transitional xenoliths are abundant whereas ijolite xenoliths are rare. The host nephelinite is chemically evolved (Mg# 47–46), and the entrained alkali clinopyroxenite xenoliths (Mg# 64–47) and transitional to ijolite xenoliths (Mg# 69–25) show a range of compositions from little to highly evolved. The alkali pyroxenite xenoliths probably represent fragments of an intracrustal, possibly layered alkaline complex, overprinted by a late-magmatic pegmatoid phase of ijolite composition. This late stage metasomatic process may account for a spectrum of rocks ranging from alkali pyroxenite to ijolite. Initial e_{Nd} values of +2.3 in clinopyroxene samples from the host nephelinite and +3.1 to +3.0 in clinopyroxene from the xenoliths indicate similar, yet different sources. The initial $^{87}Sr/^{86}Sr$ ratios of 0.70361 to 0.70365 and inital e_{Nd} values of +3.0 and +3.1 for the alkali pyroxenite xenoliths are consistent with mantle sources of HIMU-affinity. A similar source may be inferred from the isotopic composition of the host nephelinite yielding an initial $^{87}Sr/^{86}Sr$ of 0.70368 and initial e_{Nd} value of +2.3.

No. A300130504 Soil cover of the protected areas of Prague as an indicator of environmental changes (***A. Žigová, V. Ložek.*** *& M.Šťastný, V. Šrein, Institute of Rock Structure and Mechanics, ASCR, Prague*)

The project is aimed at the understanding of the elementary soil processes which contributed to the Pleistocene and Holocene development of soil cover in the protected areas of Prague. Determination of the principles of the structure of soil cover in the area of the capital of Prague reflects past and present environmental changes, and unveils the elementary soil processes in relation to pedodiversity. Conditions of pedogenesis from selected protected landscape areas and agricultural landscape were identified on the basis of physical and chemical properties. Human activity has a high significance to the specification of complex elementary soil processes and microprocesses. Soils of the protected landscape areas show a higher diversity and variability in pH values than soils of agricultural landscape.

Grants of the Charles University, Prague

GA UK No. 339/2004/B GEO/PrF: Subproject Biogeochemistry of arsenic in the Mokrsko gold deposit. Migration into soil, water and atmosphere as the result of bedrock weathering (***P. Drahota***)

Within the scope of the grant, migration of arsenic in the water-soil system and arsenic speciation in ground, surface and pore waters were studied in the Čelina-Mokrsko gold district.
Research on arsenic weathering rate was performed in two small hydrologic catchments within the district. Annual chemical weathering fluxes of arsenic in the catchments were calculated from the monthly weighted means of stream and groundwater. The fluxes were corrected for total atmospheric precipitation, agrochemical inputs, and biological uptake. Mechanical and chemical weathering rates of the arsenopyrite-bearing rocks in the catchments were estimated from the mass balance data on sodium and silica. The input of arsenic into soil due to the total weathering of bedrock was estimated at 1369.1 $g.ha^{-1}a^{-1}$ above highly As-mineralized granodiorite and 81.2 $g.ha^{-1}a^{-1}$ above less As-mineralized volcano-sedimentary rock. These results indicate that annual weathering rate of arsenic in the catchments comprises more than 95 % of the total arsenic input to the soil.
Speciation modelling (PHREEQC) of the studied surface water and groundwater indicates the thermodynamic stability of pentavalent arsenic. Calculated saturation indices are consistent with the observed sediment mineralogy in that the waters are supersaturated with crystalline and hydrous ferric oxides and Ca-Fe and K(Ba)-Fe-arsenates but undersaturated with scorodite. Under the neutral to slightly alkaline groundwater conditions of the district, scorodite (mentioned as the oldest secondary arsenate mineral in the district) dissolves incongruently to hydrous ferric oxides (2-line ferrihydrite) and aqueous arsenate.
In contrast to speciation modelling, speciation analyses of arsenic (HPLC-HG-AAS) in the stream water, ponds, groundwater and pore water in the district evidence high concentrations of trivalent arsenic, which exhibits the highest toxicity among all arsenic species. The processes involved in the production of soluble As species in soil system are affected by variations in redox potential, pH, bulk fluid chemistry, and by microbial activity. In the pore water of soil profiles studied, arsenite may account for up to 91 % of total As (anaerobic soil below the water table, where the low redox conditions influence arsenate reduction) in contrast to less than 10 % in the aerobic soils. In the stream water, the reduction of arsenate to arsenite is predominantly controlled by microbial activity. The concentration of As in stream water successively decreases from 393 µg/L in the deposit to 10 µg/L in the distance of 1500 m from the deposit. The contents of arsenite in the stream are highly variable (0–95 % of total As) depending on the local conditions of sample location. The highest arsenite/arsenate ratio was found in the pond, where arsenite forms 94–99 % of total As. Arsenite levels in the samples could be overestimated in some cases, because the content of organic As (MMAA and DMAA) is included in arsenite levels.

Grants of the state departments

Ministry of Environment, Project No. ISPROFIN č. 215124-1: Subproject Slope movement hazards in the České středohoří Mts. (*Leader of Project: O. Krejčí, Czech Geological Survey &* ***V. Cajz***)

The continuation of research was focused on the territory of Bílina (wide SE and SW surroundings). This area was newly subjected to a detailed geological survey and to a basic research oriented to the ability of volcanic products to help or stabilize the slope movement activities. The results of this basic research represent a ground for the specialized maps of hazards. These maps are prepared to be used by the local authorities and by the Ministry of the Environment. Volcanic rocks participate in the slope movement hazards directly by rock-falls and – together with the other non-volcanic rock types – by yielding the material for landslides. The slope movement hazards are more frequent in areas where the base of the Tertiary volcanic complex is exposed. In this area, solitary volcanic bodies are more frequent than continuous products of the complex. Volcaniclastics, which are mostly incoherent and primarily argillic, are highly prone to landsliding and represent one of the high-risk factors. Geological, tectonic and geomorphic setting were found to represent the most important controls on the generation of slope movements.

Ministry of Education, Youth and Sports, Project No. 1K05030, Fellowship Rudolf II: Dating of low-temperature thermal events on zircons: U-Th/He and fission-track methods. (***M. Svojtka & M. Murakami***)

Amongst the various of geochronological methods available for reconstruction of time-temperature evolution of rocks is a fission-track analysis. Fission-track dating method offers easy way how to date the rocks without using of high-priced mass spectrometers and has been applied to variety of low-temperature geological problems in the past. Principles and a new laboratory routine procedure for fission-track dating of zircons including separation, mounting, grinding/polishing, chemical etching, thermal neutron irradiation in nuclear reactor, counting and determination of zeta individual constant. The mean zeta value used for age calculation has been determined as 184.3 + 3 (1ð) against a dosimeter glass IRMM 540 R. All procedure of zircon fission-track analysis using external detector method has been applied under laboratory conditions at the Institute of Geology AS CR.
The low-temperature history of the sediments in James Ross and Seymour Islands (Antarctica) was studied using fission-track dating of zircons. The measured fission-track zircon cooling ages range between Triassic/Late Cretaceous times (ca. 75–200 Ma).

Ministry of Industry and Trade of the Czech Republic, Project No. 1H-PK/31: Subproject: Methods and tools for the evaluation of the effect of engineered barriers on the distant interactions in the environment of deep repository facility *(Leader of Project: M. Vaněček, Isatech s.r.o. & T.* ***Navrátil****)*

The site of Panské Dubénky was selected during the second stage of the project solution, in particular the quarry area. This site has been thereafter subject to a detailed geological, geophysical and geochemical research. The aim of this research was to describe the geological environment at the site and determine granite block properties. Four systems of fracture systems were described in the area of the quarry. The fractures were interpreted at three main depth levels. The results of drilling works at the site indicate that the most suitable for hydrogeological observations is the horizon from 6 to 9 m. Geochemical research was aimed at the determination of the tracing substance, which would meet technical requirements of the project and environment-friendly behaviour. The results of the investigation indicate fluorescein as the best solution. The laboratory tests on sampled material (model body) were performed to determine the basic properties. On basis of spatial positioning, fracture cleavage and granite block proportions, a three-dimensional digital model of the fractures was developed. In the modelling part of the project, the final selection of the model application was performed. After a detailed analysis of the software properties, specialized software NAPSAC was selected, especially with respect to its development for the aims of evaluation of deep repository works in crystalline rocks. FEFLOW was selected as the support and verification modelling software, especially due to its universality.

Industrial Grants

GET, Ltd., Praha
Subproject: Petrography of volcanic and pyroclastic rocks from Port Antonio area, northeastern Jamaica (***J.K. Novák***)

Voluminous pyroclastic piles (andesitic tuffs and agglomerates) preceded the origin of minor volcanic centres of hybrid basaltic andesite and silicic andesite in the vicinity of Port Antonio (northeastern Caribbean plate). Porphyritic basaltic andesite located at Fellowship (56.2 wt.% SiO_2) originated by pre-eruptive mixing of crystal-rich felsic remnants with basaltic andesite magma. Owing to large compositional and thermal contrasts, the mantled feldspar phenocrysts exhibit the sieve-textured interiors, fine-scale oscillatory zoning, and compositional reversals (sodic plagioclase mantled by fresh labradorite). They are associated with minor groundmass abundance consisting of labradorite microphenocrysts and chlorite-biotite pseudomorphs after augite. Low-grade metamorphic reactions were also responsible for the transformation of glassy particles up to chlorite and for positive shifting in stone durability. Silicic andesite at Hooper Hill (61.9 wt.% SiO_2), either porphyritic facies with amygdale infills or fine-grained marginal facies, shows a smaller input of mafic component. Sieve-corrosional textures in the plagioclase cores remain preserved or were affected by post-eruptive modification into palagonite, chlorite-smectite and calcite. Because of the presence of chlorite-calcite or epidote-chalcedony infills of the amygdales, this rock type cannot be used as aggregate. As a part of this study, the basaltic scoria of Miocene Low Layton volcano and doleritic tholeiite from Port George were examined.

Subproject: Kaolinitic sand occurrence utilizable as glass and ceramic raw materials from Toledo Basin, central Belize (***J.K. Novák***)
Petrographic analysis of the grain-size fractions showed that the dominant quartz grains observed in the kaolin-bearing sands from the Toledo Basin are very pure, without colour-producing and refrectory inclusions. Monomictic sand fraction may be suitable as glass raw material after processing. Simultaneously, washed kaolin has properties of a good low-plastic raw material for ceramics. Compositional data indicate provenance from the porphyritic alkali-feldspar granite of the Maya Mts., Central Belize.

EXIMA, Ltd. Banská Bystrica, Slovakia
Subproject: Petrographical characterization of alkali-feldspar granite from southern China (***J.K. Novák***)

The tested sample of coarse-grained Neoproterozoic leucogranite from the province of Guanxi is attributable to siderophyllite-bearing alkali-feldspar granite, due to its geochemical signatures. With respect to desirable physical-mechanical properties, a low water absorption, negligible cataclastic deformations, slight mineralogical weathering, and attractive colouration, this decorative stone can be widely used for restoration works.

Czech Technical University, Prague, Faculty of Civil Engineering: Pebble analysis of river gravels of the Berounka River and possible sources of the pebble material (***K. Žák***)

Accumulations of river gravels deposited in the Berounka River after high flood of 2002 were studied using pebble analysis. Five large-volume (30 l) samples were extracted from the newly-formed gravel accumulations at river kilometers 74.2, 49.9, 37.5, 21.4, and 4.5. Sieving showed that all samples are dominated by size fraction above 16 mm, with d50 in the size range between 16 and 32 mm.
From each sample, the rock type was determined for 100 largest pebbles. Pebbles were dominated by local rock types, which occur along the river course. Typical transport distance of most abundant large pebbles of Neoproterozoic and Lower Paleozoic sedimentary and volcanic rocks is kilometres to several tens of kilometres. The quantity of the most resistant quartz pebbles, whose origin cannot be easily determined, increases in the downstream direction. In some river sections, pebbles from artificial material (bricks, iron-works slag) represent up to 10 wt.% of the samples.

Archaia Brno, Ltd: Origin of the Brno relief - stage III. (***L. Lisá***)

The third phase of Brno underground research includes predominantly processing of data from the last two years. Minor construction works in the Brno centre were also documented. The most interesting were two construction works on Božetěchova Street and Náměstí Svobody Square. Fourteen reports were completed in total and deposited in Archaia o.p.s. archive. The questions of Ponávka fluvial sedimentation, which has relations to the final reports, were presenetd at the Quaternary working conference in Brno. A paper on Quaternary geological situation for Acta Musei Moraviae is in print.

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Programmes of Institutional Research Plan

Institutional Project No. AV0Z30130516: Earth system at the intersection of geological processes, evolution of life, climatic and anthropogenic impacts (*Coordinator **V. Cílek**, Institute of Geology, AS CR*)

SUBPROJECT (Code 9100): Complex insight on the development of the environment in period from Neogene until the youngest geological history with a special respect on present era (interactions and development of processes).

(*co-ordinator **M. Filippi,** contributions: **I. Dobešová, P. Drahota, J. Hlaváč, M. Hojdová, J. Kadlec, P. Kubínová, L. Lisá, L. Minařík, T. Navrátil, J. Rohovec, E. Růžičková, P. Skřivan, S. Šlechta, J. Špičková, M. Vach, Z. Vařilová, O. Zeman, K. Žák, A. Žigová & R. Živor***)

Fluxes and behaviour of selected elements (Al, As, Ba, Be, Cd, Co, Cu, Fe, H^+, Hg, Mn, Ni, Pb, Rb, Sr, Zn) are monitored in soil profiles in several areas (small catchments, mining dumps, etc.) in the Czech Republic. The collected data are processed and continuously prepared for publications. As observed at many localities, aaccumulation or depletion of particular elements or their groups depend on many physico-chemical parametres.
Periodic sampling of surface water and groundwater and their laboratory processing including measuring of conductivity and pH, filtration and vacuum evaporation, and extraction of leachable cations from soil are provided. A new method for measurement of volatile elements speciation in solid samples was evolved and tested. This approach is based on combination of ICP-OES and thermal analysis.
Significant attention is also focused on the study of different types of Quaternary sediments including river sediments, natural and anthropogenic soils and cave sediments.

SELECTED RESULTS:

Department of environmental geochemistry
The fluxes (μg $Me.m^{-2}.a^{-1}$) of H^+, Mn, Fe, Zn, Al, Cu, Pb, Be, As, Cd, Sr, Ba, Rb, Ni a Co in main flows characteristic for their exogenous cycles (in bulk deposition, throughfall, surface- and subsurface discharge) were compared in diverse water years of 2004 and 2005 in an experimental “Lesní potok” catchment. The net input of H^+ was higher in 2005 owing to higher precipitation height, in spite of this year’s higher mean precipitation pH. Accordingly, this year’s surface water discharge was higher, and with equaling surface water pH in 2004 and 2005, the net H^+ output was also higher. The input/output ratios of the studied elements correspond almost exactly to these characteristics. A significant impact of metabolic activities of forest trees on the mobilization of K, Ca, Mg, Mn, Be, Sr, Ba, Rb, Ni (Co) was demonstrated. For the biogeodynamics of K, Mn and Rb, this impact is dominant.
The analysis of total Hg in samples from the Lesní potok catchment was performed by the AMA-254 Mercury Analyser. In addition, Hg pyrolysis technique was employed to determine Hg speciation in soils. The highest concentrations of Hg were found in the upper organic layers of the soil profile, the concentration declined with the depth. The results of Hg pyrolysis showed that the prevailing form of Hg in soil is Hg^{2+}, which is strongly sorbed to organic matter.
Two-years’ monitoring of As-fluxes in two small catchments at the Mokrsko gold district was finished. The results suggest that the weathering of the As-bearing minerals in the bedrock below the catchments distribute the main portion of As into the natural waters of the catchments. Accumulation or depletion of As in the soil depend on many factors. Probably the main factor is the distribution of Fe-oxyhydroxides in soils.

Department of environmental geology
The study of Holocene flood-plain deposits confirmed a volcanic admixture in fluvial sediments within the higher flood-plain terrace along the middle course of Labe River in Bohemia. This is the first volcanic ash occurrence in Holocene fluvial sediments correlable with similar localities of lacustrine sediments in northern and northwestern Europe.
The study of cave sediments and cave evolution was focused on cryogenic calcites which form as a result of rapid water freezing. The studied object was Scarişoăra Ice Cave in Bihor Mts., Romania.

Several subtypes of cryogenic cave calcite were found in this cave, all formed during rapid water freezing accompanied by kinetic fractionations of C and O stable isotopes in calcite.
New sampling and documentation campaign aimed at Holocene marine terraces and cave sediments in Iranian salt diapirs was realized. Inclined Holocene marine terraces on Hormoz and Namakdan salt diapirs in the Persian Gulf were studied, and revealed very similar depositional histories. The obtained data show that the uplift rate is not constant but rises from the margins of circular salt diapirs toward their interiors.

SUBPROJECT (Code 9200): History of the Bohemian Massif before and after its consolidation.

(*Coordinator **V. Cajz,** contributions: **J. Fiala, J. Filip, M. Chadima, L. Koptíková, M. Lang, K. Malý, J. Novák, Z. Vejnar, P. Schnabl & M. Svojtka***)

Apatite fission-track analysis (AFTA) evaluated the thermal history of the Upper Proterozoic metasediments of the Teplá-Barrandian Block and showed apatite ages of 300–237 Ma. The strata are inferred to have undergone two separate stages of regional cooling: significant cooling occurred from paleotemperatures higher than 120 °C in the earliest Carboniferous and was associated with uplift and erosion following the Variscan orogeny; a less prominent cooling since the onset of the Neogene probably corresponds to the uplift of the Bohemian Massif due to the intraplate stresses transmitted from the Alpine foreland. The study of Minoan terranes using U-Pb analyses of detrital zircons from paragneiss of eastern Crete showed a radical difference from Cadomian- and Avalonian-type terranes of the Bohemian Massif. In the late Neoproterozoic times, the Minoan terranes underwent Andean-type orogeny at the northern border of East Gondwana, and there is no evidence for their long-distance travel in Phanerozoic times. Three selected sections in limestones near the Emsian/Eifelian border (Devonian of the Barrandian) were studied for trace element contents (INAA) and magnetic suscpetibility values. The enrichment in Ti due to the supposed volcanic activity is very low, and the expected correlations between organic carbon (TOC) and MS are insignificant. The circulation of diagenetic fluids in the Březno Fm. (Upper Cretaceous) sandstones produced ore impregnations first (pyrite and sphalerite with minor U-Th-Zr-Ti mineralization). This was followed by chalcedony and quartz, and Fe-Mn mineralization of hematite, goethite, and braunite as the youngest one. Initial magnetometric testing of Tertiary basaltic lavas showed their convenience for magnetostratigraphy and high accuracy and reliability of acquired data. Low Ti contents were detected in titanian magnetites. Based on the analyses of platinum-group metals and other trace elements from xenolithic mantle material, significant heterogeneity of upper mantle beneath the Bohemian Massif was proved in different geotectonic conditions.

SUBPROJECT (Code 9300): Study of fossil ecosystems and their dependence on global climatic and paleogeographic changes (interaction and development of processes).

(*Coordinator **M. Svobodová,** contributions: **P. Čejchan, A. Galle, V. Houša, M. Konzalová, M. Siblík, L. Slavík, Z. Roček, M. Vavrdová, J. Zajíc & J. Žítt***)

The project deals with the paleobiology and paleoecology of the organisms in the geological past. It provides a wide spectrum of the problem – how did the organisms respond to processes in the Earth history and how did they contribute to these processes. Special attention is given to the dynamics of assemblages, causes and courses of extinctions, post-crisis syndromes, and the appearance of new organisms or even new fossil ecosystems. The study of the development and the function of these ecosystems allows to trace global and regional environmental and paleoclimatic changes which led to the crises of the biota in the past, and may do so in the future. The project should recognize the triggering mechanisms of these crises and the ways to overcome them. The study of the interaction between organisms and depositional environment is an important and specific aspect. Micro- and macrofossils of floral or faunal origin should increase the application value (detailed biostratigraphic and paleogeographic reconstructions) and provide links with other geosciences. Unlike other methods studying geological age – such as magnetostratigraphy or chemostratigraphy – biostratigraphy is the

principal method of information and, moreover, is relatively less demanding for financial sources. Taxonomy and evolution also contribute to the knowledge of Earth history. Palynology, invertebrate and vertebrate paleontology, ichnology are the main fields of study in the Lower Paleozoic, in continental basins of Upper Paleozoic, in the Bohemian Cretaceous Basin or Tertiary basins.

SELECTED INDIVIDUAL RESULTS

Revision of the conodont biostratigraphy of the Silurian/Devonian GSSP at Klonk. (***L. Slavík**, in cooperation with Peter Carls, Institut für Umweltgeologie, TU Braunschweig, Germany*)

Jeppsson's conodont zonation was originally proposed for the Silurian/Devonian boundary interval based on the material from the stratotype at Klonk (Barrandian). Serious discrepancies in this zonation, which was fundamental for the current concept of the so-called standard conodont zonation, were confirmed also by means of correlation of conodont faunas from the Požáry section (Barrandian) with those from Elbersreuth Orthoceratid Limestone (Frankenwald) and conodont assemblages of the Baltic provenance. Similarly, as in the Požáry section (Barrandian) *Delotaxis elegans detorta* – a taxon with early development of alternating denticulation – enters in the Frankenwald well below *W eosteinhornensis* s.s. The range of the *eosteinhornensis* Zone was previously believed to characterize almost the entire Přídolí. As a consequence, the whole range of *eosteinhornensis* Zone thus lies still within the *detorta* Zone which has been used as a relatively sharp stratigraphic marker for the uppermost Přídolí. As follows, the relevance of such a zonation including several other stratigraphic units whose indexes are derived from the *Delotaxis* stock is very limited. The *eosteinhornensis* Zone s.s. begins amid the Přídolí; it is not reached in the Baltic region (Scania-Gotland-Estonia).

Ecological relationships and their paleogeographic image. (***A. Galle***)

Epibionts prefer hyolithid conchs to settle; this suggests that site selection is controlled by both the composition of the juvenile periostracum and the position of the posterior dorsal conch. This is suggestive of mutualistic hyolith/epibiont relationship and of possible co-evolution.
Tabulate corals occur in the Capitan Reef body and probably also in the Reef Trail Member, late Guadalupian, of New Mexico. They grow as small hemispherical, spherical, or discoidal coralla composed of corallites with polygonal outlines. Simple tabulae are present, septal structures or mural pores were not observed. Characteristic of the genus is the presence of operculae, and parricidial increase.

Microfossils from the clastic sediments in southern Moravia. (***M. Vavrdová***)

Palynological investigation of selected samples from the Uhřice 17, Švábenice 1 and Měnín 1 boreholes contributed to the more accurate biostratigraphy of sequences of the Early Cambrian age and confirmed a large extent of the basal Cambrian deposits. New biostratigraphical data allow to determine relatively precise thickness of individual palynozones corresponding to the faunal zones Platysolenites (12 40 m), Schmidtielus (360–400 m), Holmia (38.5 m) and Protolenus (35–40 m). The presence of planar algal coenobia in the Měnín 1 borehole indicates a local influence of freshwater in the shallow marine environment.

Vegetation diversity of lacustrine, fluvial and swamp systems. (***M. Konzalová***)

Micropaleontological investigation of the mined upper coal seam (Miocene) in the Bílina delta area in the Most Basin (North Bohemia) showed, besides the swamp coniferous inaperturate pollen of the Taxodiaceae-Cupressaceae, also the sporadic occurrence of the *Sequoia* (and related conifers) pollen – *Sequoiapollenite*s sp., *S. rugulus* and *S.* aff. *ligulus*, which can be derived from the macrofossil *Quasisequoia* but differ in the low occurrence. Frequent is *Alnus* and *Anacardiaceae/Fagaceae,* which involve evergreen as well as deciduous trees. Palmae, *Symplocos* and Araliaceae-Cornaceae including mastixioid elements are also present, but palms display no special horizon as in the lower layers of the seam. Newly revealed were the invertebrate components in the seam. The well defined

particles of the legs, small claws and cuticles of mites microinsects, Protozoa – Thecamoebinae and thread-like organisms reflect both edaphic and/or aquatic ecosystems. They occur with the cysts of algal flora, comprising also components which can thrive in the environment with higher Na^+ ions.

Evolution of amphibians in the Cretaceous and Tertiary. (***Z. Roček***)

Various aspects of the development in Cretaceous and Tertiary frogs from Europe, Israel and South Africa were investigated, with special emphasis to evolution of anuran metamorphosis. Anuran metamorphosis is, in comparison with ancestral temnospondyl neotenic amphibians, a new phenomenon that may be characterized by aggregation of developmental events into a comparatively limited period of time. Typical anuran metamorphosis occurred as early as in Lower Cretaceous, as evidenced by *Shomronella jordanica* from Negev, Israel. Gigantic tadpoles of *Palaeobatrachus* raised a problem of delayed metamorphosis in a Lower Miocene crater lake of Randecker Maar and its possible ecological and physiological explanations. Besides, new fossil material from several localities of Middle through Upper Cretaceous of Utah was studied; the quantity of the material and its geological ages made it possible to define, for the first time in North America, the evolution of the whole anuran assemblages, and its correlation with paleoclimate.

Late Paleozoic vertebrate paleontology. (***J. Zajíc***)

The initial “Acanthodian web” (www.gli.cas.cz/acanthodians) was launched in an embryonal stage. The following sections will be included in the final one: Introduction, anatomy, systematics, research and database. The main aim of the project is a compilation of the world acanthodian database with the help of the PaleoTax program (http://www.paleotax.de).
The new extensive and wide-ranging list of all non-marine Permo-Carboniferous fauna of the Czech Republic (apart from the paralic Upper Silesian Basin) is prepared with Stanislav Štamberg from the Museum of eastern Bohemia in Hradec Králové. Two localities (Kladoruby – Dolní Pepřík and Kochov – V potocích) were excavated (*Acanthodes gracilis*, *A. stambergi*, *Xenacanthus* sp., *Paramblypterus* sp., *Elonichthys* sp., *Burbonella* sp., *Discosauriscus austriacus*, *D. pulcherrimus*) and profiled in detail by Prof. Jörg Schneider and his regular and postgraduate students from the Bergakademie Freiberg. The stratigraphically important locality of Lubě was rediscovered and yielded actinopterygian and acanthodian remains.

Cenomanian palynomorphs: biostratigraphy and paleoenvironment. (***M. Svobodová***)

Fluvial, marsh, estuarine and inner shelf facies in the hydrogeological boreholes in the south-central part of the Bohemian Cretaceous Basin (Peruc-Korycany and Pecínov Formations) are palynologically characterized. Triporate angiosperm pollen *Complexiopollis* (various species) correspond to the Middle-Upper Cenomanian. Dinocyst species *Epelidospaheridia spinosa* was found in siltstones yielding *Praeactinocamax plenus* (*Metoicoceras geslinianum* Zone).

Echinoderms and their environments since the Late Mesozoic. (***J. Žítt***)

Based on geology, sedimentology, macrofauna, taphonomy, paleoecology and biostratigraphy (palynomorphs, foraminifera), five sedimentary episodes (Upper Cenomanian – Lower Turonian) were distinguished at new outcrops of Chrtníky quarry, eastern Bohemia. Interpretations of two found intervals of condensed sedimentation (one of them with stromatolites) and of new distributional, taphonomic and paleoecological data on the sponge, bryozoan and echinoderm populations also belong to the most important results.

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10. Organization of conferences and scientific meetings

Conferences and Symposia organized in 2005

International Conference: ***Prevertebrate-Vertebrate Transition (Aspects of Vertebrate Origins), Praha, June 2 - 3, 2005***. Organized by Institute of Geology AS CR and Faculty of Science, Charles University, Praha. Organizing committee: **Roček Z.**

International Conference: ***5th World Congress of Herpetology – Symposium "Palaeoherpetology", Stellenbosch, South Africa, June 22, 2005***. Organized by World Congress of Herpetology, University of Stellenbosch. Organizing committee: **Roček Z.**

Workshop: ***Geologická exkurze, NP České Švýcarsko – Gabrielina stezka, Pravčická brána, November 5, 2005***. Organized by SNP ČŠ. Organizing committee: **Vařilová Z.**

Third Meeting of the J.E. Hibsch Association, May 23, 2005, Ústí nad Labem. Organized by the Institute of Geology, AS CR (**J. Ulrych, V. Cajz, J. & Adamovič**) and by the Municipal Museum of Ústí nad Labem (T. Wiesner).

Conferences and Symposia under preparation

3RD Workshop on Ichnotaxonomy, Prague, September 2006. Organized by the Institute of Geology AS CR, Scientific Guarantees A.K. Rindsberg (USA) and **R. Mikuláš**. About 20–25 specialists are expected to solve principal problems of classification and nomenclature of trace fossils, and to share data for new issue on Treatise on Invertebrate Paleontology.

The 6th European Paleobotany Conference 7–11 September 2006. Organized by the National Museum, Prague, Faculty of Science, Charles University, Prague and Institute of Geology AS CR, Prague; Organizing Committee: J. Kvaček, S. Opluštil, Z. Kvaček, J. Sakala, V. Teodoridis, M. Libertín, **J. Dašková, J. Bek.**

11. Publication activity of the Institute of Geology

In 2005, the Institute of Geology published one issue of **GeoLines** – conference proceedings and excursion guides. Each issue of Geolines journal is thematically consistent, containing several papers to a common topic. The journal accepts papers within their respective sectors of science without national limitations or preferences. However, in the case of extended abstracts, the conferences and workshops organized and/or co-organized by the Institute of Geology are preferred. The papers are subject to reviews.

2005
GeoLines 19 (2005)
Proceedings of the 3rd Meeting of the Central European Tectonic Studies Group/10th Meeting of the Czech Tectonic Studies Group, held in Felsőtárkány, Hungary, April 14–17, 2005: (abstracts and excursion guides). Edited by M. Svojtka.

The Institute of Geology, based on agreements, supported the publication of the reviewed journal **Geologica Carpathica** – an international geological journal published by the Geological Institute, Slovak Academy of Sciences, Bratislava, Slovakia, co-published by the Polish Geological Institute, Warsaw, Poland, and Institute of Geology, AS CR, Prague. Printing office: Veda, Publishing House of the Slovak Academy of Sciences, Bratislava, Slovakia = http:/www.geologicacarpathica.sk/

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12. Publication activity of staff members of the Institute of Geology

12a) Papers published in 2005

****publications in journals included in the ISI Web of Science (IF value according to a list from 2005)***

3.434* Cifelli F., Mattei M., **Chadima M.**, Hirt A.M. & Hansen A. (2005): The origin of tectonic lineation in extensional basins: Combined neutron texture and magnetic analyses on "undeformed" clays. - *Earth and Planetary Science Letters*, 235, 1-2: 62-78. Amsterdam.

2.572* Kvaček J., Falcon-Lang H. & **Dašková J.** (2005): A new Late Cretaceous ginkgoalean reproductive structure Nehvizdyella gen. nov. from the Czech Republic and its whole-plant reconstruction. - *American Journal of Botany*, 92, 12: 1958-1969. St. Louis.

2.420* **Kletetschka G.**, Ness Norman F., Connerney J.E.P., Acuna M.H. & Wasilewski P.J. (2005): Grain size dependent potential for self generation of magnetic anomalies on Mars via thermoremanent magnetic acquisition and magnetic interaction of hematite and magnetite. - *Physics of the Earth and Planetary Interiors*, 148, 2-4: 149-156. Amsterdam.

2.420* **Kletetschka G.**, Connerney J.E.P., Acuna M.H., Wasilewski P.J. & Ness Norman F. (2005): Reply to the Comment on the paper "Grain size dependent potential for self generation of magnetic anomalies on Mars via thermoremanent magnetic acquisition and magnetic interaction of hematite and magnetit. - *Physics of the Earth and Planetary Interiors*, 153: 238-239. Amsterdam.

2.362* Flanary B.E. & **Kletetschka G.** (2005): Analysis of telomere length and telomerase activity in tree species of various life-spans, and with age in the bristlecone pine "Pinus longaeva". - *Biogerontology*, 6, 2: 101-111.

2.010* Ročková H. & **Roček Z.** (2005): Development of the pelvis and posterior part of the vertebral column in the Anura. - *Journal of Anatomy*, 206, 1: 17-35.

1.562* Carls P. & **Slavík L.** (2005): Upgrading of magnetic susceptibility of conodont sample residues before magnetic separation. - *Lethaia*, 38, 2: 171-172. Oslo.

1.397* Pšenička J., Zodrow E., Mastalerz M. & **Bek J.** (2005): Functional groups of fossil marattialeans: chemotaxonomic implications for Pennsylvanian tree ferns and pteridophylls. - *International Journal of Coal Geology*, 61: 259-280.

1.364* Grygar T., Bezdička P., Hradil D., Hrušková M., Novotná K., **Kadlec J.**, **Pruner P.** & Oberhansli H. (2005): Characterization of expandable clay minerals in Lake Baikal sediments by thermal dehydration and cation exchange. - *Clays and Clay Minerals*, 53, 4: 389-400.

1.336* **Skála R.** & Císařová I. (2005): Crystal structure of meteoritic schreibersites: determination of absolute structure. - *Physics and Chemistry of Minerals*, 31, 10: 721-732. New York.

1.074* Pšenička J., **Bek J.** & Rossler R. (2005): Two new species of Sonapteris gen.nov. (Botryopteridaceae) based on compressions from the Upper Carboniferous /Bolsovian-Westphalian D) of the Pilsen Basin, Bohemian Massif. - *Review of Palaeobotany and Palynology*, 136: 111-142.

0.981* **Žítt J.** (2005): The asteroid genus Haccourtaster (Echinodermata, Goniasteridae) in the Bohemian Cretaceous Basin, Czech Republic. - *Cretaceous Research*, 26: 225-237. London.

0.948* **Bek J.** & Šimůnek Z. (2005): Revision of the cone genus Discinites from the Carboniferous continental basins of Bohemia. - *Palaeontology*, 48, 6: 1377-1397. London.

0.817* Libertín M., **Bek J.** & **Dašková J.** (2005): Two new species of Kladnostrobus nov. gen. and their spores from the Pennsylvanian of the Kladno-Rakovník Basin (Bolsovian, Czech Republic). - *Geobios*, 38: 467-476.

0.817* Libertín M. & **Bek J.** (2005): Two new species of Kladnostrobus nov.gen. and their spores from the Pennsylvanian of the Kladno-Rakovník Basin (Bolsovian, Czech Republic). - *Geobios*, 38: 467-476.

0.656* **Man O.** (2005): Is the Fisher distribution additive? - *Studia Geophysica et Geodaetica*, 49: 561-572.

0.656* **Kletetschka G.** & Kontny A. (2005): Identification of magnetic minerals by Scanning Electron Microscope and application of ferrofluid. - *Studia geophysica et geodaetica*, 49: 153-162.

0.569* **Siblík M.** & Bryda G. (2005): Brachiopods from the Upper Triassic reef habitats of the Northern Calcareous Alps (Dachstein Limestone, Hochschwab, Austria). - *Rivista italiana di Paleontologia e Stratigrafia*, 144, 3: 411-435. Milano.

0.547* **Roček Z.** (2005): Lebedkina, N.S.: Evolution of the amphibian skull. Book review. - *Amphibia-Reptilia*, 26: 430-430.

0.529* **Ulrych J.**, Lloyd F., Balogh K., Hegner E., **Langrová A.**, **Lang M.**, **Novák J.K.** & Řanda Z. (2005): Petrogenesis of alkali pyroxenite and ijolite xenoliths from the Tertiary Loučná–Oberwiesenthal Volcanic Centre, Bohemian Massif in the light of new mineralogical, geochemical and isotopic data. - *Neues Jahrbuch für Mineralogie, Abhandlungen*, 182: 57-79. Stuttgart.

0.449* **Žítt J.** (2005): Geinitzaster gen.n. (Asteroidea, Echinodermata) from the Upper Cenomanian strata of the Bohemian Cretaceous Basin. - *Geologica Carpathica*, 56, 4: 317-326. Bratislava.

0.449* Uchman A., Bubík M. & **Mikuláš R.** (2005): The ichnological record across the Cretaceous/Tertiary boundary in turbiditic sediments at Uzgruň (Moravia, Czech Republic). - *Geologica Carpathica*, 56, 1: 57-65. Bratislava.

0.429* Zodrow E., Pšenička J. & **Bek J.** (2005): A reassessment of the taxonomy of Oligocarpia bellii. - *Palaeontographica, Abt B*, 271: 51-65. Stuttgart.

0.308* Carls P., **Slavík L.** & Valenzuela-Ríos J.I. (2005): A new Ludlow (Late Silurian) Spathognathodontidae (Conodonta) from Bohemia with incipient alternating denticulation. - *Neues Jahrbuch für Geologie und Paläontologie Monatshefte*, 2005/9, 9: 547-565. Stuttgart.

Ackerman L. (2005): Magmatic vs. hydrothermal origin of fluorites from Vlastějovice, Bohemian Massif. - *Journal of the Czech Geological Society*, 50, 1-2: 35-41. Praha.

Adamovič J. & . (2005): Přírodní rezervace Vlhošť – geologie. - In: **Ložek V.**, Kubíková J. & Špryňar P. (Eds.): *Střední Čechy*: 724-725. Agentura ochrany přírody a krajiny ČR a EkoCentrum Brno. Praha.

Adamovič J. (2005): Sandstone cementation and its geomorphic and hydraulic implications. - *Ferrantia*, 44: 21-24. Luxembourg.

Bakun-Czubarow N., Kusý D. & **Fiala J.** (2005): Trace element abundances in rutile from eclogite-granulite rock series of Zlote Mountains in the Sudetes (SW Poland). - *Mineralogical Society of Poland – Special Papers*, 26: 130-134.

Bosák P. & Motyčka Z. (Eds., 2005): *Czech Speleological Society 2001-2004*. - Česká speleologická společnost: 1-56. Praha.

Bosák P. & Novotná J. (Eds., 2005): *Speleofórum*, Vol. 24: 1-82. Čes. speleol. spol. Praha.

Bosák P., Pruner P., Hercman H., Calligaris R. & Tremul A. (2005): Paleomagnetic analysis of sediments in Pocala Cave and Borgo Grotta Gigante (Trieste region, Italy). – *Ipogea*, 4 (2004): 37-51. Trieste.

Bruthans J., **Filippi M.**, Jäger O., Asadi N. & Zare M. (2005): Czech-Iranian research project in Iranian salt karst (SE Zagros Mts.). - In: **Bosák P.** & Motyčka Z. (Eds.): *Czech Speleological Society 2001-2004*: 49-53. Česká speleologická společnost. Praha.

Bruthans J., Vojtěchovská A., Kukačka J., **Zeman O.** & Horáček D. (2005): Nové poznatky o proudění a vzniku propasti Rokytka v Kryštofově údolí u Liberce. – *Speleofórum 2005*: 47-50. Praha.

Bubík M., Petrová P., Brzobohatý R., Hladilová Š. & **Mikuláš R.** (2005): Sedimenty karpatu a spodního badenu na ulici Kopečná v Brně. - *Geologické výzkumy na Moravě a ve Slezsku*, 12, 1: 20-24. Brno.

Budil P., Bokr P., **Mikuláš R.**, Röhlich P., Kraft P., Krupička J. & Verner K. (2005): Předběžná zpráva z terénní dokumentace liniové stavby "Nové spojení" v Praze na Palmovce. - *Zpravodaj České geologické společnosti*, 1, 1: 16-18. Praha.

Cajz V., **Adamovič J.**, Mrlina J. & Mach K. (2005): Vulkanické centrum Českého středohoří, strukturní aspekty vývoje. - *Zprávy o geologických výzkumech v roce 2004*, 1: 26-30. Praha.

Čech S., Hradecká L., **Svobodová M.** & Švábenická L. (2005): Cenomanian and Cenomanian-Turonian boundary deposits in the southern part of the Bohemian Cretaceous Basin, Czech Republic. - *Bulletin of the Czech Geological Survey*, 80, 4: 321-354. Praha.

Chaloupecký P., **Špičková J.**, Fišák J. & **Skřivan P.** (2005): Srovnání chemického složení podkorunových a usazených srážek. - In: Šír M., Lichner L., Tesař M., Holko L. (Eds.): *Hydrologie malého povodí 2005, Praha, September 14–15*: 133-140. Praha.

Cílek V. & **Ložek V.** (2005): Reliéf a geomorfologie. - In: **Cílek V.** (Ed.): *Střední Brdy*: 59-69. Ministerstvo zemědělství ČR. Příbram.

Cílek V. (Ed., 2005): *Střední Brdy*. - Ministerstvo zemědělství ČR: 1-337. Příbram.

Drahota P., Pertold Z. & Pudilová M. (2005): Three types of skarn in the northern part of the Moldanubian Zone, Bohemiann Massif-implications for their origin. - *Journal of the Czech Geological Society*, 50, 1-2: 19-33. Praha.

Filippi M., Machovič V., Kristek J. & Pavlíček R. (2005): Farmakosiderit z Přebuzi. - *Bulletin mineralogicko-petrologického oddělení Národního Muzea v Praze,* 13: 129-132. Praha.

Galle A. & Parsley R.L. (2005): Epibiont relationships on hyolithids demonstrated by Ordovician trepostomes (Bryozoa) and Devonian tabulates (Anthozoa). - *Bulletin of Geosciences*, 80, 2: 125-138. Praha.

Havránek P. & **Adamovič J.** (2005): Prokřemenění pískovců na Milštejně v Lužických horách. - *Bezděz*, 14: 133-162. Česká Lípa.

Hladil J. (2005): The formation of stromatactis-type fenestral structures during the sedimentation of experimental slurries – a possible clue to a 120-year-old puzzle about stromatactis. - *Bulletin of Geosciences*, 80, 3: 193-211. Praha.

Hlaváč J. (2005): Ostroústka drsná – přehlížený acidofilní plž borůvkových porostů. - In: Cílek V. (Ed.): *Střední Brdy*, p. 138. Ministerstvo zemědělství ČR. Příbram

Hlaváč J. (2005): Malakofauna. – In: Lutovský M. & Smejtek L. (Eds.): *Pravěká Praha*, 110-111. Libri, Praha.

Hlaváč J. (2005): Nález fosilních měkkýšů na pohřebišti u Jízdárny. - *Castrum Pragense*, 7: 411-412. Praha.

Hojdová M., Hais M. & Pokorný J. (2005): Microclimate of a peat bog and of the forest in different states of damage in the Šumava National Park. - *Silva Gabreta*, 11, 1: 13-24.

Hojdová M., **Rohovec J.** & **Navrátil T.** (2005): Obsah a speciace rtuti v kontaminovaných půdách. - In: Helán V. (Ed.): *Mikroelementy 2005, Máchovo jezero, September 5 – 7. Sborník přednášek XXXIX. semináře o metodice stanovení a významu stopových prvků v biologickém mater*: 43-47. Máchovo jezero.

Hradecká L., Lobitzer H., Ottner F., Schlagintweit F., **Svobodová M.**, Szente I., Švábenická L. & Zorn I. (2005): Biostratigraphy and palaeoenvironment of the Lower Gosau Subgroup of Eisenbach brook in Salzkammergut (Upper Austria). - *Gmundner Geo-Studien*, 3, 1: 25-42. Gmunden.

Juřičková L., Beran L., Dvořák L., **Hlaváč J.**, Horsák M., Hrabáková M., Maltz T. K. & Pokryszko B. M. (2005): Mollusc fauna of the Rychlebské hory (Czech Republic). - *Folia Malacologica*, 13, 1: 9-23. Poznań.

Kadlec J. (2005): Geologická stavba a vývoj říční nivy Doubravy. - In: Paulů I. (Ed.): *Bylany Varia 3*: 101-106. Archeologický ústav AV ČR. Praha.

Kadlec J. (2005): Sedimentologické a magneto-mineralogické studium nivních sedimentů na dolním toku řeky Doubravy. - In: Paulů I. (Ed.): *Bylany Varia 3*: 107-110. Archeologický ústav AV ČR. Praha.

Konzalová M. (2005): Micropalaeontological (palynomorphs) investigation of the upper coal seam in the Bílina delta area (North Bohemia, Miocene). - *Zprávy o geologických výzkumech v roce 2004*, 78-80, Praha.

Kříbek B., Hájek A., Dobeš P., **Filip J.**, Holeczy D., Jehlička J., Leichmann J., Ondruš P., Pašava J., Pudilová M., René M., Scharm B., Scharmová M., Sulovský P., Urban O., Veselovský F., Zimák J. & Žák K. (2005): Uranové ložisko Rožná. Model pozdně variských a povariských mineralizací. - In: Kříbek B., Hájek A. (Eds.): *Uranové ložisko Rožná. Model pozdně variských a povariských mineralizací*: 1-98. Česká geologická služba. Praha.

Kubínová P., **Skřivan P.**, **Navrátil T.** & **Rohovec J.** (2005): Porovnání biogeochemických charakteristik Fe, Co, Ni. - *Mikroelementy 2005, 2 Theta, Máchovo jezero, September 5–7. sborník přednášek*: 89-95. Český Těšín.

Kukačka J., Bruthans J., **Zeman O.** & Altová V. (2005): Studium proudění a zranitelnosti podzemních vod v karbonátech skupiny Branné: vodohospodářsky významná oblast na Jesenicku. - *Zprávy o geologických výzkumech v roce 2004*: 163-165. Praha.

Laufek F., Drábek M., **Skála R.** & Císařová I. (2005): Crystallography of the Sb-Te-Ni system. - *Materials Structure in Chemistry, Biology, Physics and Technology*, 12, 2: 153-154. Praha.

Libertín M. & **Dašková J.** (2005): Paleoekologický model prostředí ovlivněného říční sedimentací (duckmant, vnitrosudetská pánev). - *Zprávy o geologických výzkumech v roce 2004*: 79-81. Praha.

Lisá L. & Bajer A. (2005): Váté písky na území města Brna. - *Geologické výzkumy na Moravě a ve Slezsku*, XII: 5-7. Brno.

Lisá L. (2005): Komín I. v jeskyni Za hájovnou, sedimentologie a stratigrafie, kapitola 7. - *Přírodovědné studie Muzea Prostějovska*, 2005, 8: 43-47. Prostějov.

Lisá L., Burianek D. & Uher P. (2005): Provenience würmských spraší a spraším podobných sedimentů na Moravě a ve Slezsku, Česká republika: použití asociací težkých minerálů. - *Acta Musei Moraviae, Scientiae Geologicae*, 90: 147-154. Brno.

Ložek V. & **Cílek V.** (2005): Význam a postavení Brd v rámci Čech. - In: **Cílek V.** (Ed.): *Střední Brdy*: 9-16. Ministerstvo zemědělství ČR. Příbram.

Ložek V. (2005): Biodiverzita a geodiverzita. - *Ochrana přírody*, 60, 7: 195-200. Praha.

Ložek V. (2005): Měkkýši. - In: **Cílek V.** (Ed.): *Střední Brdy*: 142-145. Ministerstvo zemědělství ČR. Příbram.

Ložek V. (2005): Nový přístup k vývoji poledové doby ve střední Evropě - I, II. - *Živa*, 53, 3, 4: 100-103. Praha.

Ložek V. (2005): Pokryvné útvary a půda. - In: **Cílek V.** (Ed.): *Střední Brdy*: 70-74. Ministerstvo zemědělství ČR. Příbram.

Ložek V. (2005): Svrchní pleistocén a holocén ve vchodu jeskyně Malý Lesík (Moravský kras). - *Zprávy o geologických výzkumech v roce 2004*: 62-65. Praha.

Ložek V. (2005): Volba péče o chráněná území. - *Ochrana přírody*, 60, 5: 131-134. Praha.

Ložek V. (2005): Vývoj přírody Brdy ve čtvrtohorách. - In: **Cílek V.** (Ed.): *Střední Brdy*: 97-100. Ministerstvo zemědělství ČR. Příbram.

Ložek V., Kubíková J. & Špryňar P. (Eds.) (2005): *Střední Čechy*. - Agentura ochrany přírody a krajiny ČR a EkoCentrum Brno: 1-902. Praha.

Majer M., Hejna M., Zelinka J. & **Žák K.** (2005): Macháčkova jeskyně v Českém krasu - první jeskyně ve vápencích chýnických. - *Speleo*, 42: 16-18. Praha.

Malý K. & **Cajz V.** (2005): Quartzites beneath pyroclastic flows – mineralogical aspects. - *Mineralia Slovaca*, 3, 37: 370-371. Spišská Nová Ves.

Melka K., **Ulrych J.** & **Mikuláš R.** (2005): Hydrobiotite from the Dětaň Oligocene tuffs (Doupovské hory Mts.). - *Acta Geodynamica et Geomaterialia*, 2, 2: 117-125. Praha.

Mertlík J. & **Adamovič J.** (2005): Some significant geomorphic features of the Klokočí Cuesta, Czech Republic. - *Ferrantia*, 44: 171-175. Luxembourg.

Mikuláš R. & Dronov A. (2005): Trace fossils. - In: Dronov A., Tolmacheva T., Rayevskaya E. & Nestell G. (Eds.): *Cambrian and Ordovician of the St. Petersburg Region*: 33-38. St Petersburg.

Mikuláš R. (2005): Biogenní přepracování povodňových sedimentů v Praze – geologická specifika městské aglomerace. - *Ochrana Přírody*, 60, 1: 5-6. Praha.

Mikuláš R. (2005): Features of sandstone paleorelief preserved: The Osek area, Miocene, Czech Republic. - *Ferrantia*, 44: 35-38. Luxembourg.

Novák J.K., **Melka K.**, **Ulrych J.** & Řanda Z. (2005): Phonolite weathering profiles at Mariánská hora Hill, České středohoří Mts., and sorption properties of clay residues. - *Acta Geodynamica et Geomaterialia*, 2(138), 2: 135-149. Praha.

Roček Z. (2005): Late Miocene Amphibia from Rudabánya. - *Palaeontographia Italica*, 90: 11-29. Florence.

Siblík M. & Lobitzer H. (2005): Karnische Brachiopoden im Mitterweissenbachtal bei Bad Ischl (Salzkammergut, Oberösterreich). - *Gmundner Geo-Studien*, 3: 43-46. Gmunden.

Siblík M. (2005): Dokumentace nových lokalit brachiopodové fauny jury v oblasti Světového dědictví UNESCO Hallstatt-Dachstein/Salzkammergut. - *Inovační podnikání a transfer technologií*, 13, 2-3. Praha.

Siblík M. (2005): Mesozoic Brachiopods of the Hallstatt-Dachstein/Salzkammergut UNESCO World Heritage Site: History of Research. - *Jahrbuch geol. Bundesanstalt*, 145, 1: 127-129. Wien.

Siblík M. (2005): Nové údaje o svrchnotriasových brachiopodech Severních vápencových Alp. - *Zprávy o geologických výzkumech v roce 2004*: 142-143. Praha.

Špičková J., **Navrátil T.**, **Skřivan P.**, **Rohovec J.** & Mihaljevič M. (2005): Distribuce prvků vzácných zemin v malém povodí Lesní potok. - In: Helán V. (Ed): *Mikroelementy 2005, XXXIX. seminář o metodice stanovení a významu stopových prvků v biologickém materiálu a životním prostředí, Máchovo jezero, September 5 – 7. sborník přednášek*: 106-110. Český Těšín.

Táborský Z., **Žák K.** & Malec J. (2005): Nový typ Cu mineralizace v devonských vápencích Pražské pánve. - *Bulletin mineralogicko-petrologického oddělení Národního muzea*, 13, 225–228. Praha.

Vach M. (2005): *Ochrana ovzduší*. - Czech University of Agriculture. Faculty of Forestry and Environment: 1-64. Praha.

Vařilová Z. & Zvelebil J. (2005): Management rizik skalního řícení na území NP České Švýcarsko. - In: Baroň I., Klimeš J. (Eds.): *Svahové deformace a pseudokras, Úštěk, ČR, May 11–13. CD*: 1-36. Brno.

Vařilová Z. & Zvelebil J. (2005): Sandstone Relief Geohazards and their Mitigation: Rock Fall Risk Management in the Bohemian Switzerland National Park. - In: Ries Ch., Krippel Y. (Eds.): *Sandstone landscapes in Europe: Past, Present and Future, Travaux scientifiques de Musee national d'historie naurelle, Luxembourgh, Vianden, May 25 - 28. Ferrantia - Proceedings*: 53-58. Luxembourg.

Zajíc J. (2005): Permian acanthodians of the Czech republic. - *Czech Geological Survey Special Papers*, 18: 1-42. Praha.

Žák K. (2005): Zrychlené přetváření údolních niv malých toků ve středočeské oblasti v posledních deseti letech. - *Ochrana Přírody*, 60, 9: 273-275. Praha.

Žák K., Kolčava M., Jäger O. & Živor R. (2005): Evidence jeskyní Českého krasu - stav k 1. říjnu 2005. - *Český kras*, 31: 19-21. Beroun.¨

Žák K., Pudilová M. & Breiter K. (2005): Oxygen isotope study of the highly fractionated Podlesí granite system, Krušné hory Mts., Czech Republic. - *Bulletin of Geosciences*, 80, 2: 139-143. Praha.

Zeman A., **Růžičková E.**, **Langrová A.**, Frolík J., Válek J. & Slížková Z. (2005): Petrografická a mineralogická charakteristika malt z kostela Panny Marie na Pražském Hradě. - *Castrum Pragense*, 6: 145-151. Praha.

Zupan-Hajna N., Mihevc A., **Pruner P.** & **Bosák P.** (2005): Nova spoznanja o starosti jamskih sedimentov v Sloveniji. - *Geološki Zbornik*, 18: 132-135. Ljubljana.

Zvelebil J., **Vařilová Z.** & Paluš M. (2005): Tools for Rock Fall Risk Integrated Management in Sandstone Landscape of Bohemian Switzerland National Park, czech Republic (M121). - In: Sassa K., Fukuoka H., Wang F. & Wang G. (Eds.): *Landslides. Risk Analysis and Sustainable Disaster Management*: 119-126. Springer. Heidelberg.

12b) Electronic media published in 2005

Allison L. & **Čejchan P.** (2005): libtree: a C library implementing binary tree data structure. - *computer library*.http://www.bell-labs/com/plan9dist under sources/contrib; ftp://ftp.gli.cas.cz/gli/cejchan/bio9/sys/src/lib/libtree-0.01.tbz;

Čejchan P. (2005): GNU Scientific Library for Plan9. - *ANSI-C code library; included within Plan9 OS distribution in section contrib/pac.* http://www.cs.bell-labs.com/plan9dist

Čejchan P. (2005): Mr. Bayes for Plan9 OS, version 3.1. - *computer program.* ftp://ftp.asuch.cas.cz/gli/cejchan/bio9/sys/src/cmd/bio/mrbayes-3.1.tbz

Čejchan P. (2005): Project 'histog': a program to draw circular/linear histograms in PostScript. Version 0.05. - *computer program.* https://sourceforge.net/project/showfiles.php?group_id=130323&package_id=142853&release_id=328631

Čejchan P. (2005): The 'bio9' Archive. - *web archive.* http://www.gli.cas.cz/home/cejchan/bio9/welcome.html

Zajíc J. (2005): Acanthodians. - *Aktualizovaná vědecká prezentace, databáze, v rámci projektu IGCP 491 - Middle Palaeozoic Vertebrate Biogeography, Palaeogeography and Climate.* http://www.gli.cas.cz/acanthodians/

12c) Abstracts published in 2005

Ackerman L. & Jelínek E. (2005): Platinum-group element geochemistry of subcontinental mantle xenoliths from the Bohemian Massif, Czech Republic. - In: Törmanen T.O., Alapieti T.T. (Eds): *10th International Platinum Symposium, University of Oulu, Finland, August 8–11. Extended Abstracts*: 269-272. Espoo.

Adachi T. & **Kletetschka G.** (2005): Fluorescent signatures of 2 Ma old travertine deposits in Death Valley. - *2005 AGU Fall Meeting, San Francisco, USA, December 5–9. Eos. Trans. AGU, 86(52), Fall Meet. Suppl., Abstract B31B-0998*: Washington.

Adamovič J. (2005): Sandstone cementation and its geomorphic and hydraulic implications. - In: Ries C. (Ed): *2nd International Conference on Sandstone Landscapes: Sandstone Landscapes in Europe – Past, present and future, Musée national d´histoire naturelle Luxembourg, Vianden, January May 25–28. Conference Abstracts*: 14-15. Vianden.

Aifa T. & **Pruner P.** (2005): Extruded blocks from Gondwana during its northern drift. Paleomagnetic results on various Paleozoic rocks from Brittany, Bohemia and Saharan platform and relationships with the northern West African Craton boundary. - In: Ennih N., Liégeois J.P. (Eds.): *3rd Symposium of " Cratons, metacrasons and mobile belts", UNESCO - IUGS IUGCP 485, Gao. Mali, November 21–28*: 1-3. Gao.

Bella P., **Bosák P.**, Głazek J., Hercman H., Kicińska D., Nowicki T., Pavlarčik S. & **Pruner P.** (2005): The antiquity of the famous Belianská Cave (Slovakia). – *14th International Congress of Speleology, Athens-Kalamos. Final Programme & Abstrakt Book*: 144-145.

Bella P., **Bosák P.**, Głazek J., Hercman H., Kicińska D., Nowicki T., Pavlarčík S. & **Pruner P.** (2005): The antiquity of the famous Belianská Cave (Slovakia). – in: P. Bosák, Z. Motyčka (Eds.): *Czech Speleological Society 2001-2004*: 54-55. Čes. Speleol. Spol. Praha.

Bosák P., **Pruner P.**, Mihevc A., Zupan Hajna N., Horáček J., **Kadlec J.**, **Man O.** & **Schnabl P.** (2005): Palaeomagnetic and palaeontological research in Račiška pečina Cave, SW Slovenia. – *14th International Congress of Speleology, Athens-Kalamos. Final Programme & Abstrakt Book*: 204-205.

Bruthans J., **Filippi M.**, **Bosák P.** & Zare M. (2005): Mature cave systems in salt and their evolution under sea-level oscillations and salt diapir uplif (Persian gulf, Iran). - In: Gutiérrez F., Gutiérrez M., Desir G., Buerrero J., Lucha P., Marín C., García-Ruiz J-M. (Eds:): *Sixth International Conference on Geomorphology – Geomorphology in regions of environmental contrasts, University of Zaragoza, Zaragoza (Spain), September 7–11. Abstract volume*: 442. Zaragoza (Spain).

Cajz V., Mrlina J., **Adamovič J.**, Mach K. & Mertlík J. (2005): Strukturní aspekty vývoje vulkanického centra Českého středohoří. - In: Breiter K. (Ed.): *2. sjezd České geologické společnosti (2nd Congress of the Czech Geological Society), Slavonice, October 19–22. Sborník abstrakt a exkurzní průvodce*: 19-21. Praha.

Carls P., **Slavík L.** & Valenzuela-Ríos J. (2005): Reconstrucción del aparato de un Spathognathodontidae del Ludlow de Bohemia (Conodonta, Silúrico, República Checa). - In: Bernáldes Sánchez E., Mayoral Alfaro E. & Guerreiro dos Santos A. (Eds.): *XXI Jornadas de la Sociedad Española de Paleontología, Simposio del PICG 499, Sevilla, October 4–8. Libro de Resúmenes*: 181-182. Sevilla.

Carls P., **Slavík L.** & Valenzuela-Ríos J. (2005): Zajímavosti svrchnosilurských konodontových faun z Barrandienu. - In: Lehotský T. (Ed.): *6th Paleontological Workshop (Czech-Slovak-Polish) (6. paleontologický seminář), Olomouc, September 14–15. Book of abstracts/sborník abstraktů*: 13-14. Olomouc.

Čejchan P. (2005): Tournaiské radiolárie z lokality Mokrá u Brna. - In: Lehotský T. (Ed): *6th Paleontological Workshop (Czech-Slovak-Polish) (6. paleontologický seminář), Olomouc, September 14–15. Book of abstracts/sborník abstraktů*: 14-16. Olomouc.

Cifelli F., Mattei M., **Chadima M.**, Hirt Ann-M. & Hansen A. (2005): Combined neutron texture and magnetic analyses on "undeformed" clays: the origon of tectonic lineation in extensional basins. - In: - (Ed): *AGU Fall Meeting 2004, San Francisco, California, December 13–17*: 1. San Francisco.

Danišík M., Dunkl I., **Kadlec J.** & Frisch W. (2005): Cooling History of Tatric Crystaline Basement of Nízké Tatry Mts. (Western Carpathians) Inferred from Apatite Fission Track and (U-Th)/He Analysis – Preliminary Results. - *Geolines*, 19: 31-32.

Dašková J. & Libertín M. (2005): Changing of the swamp forest associations due to the compression of the peat (Intrasudetic Basin, Czech Republic). - In: Pšenička J. (Ed.): *The 16th International Plant Taphonomy Meeting, September 16–18. Book of Conference Abstracts*: 16. Pilsen.

Demek J., Havlíček M., Kirchner K., Nehyba S. & **Lisá L.** (2005): K rozšíření poznatků o kvartérních sedimentech na Červeném kopci v Brně. - In: Rypl J. (Ed.): *Conference of Geomorphology, Agricultural University, Nove Hrady, May 26–28. Proceedings*: 159-162. České Budějovice.

Drahota P. (2005): Weathering of As-rich rocks in the Čelina-Mokrsko gold district, Bohemian Massif (CZ). - *Securing the Future 2005, International Conference on Mining and the Environment Metals and Energy Recovery, SveMin, Skelleftea, Sweden, June 27–30. Proceedings*: 242-251. Skelleftea.

Drahota P. (2005): Určení rychlosti zvětrávání arzenopyritu metodou hmotnostní bilance. - In: Filip J., Cempírek J., Burger D. (Eds.): *Studentská geologická konference 2005, PřF MU, Brno, May 22–23*: 11. Brno.

Drahota P. & Pertold Z. (2005): Fluxes of Arsenic in Soil-Water System at the Čelina-Mokrsko Gold District, Bohemian Massif. - In: Mao J., Bierlein F.P (Eds.): *Mineral Deposit research: Meeting the Global Challenge, Beijing, August 18–21. Proceedings of the Eighth Biennial SGA Meeting*: 927-930. Berlin.

Drahota P., Pertold Z. & Pudilová M. (2005): Genesis of Regionally Metamorphosed Skarns from the Bohemian Massif: Contact Metasomatic vs. Sedimentary-Exhalative. - In: Mao J., Bierlein F.P. (Eds.): *Mineral Deposit research: Meeting the Global Challenge, Beijing, August 18–21. Proceedings of the Eighth Biennial SGA Meeting*: 377-380. Berlin.

Filippi M., Bruthans J., **Bosák P.** & Zare M. (2005): A preliminary note on a various types of chemogenic infillings from halite karst, SE Zagros Mts., Iran. - *13th International Karstological School "Classical Karst" - Karst in various rocks, Karst Research Institute ZRC SAZU, Postojna, Slovenija, June 27–30. Guide-booklet for the excursions and abstracts of presentations*: 26. Postojna.

Flanary B.E. & **Kletetschka G.** (2005): For a tree time can be slowed down: Analysis of proliferation capacity of tree cells. - *Strategies for Engineered Negligible Senescence (SENS), Second Conference, Queens College, Cambridge, England, September 7–11. Rejuvenation Research, 8, Supplement 1*: 1. Cambridge.

Giester G., Pertlik F. & **Ulrych J.** (2005): Die Kristallstruktur des Minerals Hainit. - *Mittteilungen der Österreichischen Mineralogischen Gesselschaft*, 151: 45-45.

Havlík A., **Žák K.**, Hejduk J. & Picek T. (2005): Splaveninový režim Berounky. - In: J. Plechatý S. Chumová (Eds.): *Vodní toky 2005, November 29–30, sborník z konference*: 20-23. Praha.

Hladil J. (2005): Fenomén pražské pánve - příklady faciálních a stratigrafických studií. - In: Breiter K. (Ed.): *2. sjezd České geologické společnosti (2nd Congress of the Czech Geological Society), Slavonice, October 19–22. Sborník abstrakt a exkurzní průvodce*: 39-41. Praha.

Hladil J. (2005): Počáteční růstová stádia amfipor a archeocyátů – srovnání. - In: Lehotský T. (Ed.): *6th Paleontological Workshop (Czech-Slovak-Polish) (6. paleontologický seminář), Olomouc, September 14–15. 6th Paleontol. Workshop - Coll. of Contributions (6. paleontologický seminář - sborník př.)*: 26-28. Olomouc.

Hojdová M., Huang J.H. & Matzner E. (2005): Influence of experimental changing precipitation and litterfall on dynamics of mercury and methylmercury in the forest floor. - In: Hůnová I., Ostatnická J., Dostálová Z., Navrátil T. (Eds.): *Acid Rain 2005, 7th International Conference on Acid Deposition, Prague, June 12–17. Conference Abstracts*: 336. Prague.

Hradecká L., **Svobodová M.** & Švábenická L. (2005): Mikrobiostratigrafický výzkum svrchnokřídových sedimentů gosauské skupiny Severních vápencových Alp v Rakousku. - In: Lehotský T. (Ed): *6th Paleontological Workshop (Czech-Slovak-Polish) (6. paleontologický seminář), Olomouc, September 14–15. 6th Paleontological Workshop - Coll. of Contributions*: 29-31. Olomouc.

Hrouda F., **Chadima M.**, Krejčí O., Otava J. & Stráník Z. (2005): Contrasting Magnetic Fabric in Sedimentary Rocks of the Accretionary Prisms of the Western Carpathians and Eastern Rheno-Hercynian Zone. - *Geolines*, 19: 49-50.

Kadlec J. & Diehl J.F. (2005): Magnetic properties of floodplain deposits along the banks of the Morava River (Czech republic). - *The IRM Quarterly*, 5, 3: 2-3. Minneapolis.

Kadlec J., Diehl J.F., Beske-Diehl S. & Grygar T. (2005): Holocene flood activity of the Morava River reconstructed based on enviromental magnetic data. - In: M. Ábelová, M. Ivanov (Eds.): *11. KVARTÉR, Brno, December 1. Sborník abstrakt*: 11. Brno.

Kletetschka G., Acuna M.H., Connerney J.E.P., Wasilewski P.J. & Ness N.F. (2005): Magnetic coercivity and intensity of Mars crust: Dichotomy formation via unicellular convection mechanism. - *2005 AGU Fall Meeting, San Francisco, USA, December 5–9. EOS Trans. AGU, 86(52), Fall Meet. Suppl., Abstract GP43A-0884*: Washington.

Kletetschka G., Freund F., Wasilewski P.J., Mikula V. & **Kohout T.** (2005): Antipodal Magnetic Anomalies on the Moon, Contributions from Impact Induced Currents Due to Positive Holes and Flexoelectric Phenomena and Dynamo. - *36th Lunar and Planetary Science Conference, Houston, USA, April 14–18. CD ROM, Lunar and Planetary Science XXXVI, 1854.pdf*: 1854. Houston.

Kletetschka G., **Kohout T.**, Connerney J.E.P., Acuna M.H., Wasilewski P.J. & Ness N.F. (2005): Role shape anisotropy and grain size dependence of magnetic minerals in TRM/SIRM acquisition; relation to magnetic anomalies on Mars. - *10th Scientific Assembly of the International Assotiation of Geomagnetism and Aeronomy, IAGA, Toulouse, France, July 18–29. IAGA 2005 (Abstracts), CD ROM*: 1. Katlenburg-Lindau.

Kletetschka G., **Kohout T.**, Wasilewski P. & Fuller M. (2005): Recognition of thermal remanent magnetization in rocks and meteorites. - *10th Scientific Assembly of the International Assotiation of Geomagnetism and Aeronomy, IAGA, Toulouse, France, July 18–29. IAGA 2005 (Abstracts), CD ROM*: 1. Katlenburg-Lindau.

Kletetschka G., Wasilewski P.J. & Zila V. (2005): Magnetic paleofield estimates for chondrules extracted from Bjurbole (L4) meteorite. - *68th Annual Meeting of the Meteoritical Society, Gatlinburg, Tennesse, USA, September 12–16. Meteoritics & Planetary Science Supplement 40, 9*: 82. Gatlinburg.

Knésl I. & **Ackerman L.** (2005): PGE mineralisation of the Bohemian Massif, Czech Republic: An overview. - In: Törmanen T.O., Alapieti T.T. (Eda.): *10th International Platinum Symposium, University of Oulu, Finland, August 8–11. Extended Abstracts*: 408-411. Espoo.

Kohout T. & Pesonen L.J. (2005): Chondrule Magnetic Test of Avanhandava H4 Chondrite. - *67th Annual Meeting of the Meteoritical Society, Gatliburg, Tennessee, USA, September 12–16. Meteoritics & Planetary Science Supplement 40, 9, A85*: 85. Gatliburg.

Kohout T. & Pesonen L.J. (2005): Magnetic Paleofield of Avanhandava H4 Chondrite's Matrix and Chondrules - Implications on Magnetic Fields in Early Solar System. - *2005 AGU Fall Meeting, San Frasncisco, USA, December 5–9. Eos. Trans. AGU, 86 (52), Fall Meet. Suppl.:* Abstract GP43A-0886. Washington.

Kohout T., Donadini F., **Kletetschka G.** & Pesonen L.J. (2005): The possible scenarios of the Neuschwanstein's NRM origin. - *EGU General Assembly 2005, Vienna, Austria, May 24–29. Geophysical Research Abstracts, CD ROM*: 1-2. Vienna.

Kohout T., **Kletetschka G.**, Pesonen L.J. & Wasilewski P.J. (2005): Determination of Meteorite Porosity Using Liquid Nitrogen. - *36th Lunar and Planetary Science Conference, Houston, USA, April 14–18. CD ROM, Lunar and Planetary Science XXXVI, 1743.pdf*: 1743. Houston.

Kraft P. & **Štorch P.** (2005): Graptolite fossil record as a principal tool in reconstruction of the Lower Silurian sedimentary succession of the Hlinsko Zone, NE Bohemian Massif, Czech Republic. - In: Eriksson M., Calner M. (Eds.): *The Dynamic Silurian Earth – Subcommission on Silurian Stratigraphy Field Meeting 2005, University of Lund, Visby, August 15–23. Field guide and Abstracts, SGU Rapporter och meddelanden*: 77. Uppsala.

Kubínová P. (2005): Význam lesní vegetace v koloběhu prvků skupiny železa. - In: Podskalská H., Zasadil P. (Eds.): *Biodiverzita 2005, Chloumek u Mělníka, November 5–6. Book of Conference Abstracts*: 17. Praha.

Lisá L. & Bajer A. (2005): Nové poznatky o fluviální sedimentaci „Ponávky“ na území města Brna. - In: Ivanov M. (Ed): *Kvartér. 11. pracovní seminář, Brno, December 01. sborník*: 4-6. Brno.

Lisá L. & Burianek D. (2005): Garnet composition and heavy mineral assemblage in Loess - the method for climate change determination. - *4th IAS Sedimentology conference, Muscat, Oman, January – Abstract book*: 102. Muscat.

Ložek V. & Jäger K.D. (2005): On the contribution of palaeomalacology to the stratigraphical placement of pleistocene travertine sties in Central Europe. - *1st International Symposium on Travertine, Pammukale, September 21-25, 2005. Proceedings*: 95. Ankara.

Malý K., **Adamovič J.**, Jehlička J. & Zachariáš J. (2005): Formy SiO2 v silicifikovaných pískovcích okrajových částí oherského riftu. - In: Breiter K. (Ed): *2. sjezd České geologické společnosti (2nd*

Congress of the Czech Geological Society), Slavonice, October 19–22. Sborník abstrakt a exkurzní průvodce: 68. Praha.

Martínek K., **Svojtka M.** & **Filip J.** (2005): Post-sedimentary Mesozoic-Cenozoic thermotectonic evolution of the Krkonoše Piedmont Basin (Bohemian Massif) interpreted from apatite fission-track analysis. - *Geolines*, 19: 81-82. Praha.

Matulková I., Teubner K., Němec I., **Rohovec J.** & Mička Z. (2005): Bis[(5RS,11RS)-2,8-dimethyl-5,10-methano-5,6,11,12-tetrahydrodibenzo[b,f][1,5]-diazocine-5-ium dihydrogen phosphate] tris(phosphoric acid) methanol solvate. - *Acta Crystallographica, Section E*, 61, 11. Oxon

Mentlík P., **Lisá L.** & Břízová E. (2005): Glacial forms and development of the landscape during Pleistocene and Holocene in the vicinity of Prášilské Lake (Bavarian Forest, Czech Republic). - In: Gutieréz, F., Gutieréz, M., Desir, G., Guerrero, J., Lucha, P., Marín, C., García-Ruiz, J. M. (Eds.): *6th International Conference on Geomorphology, Zaragoza, Spain, January 2005. Abstract volume*: 10. Zaragoza, Spain.

Mertlík J. & **Adamovič J.** (2005): Some significant geomorphic features of the Klokočí Cuesta, Czech Republic. - In: Ries C. (Ed.): *2nd International Conference on Sandstone Landscapes: Sandstone Landscapes in Europe – Past, present and future, Musée national d´histoire naturelle Luxembourg, Vianden, January May 25–May 28. Conference Abstracts*: 70-71. Vianden.

Mikuláš R. & Dronov A. (2005): Trace fossils and ichnofabrics of the Obukhovo and Dubovik Formations (Kunda and Aseri), Middle Orddovician) in the St Petersburg Region. - In: Koren T., Evdokimova I., Tolmacheva T. (Eds.): *The Sixth Baltic Stratigraphical Conference, Baltic Stratigraphical Association; St Petersburg, August 23–25. The Sixth Baltic Stratigraphical Conference, Abstracts*: 75-76. St Petersburg.

Mikuláš R., Budil P., Bokr P., Röhlich P., Kraft P., Krupička J. & Verner K. (2005): Nové údaje o svrchním ordoviku zjištěné při stavbě železničního koridoru mezi nádražími Praha-Libeň a Praha-Masarykovo nádraží. - In: Breiter K. (Ed.): *2. sjezd České geologické společnosti (2nd Congress of the Czech Geological Society), Slavonice, October 19–22. 2.sjezd České geologické společonosti, Slavonice 19.22. října, Sborník abstrakt a exkurzní průvodce*: 61. Slavonice.

Mrlina J., **Cajz V.**, **Adamovič J.** & Mach K. (2005): Combined geophysical and geological study of a Tertiary volcanic centre in the Bohemian Cretaceous Basin. - *67th EAGE Conference and Exhibition, Madrid, June 13–16. Extended Abstracts P083 (CD only)*: 1-4. Madrid.

Nakamura D., Hirajima T. & **Svojtka M.** (2005): Variety in chemical zonation of garnet in eclogite from Nové Dvory, Czech Republic. - In: Koller F., Tessadri R. (Eds.): *7th International eclogite conference, Graz, July 3–9. Mitteilungen der Österreichischen Mineralogischen Gesellschaft*: 114. Graz.

Navrátil T., **Vach M.**, **Skřivan P.**, Fottová D., **Špičková J.** & **Burian M.** (2005): Recent trends in bulk deposition of As, Be, Cd, Cu, Mn, Pb and Zn over central Czech Republic. - In: Hůnová I., Ostatnická J., Dostálová Z., Navrátil T. (Eds.): *Acid Rain 2005, 7th International Conference on Acid Deposition, Prague, June 12–17. Conference Abstracts*: ADD-1. Prague.

Nazarova K., **Kletetschka G.** & Pisarevsky S. (2005): Magnetic Comparison of Terrestrial Banded Iron Formations and Martian Layered Deposits. - *10th Scientific Assembly of the International Assotiation of Geomagnetism and Aeronomy, Toulouse, France, July 18–29. IAGA 2005 (Abstracts), CD ROM*: 1. Katlenburg-Lindau.

Pruner P., **Bosák P.**, Mihevc A. & Zupan-Hajna N. (2005): Magnetostratigraphy of cave sediments in central Europe: experience and thresholds. - *10th Scientific Assembly of the International Assotiation of Geomagnetism and Aeronomy, Toulouse, France, July 18–29. IAGA 2005 (Abstracts), CD ROM*: 1-2. Katlenburg-Lindau.

Pruner P., **Houša V.**, Košťák M., **Chadima M.**, Zakharov V.A., **Man O.**, **Šlechta S.**, Mazuch M. & Rogov M. (2005): Detailed magnetostratigraphy and paleontology across the J/K boundary strata on the Nordvik Penisula in the Boreal realm and possibility of correlation with Tethyan realm. - *10th Scientific Assembly of the International Assotiation of Geomagnetism and Aeronomy, Toulouse, France, July 18–29. IAGA 2005 (Abstracts), CD ROM*: 1-2. Katlenburg-Lindau.

Pruner P., Zupan-Hajna N., Mihevc A., **Bosák P.**, **Man O.**, **Schnabl P.** & **Šlechta S.** (2005): Palaeomagnetic research of cave sediments in Slovenia in 2004. - *13th International Karstological School "Classical Karst" – Karst in various rocks, Postojna, June 27–30. Guide-booklet for the excursion and abstracts of presentation*: 35-36. Postojna.

Rage J. & **Roček Z.** (2005): Thaumastosaurus bottii, amphibien anoure des phosphorites. Des anciennes collections aux nouvelles récoltes. - *Journées Bernard Geze, University of Montpellier, Lalbenque & Limogne-en-Quercy, October 1–3. Book of Conference Abstracts*: 26. Lalbenque & Limogne-en-Quercy.

Roček Z. (2005) Developmental patterns of Mesozoic pipid frogs and problem of Pipidae-Palaeobatrachidae relationships. - *5th World Congress of Herpetology, Stellenbosch, South Africa, 19-24 June 2005. Programme and Abstracts*: 87.

Roček Z. (2005) Unusual features of the head anatomy in the discoglossid frog *Barbourula*. - *5th World Congress of Herpetology, Stellenbosch, South Africa, 19-24 June 2005. Programme and Abstracts*: 87-88.

Řanda Z., Frána J., Mizera J., Kučera J., **Novák J.K.**, **Ulrych J.**, Bělov A.G. & Maslov O.D. (2005): Instrumental neutron and photon activation analysis of phonolites: An important tool to distinguish common and anomalous phonolite types from the Ohře (Eger) rift, Czech Republic. - In: Ünak T. (Ed.): *1st International Nuclear Chemistry Congress, Kusadasi, May 22–29. Book of Conference Abstracts*: 187. Izmir.

Rohovec J. (2005): Kombinace ICP-OES a metod termické analýzy. - In: Helán V. (Ed.): *Mikroelementy 2005, 2Theta Český Těšín, Medlov, September 5–7. sborník přednášek*: 33-35. Medlov.

Siblík M. & Bryda G. (2005): Brachiopods from the Upper Triassic Reef habitats of the Northern Calcareous Alps (Dachstein Limestone, Hochschwab, Austria). - In: Harper D., Long. S., McCorry M. (Eds.): *5. international Brachiopod Congress, Copenhagen, July 4–8. Book of Conference Abstracts*: 49. Copenhagen.

Skála R. & Čada M. (2005): Moldavites from the Cheb Basin, Czech Republic. - *68th Annual Meeting of the Meteoritical Society, Gatlinburg, Tennessee, USA, September 12–16. Meteoritics & Planetary Science, Supplement*: 143. Hanover, USA.

Skála R. & Drábek M. (2005): Influence of titanium content on crystal structure of iron monosulfide. - *68th Annual Meeting of the Meteoritical Society, Gatlinburg, Tennessee, USA, September 12–16. Meteoritics & Planetary Science, Supplement*: 143. Hanover, USA.

Sláma J. & Košler J. (2005): Significance of isobaric interferences in Hf isotopic analyses of geological samples. - In: Barnes R.M. (Eds.): *European Winter Conference on Plasma Spectrochemistry WINTER 2005, January 30–February 3, 2005, Budapest, Hungary. Plasma spectrochemical abstracts, ICP Information Newsletter*: 930. Amherst,.

Sláma J. & Košler J. (2005): Use of Hf isotopes for tracing metamorphic processes. - In: František Buzek (Ed): *6th International symposium on Applied Isotope Geochemistry, Břevnov Abbey, Prague, Czech Republic, September 11–16, 2005. AIG 6 abstracts*: 226-227. Prague.

Slavík L. (2005): Vybrané stratigrafické problémy siluru a devonu Barrandienu z hlediska konodontové fauny. - In: Breiter K. (Ed.): *2. sjezd České geologické společnosti (2nd Congress of the Czech Geological Society), Slavonice, October 19–22. Sborník abstrakt a exkurzní průvodce (Abstracts and Field Trip Guidebook)*: 93. Praha.

Špičková J., **Dobešová I.**, **Vach M.**, **Skřivan P.** & **Burian M.** (2005): The influence of the limestone-quarry Čertovy schody on the precipitation chemistry and atmospheric deposition. - In: Hůnová I., Ostatnická J., Dostálová Z., Navrátil T. (Eds.): *Acid Rain 2005, 7th International Conference on Acid Deposition, Prague, June 12–17. Conference Abstracts*: 132. Prague.

Špičková J., **Navrátil T.**, **Skřivan P.**, **Rohovec J.** & Mihaljevič M. (2005): Distribution and geochemistry of the REE in the small catchment Lesní potok, Czech Republic. - In: Hůnová I., Ostatnická J., Dostálová Z., Navrátil T. (Ed): *Acid Rain 2005, 7th International Conference on Acid Deposition, Prague, June 12–17. Conference Abstracts*: 364. Prague.

Štorch P. (2005): Facies development, depositional settings and sequence stratigraphy accross the Ordovician-Silurian boundary: a record from the Barrandian area of Bohemia, Czech Republic. - In: Eriksson M., Calner M. (Eds.): *The Dynamic Silurian Earth – Subcommission on Silurian Stratigraphy Field Meeting 2005, University of Lund, Visby, August 15–22. Field guide and Abstracts, SGU Rapporter och meddelanden*: 93. Uppsala.

Štorch P. & Massa D. (2005): Middle Telychian (Llandovery) graptolites of North-African intracratonic basins and coeval graptolite fauna of the peri-Gondwanan Europe: biostratigraphic correlation and palaeogeographical implication. - In: Eriksson M., Calner M. (Eds.): *The Dynamic Silurian Earth –*

Subcommission on Silurian Stratigraphy Field Meeting 2005, University of Lund, Visby, August 15–22. Field guide and Abstracts, SGU Rapporter och meddelanden: 94. Uppsala.

Svojtka M. (2005): Vysokotlaké eklogity doprovázené granátickými peridotity. - *Výroční zpráva o činnosti Akademie věd ČR 2004* . Praha.

Svojtka M., **Filip J.** & Martínek K. (2005): Cooling and erosion history of the Krkonoše Piedmont Basin (Bohemian Massif, Czech Republic) interpreted from apatite fission-track analysis. - *EGU General Assembly 2005, Vienna, Austria, May 24–29. Geophysical Research Abstract, Volume 7, 2005*: 4925-4926. Vienna.

Turek V., **Mikuláš R.** & Libertín M. (2005): Nové ichnofosilie z fluviálních svrchnokarbonských sedimentů vnitrosudetské pánve. - In: Lehotský T. (Ed.): *6th Paleontological Workshop (Czech-Slovak-Polish) (6. paleontologický seminář), Olomouc, September 14–15. 6. paleontologický seminář - sborník příspěvků*: 59-60. Olomouc.

Vach M., **Navrátil T.**, **Skřivan P.**, **Špičková J.** & **Kubínová P.** (2005): The reduction of precipitation amount bias in the analysis of time series of wet deposition chemism. - In: Hůnová I., Ostatnická J., Dostálová Z., Navrátil T. (Eds.): *Acid Rain 2005, 7th International Conference on Acid Deposition, Prague, June 12–17. Conference Abstracts*: 137. Prague.

Vaněček M., Milický M., Záruba J., Michálková J., **Navrátil T.**, Rousová P., Sekulová J., Vik M., Kolaříková I., Polák M., Sosna K. & Hanus R. (2005): Metody a nástroje hodnocení vlivu inženýrských bariér na vzdálené interakce v prostředí hlubinného úložiště. - *12. Národní hydrogeologický kongres, Česká asociace hydrogeologů, České Budějovice, September 19–22. Book of Conference Abstracts*: ADD1. České Budějovice.

Zachariáš J., Pudilová M. & **Adamovič J.** (2005): Ferruginous crusts and cements in the northern part of Bohemian Cretaceous Basin: Genetic implications from O and H isotopes. - *6th International Symposium on Applied Isotope Geochemistry, AIG-6, International Association of Geochemistry, Praha, September 11–16. Abstracts*: 262-263. Praha.

Žák K. (2005): Field Trip Guide, Stop 4, Karlovy Vary. - In: International Association of Geochemistry (Ed): *6th International Symposium on Applied Isotope Geochemistry, AIG-6, International Association of Geochemistry, Praha, September 11–16, Program, Field Trip Guide*: 35-37. Praha.

Žítt J. (2005): Tafonomie echinodermat štramberské spodní křídy. - In: Lehotský T. (Ed): *6th Paleontological Workshop (Czech-Slovak-Polish) (6. paleontologický seminář), Olomouc, September 14–15, 9. Book of contributions*: 69. Olomouc.

12d) Lectures and poster presentations in 2005

Ackerman L. & Jelínek E.: Platinum-group element geochemistry of subcontinental mantle xenoliths from the Bohemian Massif, Czech Republic. *Poster. 10th International Platinum Symposium, August 8–11, 2005.* Finland.

Adachi T. & **Kletetschka G.**: Fluorescent signatures of 2 Ma old travertine deposits in Death Valley. *Poster. 2005 AGU Fall Meeting, December 5–9, 2005.* San Francisco.

Adamovič J.: Sandstone cementation and its geomorphic and hydraulic implications. *Lecture. 2nd International Conference on Sandstone Landscapes: Sandstone Landscapes in Europe – Past, present and future, January May 25–28, 2005.* Vianden.

Aifa T. & **Pruner P.**: Extruded blocks from Gondwana during its northern drift. Paleomagnetic results on various Paleozoic rocks from Brittany, Bohemia and Saharan platform and relationships with the northern West African Craton boundary. *Lecture. 3rd Symposium of " Cratons, metacrasons and mobile belts", November 21–28, 2005.* Gao. Mali.

Bek J. & Libertín M.: Excavations of Pennsylvanian plant assemblages preserved in volcanis ash in their original position, Ovčín locality, Radnice Basin, Czech Republic. *Invited Lecture. November 10, 2005.* Peking.

Bek J. & Libertín M.: Excavations of Pennsylvanian plant assemblages preserved in volcanis ash in their original position, Ovčín locality, Radnice Basin, Czech Republic. *Invited Lecture. November 11, 2005.* Peking.

Bek J. & Libertín M.: Reproductive organs of Pennsylvanian lycopsids and their spores from the Carboniferous continental basins of the Czech Republic. *Invited Lecture. November 10, 2005.* Peking.

Bek J. & Libertín M.: Sphenophyllalean cones and their spores from the Late Palaeozoic basins of the Czech Republic. *Invited Lecture. November 11, 2005.* Peking.

Bek J.: Dispersed spore assemblages of the eastern part of the Upper Silesian Basin, Czech Republic. *Lecture. IGCP 469 Meeting, Cardiff 2005, May 14–16, 2005.* Cardiff.

Bek J.: Palynological evidence of palaeoecological changes in coal seams of four profiles in the Kladno-Rakovník Basin, Czech Republic. *Lecture. IGCP 469 Meeting, Cardiff 2005, May 14–16, 2005.* Cardiff.

Bek J.: Role of palynology in the reconstruction of plant assemblages. *Lecture. International Plant Taphonomy Meeting, September 11–12, 2005.* Plzeň.

Bek J., Libertín M. & **Dašková J.**: Excavations of Pennsylvanian plant assemblages preserved in volcanis ash in their original position, Ovčín locality, Radnice Basin, Czech Republic. *Invited Lecture. November 1, 2005.* Cleveland.

Bek J., Libertín M. & **Dašková J.**: Reproductive organs of Pennsylvanian lycopsids and their spores from the Carboniferous continental basins of the Czech Republic. *Invited Lecture. November 1, 2005.* Cleveland.

Bella P., **Bosák P.**, Głazek J., Herman H., Kicińska D., Nowicki T., Pavlarčik S. & **Pruner P.** The antiquity of the famous Belianská Cave (Slovakia). *Lecture*. *14th International Congress of Speleology, Athens-Kalamos*. 26.8.2005.

Bosák P. Karst: problem of definition, process and rock. *Key speaker lecture. 13th International Karstological School „Classical Karst" Karst in Various Rocks, Postojna, Slovenia.* 28.6.2005.

Bosák P. Kras – past na paleogeografický záznam. *Lecture. Letní škola kvartérních studií 2005*. Úst. Geol. Věd MU Brno. 15.7.2005.

Bosák P., **Pruner P.**, Mihevc A., Zupan Hajna N., Horáček J., **Kadlec J.**, **Man O.** & **Schnabl P.** Palaeomagnetic and palaeontological research in Račiška pečina Cave, SW Slovenia. *Poster. 14th International Congress of Speleology, Athens-Kalamos*. 22.-27.8.2005.

Bruthans J., **Filippi M.**, **Bosák P.** & Zare M.: Mature cave systems in salt and their evolution under sea-level oscillations and salt diapir uplif (Persian gulf, Iran). *Lecture. Sixth International Conference on Geomorphology – Geomorphology in regions of environmental contrasts, September 7–11, 2005.* Zaragoza.

Bruthans J., Vojtěchovská A., Kukačka J., **Zeman O.** & Horáček D.: Nové poznatky o proudění a vzniku propasti Rokytka v Kryštofově údolí u Liberce. *Lecture. Speleofórum, May 15–17, 2005.* Rudice.

Cajz V.: Příspěvek ke genezi skalických křemenců a souvislostí s existencí nově identifikovaného bazaltického ignimbritu. *Lecture. 3. Seminář Geologické společnosti J.E. Hibsche, May 23, 2005.* Ústi nad Labem.

Cajz V.: Výsledky nového strukturního výzkumu v oblasti roztockého vulkanického centra. *Lecture. 3. Seminář Geologické společnosti J.E. Hibsche, May 23, 2005.* Ústi nad Labem.

Cajz V., Mrlina J., **Adamovič J.**, Mach K. & Mertlík J.: Strukturní aspekty vývoje vulkanického centra Českého středohoří. *Invited Lecture. 2. sjezd České geologické společnosti (2nd Congress of the Czech Geological Society), October 19–22, 2005.* Slavonice.

Carls P., **Slavík L.** & Valenzuela-Ríos J.: Reconstrucción del aparato de un Spathognathodontidae del Ludlow de Bohemia (Conodonta, Silúrico, República Checa). *Lecture. XXI Jornadas de la Sociedad Española de Paleontología, Simposio del PICG 499, October 4–8, 2005.* Sevilla.

Carls P., **Slavík L.** & Valenzuela-Ríos J.: Zajímavosti svrchnosilurských konodontových faun z Barrandienu. *Lecture. 6th Paleontological Workshop (Czech-Slovak-Polish) (6. paleontologický seminář), September 14–15, 2005.* Olomouc.

Čech S., Hradecká L., **Svobodová M.** & Švábenická L.: Hranice cenoman-turon v české křídové pánvi. *Poster. Czech Geological Society, October 19–22, 2005.* Slavonice.

Čejchan P.: Tournaiské radiolárie z lokality Mokrá u Brna. *Lecture. 6. paleontologický seminář, September 99, 2005.* Olomouc.

Chaloupecký P., **Špičková J.**, Fišák J. & **Skřivan P.**: Srovnání chemického složení podkorunových a usazených srážek. *Lecture. Hydrologie malého povodí 2005, September 14–15, 2005.* Praha.

Cifelli F., Mattei M., **Chadima M.**, Hirt Ann-M. & Hansen A.: Combined neutron texture and magnetic analyses on "undeformed" clays: the origon of tectonic lineation in extensional basins. *Poster. AGU Fall Meeting 2004, December 13–17, 2005.* San Francisco.

Dašková J. & Libertín M.: Changing of the swamp forest associations due to the compression of the peat (Intrasudetic Basin, Czech Republic). *Lecture. The 16th International Plant Taphonomy Meeting, September 16–18, 2005.* Pilsen.

Demek J., Havlíček M., Kirchner K., Nehyba S. & **Lisá L.**: K rozšíření poznatků o kvartérních sedimentech na Červeném kopci v Brně. *Lecture. Conference of Geomorphology, May 26–28, 2005.* Nove Hrady.

Drahota P. & Pertold Z.: Fluxes of Arsenic in Soil-Water System at the Čelina-Mokrsko Gold District, Bohemian Massif. *Poster. Mineral Deposit research: Meeting the Global Challenge, August 18–21, 2005.* Beijing.

Drahota P.: Určení rychlosti zvětrávání arzenopyritu metodou hmotnostní bilance. *Lecture. Studentská geologická konference 2005, May 22–23, 2005.* Brno.

Drahota P.: Weathering of As-rich rocks in the Čelina-Mokrsko gold district, Bohemian Massif (CZ). *Lecture. Securing the Future 2005, International Conference on Mining and the Environment Metals and Energy Recovery, June 27–30, 2005.* Skelleftea.

Drahota P., Pertold Z. & Pudilová M.: Genesis of Regionally Metamorphosed Skarns from the Bohemian Massif: Contact Metasomatic vs. Sedimentary-Exhalative. *Lecture. Mineral Deposit research: Meeting the Global Challenge, August 18–21, 2005.* Beijing.

Filippi M., Bruthans J., **Bosák P.** & Zare M.: A preliminary note on a various types of chemogenic infillings from halite karst, SE Zagros Mts., Iran. *Poster. 13th International Karstological School "Classical Karst" – Karst in various rocks, June 27–30, 2005.* Postojna.

Flanary B.E. & **Kletetschka G.**: For a tree time can be slowed down: Analysis of proliferation capacity of tree cells. *Poster. Strategies for Engineered Negligible Senescence (SENS), Second Conference, September 7–11, 2005.* CambridgeEngland.

Havlík A., **Žák K.**, Hejduk J. & Picek T.: Splaveninový režim Berounky. *Lecture. Vodní toky 2005, November 29–30, 2005.* Hradec Králové.

Hladil J.: Fenomén pražské pánve - příklady faciálních a stratigrafických studií. *Invited Lecture. 2. sjezd České geologické společnosti (2nd Congress of the Czech Geological Society), October 19–22, 2005.* Slavonice.

Hladil J.: Počáteční růstová stádia amfipor a archeocyátů – srovnání. *Lecture. 6th Paleontological Workshop (Czech-Slovak-Polish) (6. paleontologický seminář), September 14–15, 2005.* Olomouc.

Hojdová M., Huang J.H. & Matzner E.: Influence of experimental changing precipitation and litterfall on dynamics of mercury and methylmercury in the forest floor. *Poster. Acid Rain 2005, 7th International Conference on Acid Deposition, June 12–17, 2005.* Prague.

Hojdová M., **Rohovec J.** & **Navrátil T.**: Obsah a speciace rtuti v kontaminovaných půdách. *Lecture. Mikroelementy 2005, September 5–7, 2005.* Máchovo jezero.

Hradecká L., **Svobodová M.** & Švábenická L.: Mikrobiostratigrafický výzkum svrchnokřídových sedimentů gosauské skupiny Severních vápencových Alp v Rakousku. *Lecture. 6th Paleontological Workshop (Czech-Slovak-Polish) (6. paleontologický seminář), September 14–15, 2005.* Olomouc.

Hrouda F., **Chadima M.**, Schulmann K., Mixa P. & Krejčí O.: The AMS and ductile deformation of rocks of the acretionary prism of the easternmost Rheno-Hercynian: implications for dynamics of the respective subduction factory. *Lecture. 1st General Assembly 2004 EGU, May 25–30, 2005.* Nice.

Kadlec J., Diehl J.F., Beske-Diehl S. & Grygar T.: Holocene flood activity of the Morava River reconstructed based on enviromental magnetic data. *Lecture. 11. KVARTÉR, December 1, 2005.* Brno.

Kadlec J., Diehl J.F., Beske-Diehl S. & Grygar T.: Natural and human impacts on the magnetic signal from floodplain deposits of the Morava River (Czech Republic) *Lecture. Meeting at the Institute of Rock Magnetism, University of Minnesota, September 9, 2005.* Minneapolis.

Kletetschka G., Acuna M.H., Connerney J.E.P., Wasilewski P.J. & Ness N.F.: Magnetic coercivity and intensity of Mars crust: Dichotomy formation via unicellular convection mechanism. *Poster. 2005 AGU Fall Meeting, December 5–9, 2005.* San Francisco.

Kletetschka G., Freund F., Wasilewski P.J., Mikula V. & **Kohout T.**: Antipodal Magnetic Anomalies on the Moon, Contributions from Impact Induced Currents Due to Positive Holes and Flexoelectric Phenomena and Dynamo. *Poster. 36th Lunar and Planetary Science Conference, April 14–18, 2005.* Houston.

Kletetschka G., **Kohout T.**, Connerney J.E.P., Acuna M.H., Wasilewski P.J. & Ness N.F.: Role shape anisotropy and grain size dependence of magnetic minerals in TRM/SIRM acquisition; relation to

magnetic anomalies on Mars. Lecture. *10th Scientific Assembly of the International Assotiation of Geomagnetism and Aeronomy, July 18–29, 2005.* Toulouse.

Kletetschka G., **Kohout T.**, Wasilewski P. & Fuller M.: Recognition of thermal remanent magnetization in rocks and meteorites. Poster. *10th Scientific Assembly of the International Assotiation of Geomagnetism and Aeronomy, July 18–29, 2005.* Toulouse.

Kletetschka G., Wasilewski P.J. & Zila V.: Magnetic paleofield estimates for chondrules extracted from Bjurbole (L4) meteorite. Lecture. *68th Annual Meeting of the Meteoritical Society, September 12–16, 2005.* Gatlinburg.

Knésl I. & **Ackerman L.**: PGE mineralisation of the Bohemian Massif, Czech Republic: An overview. Poster. *10th International Platinum Symposium, August 8–11, 2005.* Finland.

Kohout T. & Pesonen L.J.: Chondrule Magnetic Test of Avanhandava H4 Chondrite. Lecture. *67th Annual Meeting of the Meteoritical Society, September 12–16, 2005.* Gatliburg.

Kohout T. & Pesonen L.J.: Magnetic Paleofield of Avanhandava H4 Chondrite's Matrix and Chondrules - Implications on Magnetic Fields in Early Solar System. Poster. *2005 AGU Fall Meeting, December 5–9, 2005.* San Frasncisco.

Kohout T., Donadini F., **Kletetschka G.** & Pesonen L.J.: The possible scenarios of the Neuschwanstein's NRM origin. Poster. *EGU General Assembly 2005, May 24–29, 2005.* Vienna.

Kohout T., **Kletetschka G.**, Pesonen L.J. & Wasilewski P.J.: Determination of Meteorite Porosity Using Liquid Nitrogen. Poster. *36th Lunar and Planetary Science Conference, April 14–18, 2005.* Houston, USA.

Konzalová M.: Příspěvek k vytváření obrazu nejstarších organizmů v historii Země čili nejstarší organizmy v historii Země. Lecture. *Teilhard, evoluce a globální spiritualita. 2. mezinárodní interdisciplinární konference, Projekt Globální perspektivy vědy a spirituality*, October 14–15. Palacký University Olomouc.

Kraft P. & **Štorch P.**: Graptolite fossil record as a principal tool in reconstruction of the Lower Silurian sedimentary succession of the Hlinsko Zone, NE Bohemian Massif, Czech Republic. Poster. *The Dynamic Silurian Earth - Subcommission on Silurian Stratigraphy Field Meeting 2005, August 15–15, 2005.* Visby.

Kraft P. & **Štorch P.**: Zásadní význam graptolitů při rekonstrukci vrstevního sledu spodního siluru (mrákotínské souvrství)hlinské zóny ve v. části Českého masívu. Poster. *2. sjezd České geologické společnosti (2nd Congress of the Czech Geological Society), October 19–22, 2005.* Slavonice.

Kubínová P.: Význam lesní vegetace v koloběhu prvků skupiny železa. Lecture. *Biodiverzita 2005, November 5–6, 2005.* Chloumek u Mělníka.

Kubínová P., **Skřivan P.**, **Navrátil T.** & **Rohovec J.**: Porovnání biogeochemických charakteristik Fe, Co, Ni. Lecture. *Mikroelementy 2005, September 5–7, 2005.* Máchovo jezero.

Libertín M., Drábková J. & **Bek J.**: Sternbergites, gen. nov. a new isosporous compression lycopsid from the Pennsylvanian of the Czech Republic. Lecture. *IGCP 469 Meeting, Cardiff 2005, May 14–16, 2005.* Cardiff.

Lisá L. & Bajer A.: Nové poznatky o fluviální sedimentaci „Ponávky“ na území města Brna. Lecture. *Kvartér – 11. pracovní seminář, December 1, 2005.* Brno.

Lisá L. & Burianek D.: Garnet composition and heavy mineral assemblage in Loess - the method for climate change determination. Poster. *24th IAS Sedimentology conference, January, 2005.* Muscat.

Ložek V. & Jäger K.-D.: On the contribution of palaeomalacology to the stratigraphical placement of pleistocene travertine sties in Central Europe. Poster. *International Symposium on Travertine,* September 21-25, 2005. Pamukkale University, Congress & Cultural Center. Denizli-Turkey.

Malý K., **Adamovič J.**, Jehlička J. & Zachariáš J.: Formy SiO2 v silicifikovaných pískovcích okrajových částí oherského riftu. Lecture. *2. sjezd České geologické společnosti (2nd Congress of the Czech Geological Society), October 19–22, 2005.* Slavonice.

Martínek K., **Svojtka M.** & **Filip J.**: Post-sedimentary Mesozoic-Cenozoic thermotectonic evolution of the Krkonoše Piedmont Basin (Bohemian Massif) interpreted from apatite fission-track analysis. Poster. *3rd Meeting of the Central European Tectonic Studies Group/10th Meeting of the Czech Tectonic Studies Group, May 14–17, 2005.* Felsotárkány.

Mentlik P., **Lisá L.** & Brizova E.: Glacial forms and development of the landscape during Pleistocene and Holocene in the vicinity of Prášilské Lake (Bavarian Forest, Czech Republic). Lecture. *Sixth International Conference on Geomorphology – Geomorphology in regions of environmental contrasts, September 7–11, 2005.* Zaragoza.

Mertlík J. & **Adamovič J.**: Some significant geomorphic features of the Klokočí Cuesta, Czech Republic. Poster. *2nd International Conference on Sandstone Landscapes: Sandstone Landscapes in Europe - Past, present and future, January May 25–28, 2005.* Vianden.

Mikšíková L., Vylita T., **Cílek V.**, **Žák K.** & Hercman H.: Geology, geochemistry and development of the travertine accumulation in the Karlovy Vary Spa, Czech Republic. Poster. *1st International Symposium on Travertine, September 21–25, 2005.* Denizli.

Mikuláš R. & Dronov A.: Trace fossils and ichnofabrics of the Obukhovo and Dubovik Formations (Kunda and Aseri), Middle Orddovician) in the St Petersburg Region. Lecture. *The Sixth Baltic Stratigraphical Conference, August 23–25, 2005.* St Petersburg.

Mikuláš R., Budil P., Bokr P., Röhlich P., Kraft P., Krupička J. & Verner K.: Nové údaje o svrchním ordoviku zjištěné při stavbě železničního koridoru mezi nádražími Praha-Libeň a Praha-Masarykovo nádraží. Lecture. *2. sjezd České geologické společnosti (2nd Congress of the Czech Geological Society), October 19–22, 2005.* Slavonice.

Mrlina J., **Cajz V.**, **Adamovič J.** & Mach K.: Combined geophysical and geological study of a Tertiary volcanic centre in the Bohemian Cretaceous Basin. Lecture. *67th EAGE Conference and Exhibition, June 13–16, 2005.* Madrid.

Nakamura D., Hirajima T. & **Svojtka M.**: Variety in chemical zonation of garnet in eclogite from Nové Dvory, Czech Republic. Poster. *7th International eclogite conference, July 3–9, 2005.* Graz.

Navrátil T., **Vach M.**, **Skřivan P.**, Fottová D., **Špičková J.** & **Burian M.**: Recent trends in bulk deposition of As, Be, Cd, Cu, Mn, Pb and Zn over central Czech Republic. Poster. *Acid Rain 2005, 7th International Conference on Acid Deposition, June 12–17, 2005.* Prague.

Nazarova K., **Kletetschka G.** & Pisarevsky S.: Magnetic Comparison of Terrestrial Banded Iron Formations and Martian Layered Deposits. Poster. *10th Scientific Assembly of the International Assotiation of Geomagnetism and Aeronomy, July 18–29, 2005.* Toulouse.

Opluštil S., Libertín M., Pšenička J. & **Bek J.**: Taphonomy and characteristics of peat-forming plant assemblages preserved in volcanic ash of the Whetstone Horizon (Bolsovian) in Central and Western Bohemia, Czech Republic. Lecture. *International Plant Taphonomy Meeting, September 16–18, 2005.* Plzeň.

Pruner P.: Paleotectonic rotations and amalgamation of blocks, with special reference to the Bohemian Massif and Western Carpathians. Lecture. *June 14, 2005.* Helsinky.

Pruner P., **Bosák P.**, Mihevc A. & Zupan-Hajna N.: Magnetostratigraphy of cave sediments in central Europe: experience and thresholds. Poster. *10th Scientific Assembly of the International Assotiation of Geomagnetism and Aeronomy, July 18–29, 2005.* Toulouse.

Pruner P., **Houša V.**, Košťák M., **Chadima M.**, Zakharov V.A., **Man O.**, **Šlechta S.**, Mazuch M. & Rogov M.: Detailed magnetostratigraphy and paleontology across the J/K boundary strata on the Nordvik Penisula in the Boreal realm and possibility of correlation with Tethyan realm. Poster. *10th Scientific Assembly of the International Assotiation of Geomagnetism and Aeronomy, July 18–29, 2005.* Toulouse.

Pruner P., Zupan-Hajna N., Mihevc A., **Bosák P.**, **Man O.**, **Schnabl P.** & **Šlechta S.**: Palaeomagnetic research of cave sediments in Slovenia in 2004. Poster. *13th International Karstological School "Classical Karst" – Karst in various rocks, June 27–30, 2005.* Postojna.

Rage J. & **Roček Z.**: Thaumastosaurus bottii, amphibien anoure des phosphorites. Des anciennes collections aux nouvelles récoltes. Invited Lecture. *Journées Bernard Geze, October 1–3, 2005.* Lalbenque & Limogne-en-Quercy.

Řanda Z., Frána J., Mizera J., Kučera J., **Novák J.K.**, **Ulrych J.**, Bělov A.G. & Maslov O.D.: Instrumental neutron and photon activation analysis of phonolites: An important tool to distinguish common and anomalous phonolite types from the Ohře (Eger) rift, Czech Republic. Poster. *1.st International Nuclear Chemistry Congress, May 22–29, 2005.* Kusadasi.

Roček Z.: Historie obratlovců. Audio-visual presentation. *Předáška pro PENCLUB, March 25, 2005*. Praha.

Roček Z.: Po stopách zvířat, která už dávno vymřela. Audio-visual presentation. *Klub Sysifos,* May 18, 2005. Praha.

Rohovec J.: Kombinace ICP-OES a metod termické analýzy. Lecture. *Mikroelementy 2005, September 5–7, 2005.* Medlov.

Siblík M. & Bryda G.: Brachiopods from the Upper Triassic Reef habitats of the Northern Calcareous Alps (Dachstein Limestone, Hochschwab, Austria). *Poster. 5. international Brachiopod Congress, July 4–8, 2005.* Copenhagen.

Skála R. & Čada M.: Moldavites from the Cheb Basin, Czech Republic. *Lecture. 68th Annual Meeting of the Meteoritical Society, September 12–16, 2005.* Gatlinburg.

Skála R. & Drábek M.: Influence of titanium content on crystal structure of iron monosulfide. *Poster. 68th Annual Meeting of the Meteoritical Society, September 12–16, 2005.* Gatlinburg.

Sláma J. & Košler J.: Significance of isobaric interferences in Hf isotopic analyses of geological samples. *Poster. European Winter Conference on Plasma Spectrochemistry WINTER 2005, January 30–February 3, 2005.* Budapest.

Sláma J. & Košler J.: Use of Hf isotopes for tracing metamorphic processes. *Lecture. 6th International symposium on Applied Isotope Geochemistry, Břevnov Abbey, Prague, Czech Republic, September 11–16, 2005.* Břevnov Abbey, Prague.

Slavík L.: Vybrané stratigrafické problémy siluru a devonu Barrandienu z hlediska konodontové fauny. *Lecture. 2. sjezd České geologické společnosti (2nd Congress of the Czech Geological Society), October 19–22, 2005.* Slavonice.

Špičková J., **Dobešová I.**, **Vach M.**, **Skřivan P.** & **Burian M.**: The influence of the limestone-quarry Čertovy schody on the precipitation chemistry and atmospheric deposition. *Poster. Acid Rain 2005, 7th International Conference on Acid Deposition, June 12–17, 2005.* Prague.

Špičková J., **Navrátil T.**, **Skřivan P.**, **Rohovec J.** & Mihaljevič M.: Distribuce prvků vzácných zemin v malém povodí Lesní potok. *Lecture. Mikroelementy 2005, XXXIX. seminář o metodice stanovení a významu stopových prvků v biologickém materiálu a životním prostředí, September 5–7, 2005.* Máchovo jezero.

Špičková J., **Navrátil T.**, **Skřivan P.**, **Rohovec J.** & Mihaljevič M.: Distribution and geochemistry of the REE in the small catchment Lesní potok, Czech Republic. *Poster. Acid Rain 2005, 7th International Conference on Acid Deposition, June 12–17, 2005.* Prague.

Štorch P. & Massa D.: Middle Telychian (Llandovery) graptolites of North-African intracratonic basins and coeval graptolite fauna of the peri-Gondwanan Europe: biostratigraphic correlation and palaeogeographical implication. *Poster. The Dynamic Silurian Earth – Subcommission on Silurian Stratigraphy Field Meeting 2005, August 15–22, 2005.* Visby.

Štorch P.: Facies development, depositional settings and sequence stratigraphy accross the Ordovician-Silurian boundary: a record from the Barrandian area of Bohemia, Czech Republic. *Lecture. The Dynamic Silurian Earth – Subcommission on Silurian Stratigraphy Field Meeting 2005, August 15–22, 2005.* Visby.

Štorch P.: Graptolites as an important tool in sequence-stratigraphic interpretations: a case study in the uppermost Ordovician and lower Silurian of the Barrandian area, Bohemia. *Invited Lecture. 3 Seminario tematico annuale: La biostratigrafia integrata., November 10–11, 2005.* Modena.

Svojtka M.: *Editor of Proceedings. 3rd Meeting of the Central European Tectonic Studies Group/10th Meeting of the Czech Tectonic Studies Group, May 14–17, 2005.* Felsotárkány.

Svojtka M., **Filip J.** & Martínek K.: Cooling and erosion history of the Krkonoše Piedmont Basin (Bohemian Massif, Czech Republic) interpreted from apatite fission-track analysis. *Poster. EGU General Assembly 2005, May 24–29, 2005.* Vienna.

Tomašových A. & **Siblík M.**: Analyzing brachiopod distribution patterns before and after tht Triassic-Jurassic mass extinction in the Northern Calcareous Alps (Austria). *Lecture. 5th field workshop IGCP 458 project, September 5–10, 2005.* Hungary-Austria.

Turek V., **Mikuláš R.** & Libertín M.: Nové ichnofosilie z fluviálních svrchnokarbonských sedimentů vnitrosudetské pánve. *Lecture. 6th Paleontological Workshop (Czech-Slovak-Polish) (6. paleontologický seminář), September 14–15, 2005.* Olomouc.

Vach M., **Navrátil T.**, **Skřivan P.**, **Špičková J.** & **Kubínová P.**: The reduction of precipitation amount bias in the analysis of time series of wet deposition chemism. *Poster. Acid Rain 2005, 7th International Conference on Acid Deposition, June 12–17, 2005.* Prague.

Vaněček M., Milický M., Záruba J., Michálková J., **Navrátil T.**, Rousová P., Sekulová J., Vik M., Kolaříková I., Polák M., Sosna K. & Hanus R.: Metody a nástroje hodnocení vlivu inženýrských bariér na vzdálené interakce v prostředí hlubinného úložiště. *Poster. 12. Národní hydrogeologický kongres, September 19–22, 2005.* České Budějovice.

Vařilová Z. & Zvelebil J.: Management rizik skalního řícení na území NP České Švýcarsko. Lecture. *Svahové deformace a pseudokras, May 11–13, 2005.* Úštěk.

Vařilová Z. & Zvelebil J.: Sandstone Relief Geohazards and their Mitigation: Rock Fall Risk Management in the Bohemian Switzerland National Park. Lecture. *Sandstone landscapes in Europe: Past, Present and Future, May 25–28, 2005.* Vianden.

Zachariáš J., Pudilová M. & **Adamovič J.**: Ferruginous crusts and cements in the northern part of Bohemian Cretaceous Basin: Genetic implications from O and H isotopes. Poster. *6th International Symposium on Applied Isotope Geochemistry, AIG-6, September 11–16, 2005.* Praha.

Žák K.: Field Trip Guide, Stop 4, Karlovy Vary. Lecture. *6th International Symposium on Applied Isotope Geochemistry, AIG-6, September 11–16, 2005.* Praha.

Žák K., Onac B.P. & Hercman H.: Stable isotope study of unusual secondary calcite from Scarisoara Ice Cave, Bihor Mts., Romania. Poster. *ESIR VIII Conference, European Society for Isotope Research, June 25–30, 2005.* Leipzig.

Žák K., Onac B.P., Hercman H. (2005): Unusual types of secondary calcite from the Scarisoara Ice Cave, Bihor Mts., Romania. Lecture. *5. vedecká konferencia Výskum, využívanie a ochrana jaskýň. Demänovská Dolina 26.–29.9. 2005.*

Žítt J.: Tafonomie echinodermat štramberské spodní křídy. Lecture. *6th Paleontological Workshop (Czech-Slovak-Polish) (6. paleontologický seminář), September 14–15, 2005.* Olomouc.

Zupan-Hajna N., Mihevc A., **Pruner P.** & **Bosák P.**: Nova spoznanja o starosti jamskih sedimentov v Sloveniji. Lecture. *17th Meeting of Slovenian Geologists, May 8, 2005.* Ljubljana.

12e) Unpublished reports completed in 2005

Bosák P. (2005): *Posudek postupu těžebních stěn Velkolomu Čertovy schody – západ. Akce sanace a rekultivace severní stěny. Období: leden až prosinec 2004*. – MS, Geol. Úst. AV ČR pro Velkolom Čertovy schody, a.s.: 1-137, i-ix, [1]-[12]. Praha.

Bosák P. (2005): *Unusual facies of the Koněprusy Limestones in the northern wall of the Velkolom Čertovy schody, Koněprusy deposit*. – MS, Inst. Geol. AS CR: 1-9. Praha.

Bosák P. (Red., 2005): *Výroční zpráva za rok 2004*. – MS, Geol. úst. AV ČR: 1-20. Praha.

Bosák P., Móga J., Pruner P., Chadima M., Kadlec J., Hercman H. (2005): *Palaeomagnetic analysis of sediments from the Baradla Cave, Aggtelek National Park, Hungary. Final Report.* – MS, Inst. Geol. AS CR: 1-86. Praha.

Bosák P., Pruner P. (2005): *Paleomagnetický výzkum sedimentárních výplní vybraných jeskyní na Slovensku. Etapová zpráva č. 5.* – MS, Geol. úst. AV ČR pro Správu slov. jaskýň: 1-117. Praha.

Cajz V. & Rapprich V. (2005): *Etapová zpráva (2004-5) Specializovaný vulkanologický výzkum hornin středohorského vulkanosedimentárního komplexu a solitérních vulkanitů v částech okresů Teplice a Ústí nad Labem pro účelovou geologickou studii náchylnosti ke svahovým pohybům (dílčí.* - MS, Ministry of Environmet CR / Czech Geological Survey: 1-5. Czech Geological Survey.

Kadlec J., **Chadima M.**, **Lisá L.** & **Navrátil T.** (2005): *Report on Botovskaya Cave clastic cave deposits study in the year 2004.* - MS, INTAS Program: 1-0. Praha.

Konzalová M. (2005): Micropalaeontologický výzkum Merit – Pila, Sarawak. – MS, Geol. úst. AV ČR, Praha: 1-36. Praha.

Novák J.K. (2005): *Kaolinitic sand occurrence utilizable as glass and ceramic raw materials from Toledo Basin, central Belize.* - MS, GET,s. r.o., Praha: 1-16. Praha.

Novák J.K. (2005): *Petrography of volcanic and pyroclastic rocks from Port Antonio area, northeastern Jamaica.* - MS, GET s.r.o., Praha: 1-20. Praha.

Novák J.K., Bosák P. (2005): *Petrografické zhodnocení alkalicko-živcového granitu z jižní Číny (pod obchodním označením SD013)*. – MS, Geol. úst. AV ČR pro Exima s.r.o. Banská Bystrica: 1-19. Praha.

Novák J.K., Bosák P., Sedláček V., Dobrovolný J. (2005): *Kaolíny Kaznějov-jih*. Závěrečná zpráva. - MS, Geol. úst. AV ČR pro Gekon, s.r.o. Praha: 1-73. Praha.

Svobodová M. & Pacltová B. (2005): *Palynologicky doložený cenoman na Kouřimsku.* - MS, VIA TERRA - J. Valíček: 1-3. Praha.

Svobodová M. (2005): *Palynologický výzkum vzorků z Polabí (úkol 6205 - mapování Polabí).* - MS, Česká geologická služba Praha: 1-7. Praha.

Svobodová M. (2005): *Palynologický výzkum vzorků z Polabí (úkol 6205-mapování).* - MS, Czech Geological Survey: 1-7. Praha.

Vařilová Z. (2005): *Kontrolní sledování na skalním svahu nad prodejnou Duty Free-shop Unimex, závěrečná zpráva za období leden 2004 – červen 2005.* - MS, Unimex Group spol. s.r.o., Praha: 1-7. Krásná Lípa.

Vařilová Z. (2005): *Plán péče o NPP Pravčická brána 2005–2014.* - MS, MŽP, SNP České Švýcarsko: 1-24. Krásná Lípa.

Žák K. (2005): *Valounová analýza říčních štěrků v korytě řeky Berounky a pravděpodobné zdroje valounového materiálu.* - MS, České vysoké učení technické v Praze, Katedra hydrauliky a hydrologie: 1-36. Praha.

12e) Popular science presented in 2005

Asadi N., Bruthans J. & **Filippi M.** (2005): Preserving caves, salt domes a necessity. - *Iran Daily* 5.5. 2005. Queshm.

Baše M. & **Cílek V.** (2005): Sebevražda měst a vesnic. Českou krajinu požírá sídelní kaše. - *Respekt*, 21:18. Praha.

Cílek V. (2005): Aby auta byla šťastná. Západ očima mimozemského kulturního antropologa. - *Respekt*, 29: 18. Praha.

Cílek V. (2005): Antická cunami. Středozemí a vulkanismus patří k sobě. - *Vesmír*, 84: 709. Praha.

Cílek V. (2005): Balkánský brouk. - Hospodářské noviny, Víkend, Věda a civilizace 31.17. Praha.

Cílek V. (2005): Budeme žít v globálním Somálsku? O klimatickém konci civilizace a strachu z katastrofy. - *MF Dnes, příloha Věda C7*, 29. ledna 2005.

Cílek V. (2005): Cementárna jako zámek. - In: Kratochvíl I.: *O přírodě, řízení a naději, nabeton*: 113-114. Alfa Publishing. Praha. ISBN 80-86851-21-4.

Cílek V. (2005): Civilizace dýchej pomalu a zhluboka. - *Hospodářské noviny, Víkend, Věda a civilizace*, 23: 11. Praha.

Cílek V. (2005): Deset zásad lomové revitalizace. - In: Kratochvíl I.: *O přírodě, řízení a naději, nabeton*: 115-118. Alfa Publishing. Praha. ISBN 80-86851-21-4.

Cílek V. (2005): Duch a místo. - In: *Identifikace s místem a krajinou*: 7-10. Tvář naší země-Krajina domova. 3. ročník konference. Průhonice 8.-10.3.

Cílek V. (2005): Evropská žízeň. - *Hospodářské noviny, Víkend, Věda a civilizace*, 27:11. Praha.

Cílek V. (2005): Falzifikace a disneylandizace města. - *Lidé města*, 1/2005: 178-182. Praha.

Cílek V. (2005): Fátum přírody. - In: Kratochvíl I.: *O přírodě, řízení a naději, nabeton*: 69-77. Alfa Publishing. Praha. ISBN 80-86851-21-4.

Cílek V. (2005): Globalizace na vaší návsi. Esej o válce s lipami a rehabilitaci kopřiv. - *Respekt*, 20: 18. Praha.

Cílek V. (2005): Horizont, stožáry a kvalita života. - *Veronika*, XIX, 3: 2-3. Brno.

Cílek V. (2005): Katrina nad Šumavou. V téhle klimatické hře někomu zůstane černý petr. - *Respekt*, 36: 3. Praha.

Cílek V. (2005): Když na Marsu sněží, je i Marťanům úzko. - *Vesmír*, 2: 102-103. Praha.

Cílek V. (2005): Klima. - In: Synek J. (Ed.): *Ottova obrazová encyklopedie České republiky*: 22-23. Ottovo nakladatelství. Praha. ISBN 80-7360-429-9.

Cílek V. (2005): Krajina. - In: Synek J. (Ed.): *Ottova obrazová encyklopedie České republiky*: 20-21. Ottovo nakladatelství. Praha. ISBN 80-7360-429-9.

Cílek V. (2005): Krajina budoucnosti a kvalita života. - In: Kender J. a kol.: *Návraty ke stromům, vodě a zemi. Deset let péče o krajinu domova*: 69-77. MŽP. Praha. ISBN 80-85116-41-3.

Cílek V. (2005): Krajina: paměť, útěcha a osud. - *Příloha časopisu „Veřejná správa“*, 33: 1-12. Ve spolupráci se spolkem pro obnovu venkova ČR. Praha.

Cílek V. (2005): Ledové doby na Marsu. - *Vesmír*, 1: 14-17. Praha.

Cílek V. (2005): Lidstvo šlape zároveň na plyn i na brzdu – aerosoly a oteplení. - MF Dnes 11.6. 2005, Věda C7. Praha.

Cílek V. (2005): Lom krátí krajinou. - In: Kratochvíl I.: *O přírodě, řízení a naději, nabeton*: 111-112. Alfa Publishing. Praha. ISBN 80-86851-21-4.

Cílek V. (2005): Manažer a smrt. - In: Kratochvíl I.: *O přírodě, řízení a naději, nabeton*: 7-9. Alfa Publishing. Praha. ISBN 80-86851-21-4.
Cílek V. (2005): Město a řeka. - In: Augusta P. (Ed.): *Praha a Vltava; řeky, potoky a vodní nádrže Velké Prahy*: str. 8-26. Milpo. Praha. ISBN 80-903481-2-2.
Cílek V. (2005): Mikrobiální kolébky. - *Hospodářské noviny. Víkend, Věda a civilizace*, 5: 22. Praha.
Cílek V. (2005): Než přijde velký přelom. Esej o třetí kultuře a o tom, proč Marx nechodil na houby. - *Respekt*, 41: 18. Praha.
Cílek V. (2005): O největší době ledové. Rozhovor s P. Houserem. - In: *Než přijde vakovlk. Dialogy o současné vědě*: 20-33. Dokořán. Praha. ISBN 80-7363-024-8.
Cílek V. (2005): Oxidu uhličitému s láskou. - *Hospodářské noviny, Víkend, Věda a civilizace*, 44: 19. Praha.
Cílek V. (2005): Paměť a protipaměť. - *Hospodářské noviny, Víkend, Věda a civilizace*, 19: 12. Praha.
Cílek V. (2005): Počasí a Všeobecná zdravotní pojišťovna neexistují! - *Hospodářské noviny, Víkend, Věda a civilizace*, 51: 43. Praha.
Cílek V. (2005): Posvátné hory a novopohanské svatyně v Čechách. Novodobé kultovní projevy. - *Vesmír*, 84, 9: 514-516. Praha.
Cílek V. (2005): Posvátné hory existují i v Čechách. - *Lidové noviny. Věda*, VIII. 10. září. 2005.
Cílek V. (2005): Právo na krajinu. - In: *Právo na krajinu?*: 10-12. Nadace Veronica. Brno.
Cílek V. (2005): Reforma vysokých škol je špatná. - *Respekt*, 1: 20. Praha.
Cílek V. (2005): Ropáci a ekologové. - In: Kratochvíl I.: *O přírodě, řízení a naději, nabeton*: 189-198. Alfa Publishing. Praha. ISBN 80-86851-21-4.
Cílek V. (2005): Rozváté tradice, zmizelé město, ztracená duše. Traditions dispersed, a town vanished, a soul lost. - In: Schmelzová R. (Ed.): *Katalog Kladno±Záporno*: 48-51. Mamapapa. 3 mezinárodní bienále Industriální stopy. Praha.
Cílek V. (2005): Stoleté katastrofy. - *Hospodářské noviny. Víkend, Věda a civilizace*, 7: 11. Praha.
Cílek V. (2005): Středoevropská krajina a její proměny. - In: Kender J. a kol.: *Návraty ke stromům, vodě a zemi. Deset let péče o krajinu domova*: 9-23. MŽP. Praha. ISBN 80-85116-41-3.
Cílek V. (2005): Tsunami přijde dříve či později znovu. - *Lidové noviny. Příloha Orientace*: 15. 8. ledna 2005. Praha.
Filippi M. (2005): Mineralogické postřehy z Kamčatky. - *Minerál*, 1: 49-56.
Filippi M. (2005): Nitro ledovce. - *Outdoor*, 7: 6-7. Praha.
Filippi M. & Bruthans J.: Expedition NAMAK 2006 – výzkum solného krasu. *Broadcast (in Nationwide Radio). Rádio BBC, české vysílání, December 16, 2005*. Praha.
Filippi M. & Bruthans J. (2005): Po krk v soli. - *Outdoor*, 1: 28-33. Praha.
Hladil J. (2005): Stromatakty ve sklenici vody: Experiment napodobující vznik zvláštních dutin ve vápencových usazeninách. - *Vesmír*, 84, 7: 388-394. Praha.
Hlaváč J. (2005): Ostroústka drsná – přehlížený acidofilní plž borůvkových porostů. – In: Cílek V. (Ed.) a kol.: *Střední Brdy*: 138. Příbram. ISBN 80-7084-266-0 MZe ČR, ISBN 80-7212-254-1 MŽP ČR
Loucká P. & **Mikuláš R.** (2005): Eroze. - *Vesmír*, 84, 4: 204-205. Praha.
Mikuláš R. (2005): Geologický záznam evoluce obyvatel mořského dna. - *Vesmír*, 84, 9: 502-502. Praha.
Mikuláš R. (2005): Knižní ceny Magnesia Litera 2004 – nominace za naučnou literaturu. - *Vesmír*, 84, 6: 309-309. Praha.
Mikuláš R. (2005): Náplavový kužel na okraji pouštní pánve. - *Vesmír*, 84, 6: 306-306. Praha.
Mikuláš R. (2005): Nepřehlédnutelní zjevem a pozoruhodní chováním. - *Vesmír*, 84, 5: 296-296. Praha.
Mikuláš R. (2005): Permafrost a změny klimatu. - *Vesmír*, 84, 6: 345-347. Praha.
Mikuláš R. (2005): Pískovcový fenomén. Drobné tvary pískovcovách skal. - *Krkonoše a Jizerské hory*, 38, 7: 44-45. Vrchlabí.
Mikuláš R. (2005): Recenze. Střední Brdy. - *Akademický bulletin*, 5, 5: 28-28. Praha.
Mikuláš R. (2005): Trpaslík v geologickém záznamu – mýty a recese. - In: Veselý M. (Ed.): *Trpaslík v evropské kultuře*: 117-121. Ústí nad Labem.
Roček Z. (2005): Doslov. - In: Gould S.: *Dinosauři v kupce sena*: 651-661. Academia. Praha.
Roček Z. (2005): Stephen Jay Gould: Dinosauři v kupce sena. – *Translation of* : *Stephen Jay Gould: Dinosaur in Haystack*: 1-675. Academia. Praha.

Ulrych J. (2005): Geologická charakteristika Milešovky. - In: Štekl J. (Ed.): *Milešovka a milešovský region*: 59-65. Academia. Praha.
Ulrych J., Hammer V. & Pertlik F. (2005): Vulkanické série a Friedrich Johann Karl Becke. - *Vesmír* 10.12 2005: 608. Praha.
Vařilová Z. (2005): Nebezpečí zřícení skal na turistickou stezku bylo zažehnáno. - *České Švýcarsko - zpravodaj Správy NP ČŠ,* 4.roč., 1/2005: 12-13, Krásná Lípa.
Vařilová Z. (2005): Železité krajky pískovců Českého Švýcarska, *České Švýcarsko - zpravodaj Správy NP ČŠ,* 4.roč., 2/2005: 7, Krásná Lípa.
Vařilová Z. & Feigl S. (2005): Skalní řícení na silnici u Rynartic. - *Skalisko, měsíčník OÚ Srbská Kamenice* 10.2. 2005: 4. Srbská Kamenice.
Vařilová Z. & Patzelt Z. (2005): Kámen a voda. - *České Švýcarsko - Země světa*, zvl.vydání: 19-21. Praha.
Žák K. (2005): Záhadné kalcity, Výlet do doby ledové. - *National Geographic Česko*, 8: 7-7. Praha.
Zapletalová D., Čulíková V., Jankovská V., **Lisá L.** & Rybníček M. (2005): Příspěvek přírodních věd a archeologie k historické topografii Starého Brna. - *Ve službách archeologie*, VI., 1: 267-274. Brno.
Žigová A., Šťastný M., **Ložek V.,** Matoušek V. (2005): Prostor pod širým nebem. - In: Matoušek V.: *Bacín - brána podzemí*: 92-107. Agentura Krigl. Praha.

12f) Addenda 2004

1.469* Šebela S., Slabe T., Hong L. & **Pruner P.** (2004): Speleogenesis of Selected Caves beneath the Lunan Shilin and Caves of Fenglin Karst in Qiubei, Yunnan. - *Acta Geologica Sinica* (English Edition) *Journal of the Geological Society of China,* 78(6): 1289-1298. Beijing.
Bosák P. (2004): Na tsunami nebyl nikdo připraven. - *MF Dnes*, 29. prosince 2004: A6. Praha.

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13. Laboratories

Laboratories of the Institute are not independent units. They are incorporated within the structure of scientific departments and within the unit of Service Laboratories of Physical Methods. The chapter summarizes the list of the most important laboratory equipment.

Paleomagnetic laboratory (head Ing. Petr Pruner, DrSc.)

The Magnetic Vacuum Control System MAVACS is a self-contained automatic system creating a limited space with the magnetic field eliminated i.e., a non-magnetic environment or magnetic vacuum. The operation of MAVACS is based on the feedback loop principle. The Earth's magnetic field is compensated for by the triaxial Helmholz Induction Coil System HELICOS. The resulting field difference is continually measured in each of its three axes by the Rotating Coil Magnetometer ROCOMA, which has its sensors installed inside the HELICOS. The output of the ROCOMA controls the Iduction Coil Control Unit ICCON, which supplies the HELICOS generating the compensating magnetic field. In this way the feedback loop is closed in all the three axes, thus securing a variation-free magnetic vacuum. The above mentioned factors formed the basis for the development of a system which creates a magnetic vacuum in a space of about 5 litres below a value of ± 2nT, the typical offset of the magnetic field sensor being smaller than ± 0.1nT. Multi-component analysis of the structure of the remanent magnetization and reproduction of the palaeomagnetic directions even in rocks whose magnitude of secondary magnetization represents 97 to 99% of the magnitude of natural remanent magnetization, can be achieved accurately with this system.
The JR-6A and two JR-5A SPINNER MAGNETOMETERS – the most sensitive and accurate instruments for measurement of remanent magnetization of rocks. All functions are microprocessor-controlled.
The KLY-3 KAPPABRIDGE, CS-23 and CS-L FURNANCE APPARATUS – sensitive, commercially available laboratory instrument for measuring anisotropy of magnetic susceptibility (AMS) as well as bulk susceptibility and for measuring the temperature variation of susceptibility (from -190 to 700 °C).
Two LDA -3 AF DEMAGNETIZER – the process is microprocessor-controlled and automated.
The magnetizing coil serves for the induction of the isothermal remanent magnetization.
The AMU-1A ANHYSTERETIC MAGNETIZER is an option to the LDA-3 AF demagnetizer. This equipment permits the deliberate, controlled anhysteretic magnetization of a specimen.
The KLF-4 MAGNETIC SUSCEPTIBILITY METER is designed for rapid and precise laboratory measurement of magnetic susceptibility of rocks, soils, and materials investigated in environmental studies in weak magnetic fields ranging in their intensity from 5 A/m to 300 A/m.

X-ray and DTA/TG laboratory (head RNDr. Karel Melka, CSc., RNDr. Roman Skála, PhD.)
PHILIPS X´Pert APD (1997)
DERIVATOGRAPH Q 1500 Monimex (1982, computerized in 1998)

Electron scanning and microprobe laboratory (head Ing. Anna Langrová)
Microprobe CAMECA 100 (2002)
Microprobe JEOL JXA-50A (1972)
EDAX System PHILIPS (1996)
Accesory devices for preparation of samples

Laboratory of rock processing and mineral separation (head Václav Sedláček)
Electromagnetic separator SIM-I (1968)
Electromagnetic separator (1969)
Laboratory table WILFLEY 13 B (1990)
Vibration processor VT 750 (1992)
Crusher CD 160*90 (1991)
Laboratory mill RETSCH (1970)
Crusher ŽELBA D 160/3 (1999)
Mill SIEBTECHNIK (1995)

Laboratory for thin and polished sections (head Ing. Anna Langrová)
MINOSECAR (1962, 1970)
DISCOPLAN (1990)
PEDEMOX PLANOPOL (1989)
Montasupal (1977)
DP.U.4 PDM-Force (1993)

Microscopic laboratory (head Mgr. Michal Filippi)
System for picture analysis: Steromicroscope NIKON SM2-U with adapters and CCD camera JVC TK 1381 (1998)
Streomicroscope Nikon SMZ 800 (2003)
Polarization microscope ORTHOPLAN Photometre LEITZ (1983)
Microscope MEF REICHERT (1964)
10x Polarization microscope AMPLIVAL ZEISS (1971, 1973, 1974, 1975, 1981, 1990)
3x Polarization microscope POLMI (1963, 1967)
Microscope DIALUX-PO 550012 LEITZ (1966)
4x Polarization microscope MEOPTA (1965, 1966, 1969)
3x Ore polarization microscope MIN (1961, 1967, 1968)
Ore polarization microscope MIN 8 (1967)
Ore polarization microscope MIN 9 (1968)
3x Microscope MPD (1966)
Microscope MST (1967, 1974)
Biological microscope OPTON (1991)
Microscope NIKON ALPHAHOT 2/HP (1995)
Microscope NF PK (1964)
4x Microscope (1963, 1968, 1969)
9x Polarization microscope (1963, 1965, 1966, 1967)
27x Stereomicroscope (1957–1963, 1965–1968, 1973)
Spectrophotometrical microscope MSF 1 REICHERT (1970)
2x Microscope C36 (1958, 1975)
Microscope A36 (1960)
2x Microscope B36 (1961)
Binocular microscope (1959)
Stereomicroscope SM XX (1968)
2x Projection microscope (1968, 1969)
Microscope DNO 714 (1994)

Fisson track laboratory (head Mgr. Jiří Filip, CSc.)
Analytical system for fisson track – Microscope AXIOPLAN ZEISS and Trackscan system 452110 AUTOSCAN (1999)
Polishing and griding machine MTH APX 010 (2003)

Laboratory of liquid and solid samples (heads RNDr. Jan Rohovec, PhD. and RNDr. Miloš Burian)
AAS Spectrometer VARIAN SpectrAA 300 (1991)
lamps As, Be, Cd, Cu, Cr, Fe, Mn, Ni, Co, Pb, Sr, Zn, Rb, Ba+GTA96+VEA76
Analytical weights SARTORIUS Basic analytical (1992)
Filtration blocks B-2A Epi/FL (1996)
Analytical weights BALANCE 2000G (1999)
Decomposition unit PLAZMATRONIKA SERVICE S.C. (1995)
Set of vacuum lysimeters PRENART (1999)
ICP-EOS spectrometer Iris Intrepid XSP (2004)
Ultrasonic Nebulizer CETAC (2004)

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14. Financial Report

(in thousands Czech Crowns)

A. INCOMES	
1. From the annual budget of the Academy of Sciences CR	30,985
2. From the Grant Agency of the AS CR (accepted research projects)	3,601
3. From the Czech Science Foundation (accepted research projects)	1,966
4. From the internal research projects of the Acad. Sci. CR	255
5. From other state sources (Ministry of Environment, etc.)	778
6. Applied research	1,798
7. Investments (for laboratory facilities)	4,041
8. Investments (for buildings)	2,366
TOTAL INCOMES	**45,790**

B. EXPENSES	
1. Scientific staff – wages, medical insurance	19,861
2. Research and scientific activites	9,016
3. Administration and technical staff – admin. expenses, wages, medical insurance	3,413
4. General expenses (postage shipping, maintenance of buildings, energies, transport, office supplies, miscellaneous, etc)	6,220
5. Library (subscriptions etc.)	587
6 Editorial activites (Geolines, Annual Report, Geologica Carpathica)	286
7 Investments (for laboratory facilities)	4,041
8 Investments (for buildings)	2,366
TOTAL EXPENSES	**45,790**