

CZECH IGCP NATIONAL COMMITTEE



COMPREHENSIVE ANNUAL REPORT

2005

Prague
December 2005



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December 12th, 2005

Signed by the Chairman

Czech IGCP National Committee

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2. Members of the Czech IGCP National Committee:

Dr. K. Komárek (*Czech Commission for UNESCO*) Dr. V. Čermák (*Geophysical Institute, Czech Academy of Sciences*), Ing. M. Eis (*Severočeské doly, a.s., Chomutov*), Dr. O. Fatka (*Faculty of Science, Charles University*), Dr. J. Hladil (*Geological Institute, Czech Academy of Sciences*), Mgr. J. Mrnková (*Czech Geological Survey, Prague*), Dr. R. Mikuláš (*Geological Institute, Czech Academy of Sciences*), Dr. D. Nývlt (*Czech Geological Survey, Prague*), Dr. S. Opluštil (*Faculty of Science, Charles University*), Dr. V. Šibrava (*emeritus - UNESCO*), Dr. L. Švábenická (*Czech Geological Survey, Prague*), Dr. J. Zajíc (*Geological Institute, Czech Academy of Sciences*)

3. Number and title of projects in which the Czech Republic has participated:

A/ Projects with project co-leaders from the Czech Republic:

Project # 469 - Variscan terrestrial Biotas and Palaeoenvironments

Project leaders: C.J. Cleal (United Kingdom), S. Oluštil (Czech Republic),
Y. Tenchov (Bulgaria), E. Zodrow (Canada)

Czech Representative: S. Opluštil (oplustil@natur.cuni.cz)

Activities in 2005:

During the third year of the Project very successful activities of the Czech team continued through a revision of selected plant groups from the Late Palaeozoic continental basins of the Czech Republic and Upper Silesian Coal Basin (Czech Republic and Poland): S. Opluštil: lycophytes, Z. Šimůnek: pteridosperms, J. Pšenička: ferns, M. Libertín: Sphenophytes.

Flora was studied in collections of the West Bohemian Museum in Pilsen, National Museum in Prague, Czech Geological Survey.

In August, five members of the Czech team (S. Opluštil, J. Pšenicka, J. Bek, M. Libertín and Z. Šimůnek) visited Polish Geological Institute in Sosnowiec to study the Upper Silesian flora stored in collections of the institute. They also collected some flora at coal mine spoil tips of the Polish part of the basin where the youngest coal-bearing strata occur.

In November two members of the Czech team (S. Opluštil and J. Pšenicka) went to Janina Mine in Libiaz in Upper Silesia, Poland to study the youngest coal-bearing strata of the Upper Silesian Basin in new boreholes at the Janina coal mine and to collect palynological samples from these boreholes.

Jana Drábková continued in palynological research of the Nýøany Member based on newly taken samples from localities in all the stratigraphic levels of this unit. Localities Radcice, Mirošov, Lobec, etc.

In August, dr. Howard Falcon Lang (UK) and in September, Arden Bashford (Canada) visited Czech Republic to start the co-operation on the study of the Westphalian D – Barruelian flora from the continental basins of the central and western Bohemia and from the Intra Sudetic Basin in eastern Bohemia. It was an introductory observation of the localities, which will be studied by Arden Bashford within his postgraduate study.

Activity of the Czech team at the meetings and conferences:

1. Cardiff Meeting, UK (14st-16th April 2005) - 5 delegates from the Czech Republic participated in the meeting: S. Opluštil, Z. Šimůnek, M. Libertín, J. Bek and J. Pšenicka who presented 5 contributions on topics related to the IGCP project.
2. North American Paleontological Convention, Halifax, Nova Scotia (June 2005) – only S. Opluštil took part in this conference and presented a talk on Carboniferous floras preserved in tuffs.
3. Bucharest Meeting, Romania (8th-13th October 2005). There were 4 delegates from the Czech Republic who presented 3 contributions and 1 poster.

Activities planned:

1. General goals

In the forthcoming year we intend to do the following.

To continue in revision of plant species inventories for the Upper Silesian Coal Basin.

To study spores in samples taken in Janina Mine in Libiaz, Poland.

Revision of the existing list of flora, fauna and spores of the Kladno and Týnec Formation in the central and western Bohemian area and of Petrovice and Svatonovice Members in the Intra Sudetic Basin. Improvement of our knowledge on exact stratigraphic occurrence of key-taxa (first and last appearance data).

2. Specific meetings and field trips

Krakow, Poland (April 2006): Upper Silesian Coal Basin (presentations, workshops and excursion). Czech Republic will be represented by about 6 delegates

Prague, Czech Republic (September 2006): IGCP 469 Workshop as a part of the 7th European Palaeobotany Palynology Conference. Participation of all the Czech members.

List of publications:

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

- Opluštil, S., 2005. Evolution of the Middle Westphalian river valley drainage system in central Bohemia (Czech Republic) and its palaeogeographic implication. *Palaeogeography, Palaeoclimatology, Palaeoecology*. 222, 223-258. Amsterdam.
- Opluštil, S., 2005. The effect of palaeotopography, tectonics and sediment supply on quality of coal seams in continental basin of central and western Bohemia (Westphalian), Czech Republic. *International Journal of Coal Geology*. 64, 3-4, 173-203. Amsterdam.
- Opluštil, S., Cleal, C.J., Duncan, M.L., in prep. A comparative analysis of some Late Carboniferous basins of the Variscan Europe and North America. *Geological Magazine*.
- Pšenička, J., Bek, J., Rößler, 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. *Rev. Palaeobotany Palynology*, 136, 3 – 4, 111-142. Amsterdam.
- Pšenička, J., Zodrow, E.L., Mastalerz, M., Bek, J., 2005. Functional groups of fossil marattialeans: chemotaxonomic implications for Pennsylvanian tree ferns and pteridophylls. *Intern. Journal Coal Geol.* 61, 3-4, 259-280. Amsterdam.

Project #497 - The Rheic Ocean: Its Origin, Evolution and Correlatives

Project Leaders: U. Linnemann (Germany), R. D. Nance (USA), M. de Wit (South Africa), E. Bozkurt (Turkey), P. Kraft (Czech Republic), F. Pereira (Portugal), R. A. Strachan (UK)

Czech Representative: P. Kraft (kraft@natur.cuni.cz)

Activities in 2005:

The project has been designed for better understanding the origin and evolution of the Rheic Ocean. This ancient ocean growth occurred at the expense of the Iapetus Ocean and its closure brought Gondwana into collision with Laurussia during the assembly of Pangea. Its closure produced the vast Ouachita-Alleghenian-Variscan orogen in Europe, Africa, North America and South America.

The Project has been approved for the period 2004–2008 and gathers geologists of various specializations especially from Europe, America and Africa. The board of the project is represented by Ulf Linnemann (Dresden, SRN), Richard Damian Nance (Athens, USA), Maarten de Wit (Cape Town, South Africa), Erdin Bozkurt (Ankara, Turkey), Petr Kraft (Praha, Czech Republic), Francisco Pereira (Evora, Portugal) and Robin A. Strachan (Portsmouth, U.K.).

Realized international meetings:

2004 – Prague, Czech Republic (September 18–25)

Ural Mts., Russia (jointly with IGCP project No. 453)

2005 – Portsmouth, U.K.

Halifax, Canada

Planned international meetings:

2006 – Ankara, Turkey

Rabat, Morocco

2007 – Evora, Portugal

Acatlán, Mexico

2008 – Cape Town, South Africa

Participants from the Czech Republic were honored to organize the opening meeting. It was an official launch of the whole project. The meeting was organized by geologists and paleontologists from the Institute of Geology and Palaeontology, Charles University in Prague in September 2004. It was held under the auspices of the Dean of the Faculty of Sciences. The meeting was composed of conference and field excursions. The participants visited various regions of the Bohemian Massif not only on the territory of the Czech Republic but also in south-western Poland and south-eastern Germany. During two excursions a transverse crosses through principal units with relation to the Rheic Ocean were shown. The purpose of the field trip was completely fulfilled because of many beneficial discussions at localities and outcrops. In many cases they imply a shift in opinions. The meeting also pointed to new directions of research.

List of publications:

Kraft, P., Linnemann, U., Mazur, S. (2004): Gondwanan margin of the Rheic Ocean in the Bohemian Massif. IGCP 497 The Rheic Ocean: Its origin, Evolution and Correlatives, Opening Meeting 2004. Excursion Guidebooks and Abstracts, 108 pp.

The main portion of Czech contributors is included in the chapter:

Kraft, P., Linnemann, U. (eds.) (2004): Traces of the Rheic Ocean in Central Europe. Excursion II, Post-Symposium. Central and western part of the Bohemian Massif. In: Kraft, P., Linnemann, U. and Mazur, S.: Gondwanan margin of the Rheic Ocean in the Bohemian Massif. IGCP 497 The Rheic Ocean: Its origin, Evolution and Correlatives, Opening Meeting 2004. Excursion Guidebooks and Abstracts: 23-73.

In total eight Czech specialists contributed: six of them are from the Faculty of Sciences, Charles University in Prague, one from Geological Institute of the Academy of Sciences, and one from West Bohemian Museum in Plzen.

The list of contributions in the chapter *Traces of the Rheic Ocean in Central Europe. Central and western part of the Bohemian Massif* written by Czech geologists:

Kachlík, V. (2004): Introduction (to Central and western part of the Bohemian Massif).

Kachlík, V. (2004): Excursion II, day 1, stop 1: Lithology and structures in Gföhl Unit, Pyskočely meander - Sázava River incised valley.

Žák, J. (2004): The Central Bohemian Plutonic Complex – Tectonic setting.

Žák, J. (2004): Excursion II, day 1, stop 2: Magma mixing and mingling, Teletín quarry.

Kachlík, V. (2004): Excursion II, day 1, stop 3: Metavolcanics of the Neoproterozoic Jílové Belt, Nová Rabyně near the Slapy Reservoir.

Kachlík, V. (2004): Islet Zone of the Central Bohemian pluton.

Kachlík, V. (2004): Excursion II, day 1, stop 4: Deformation structures in Devonian limestones of the Zbirov Formation, Skoupý quarry.

Štorch, P., Fatka, O., Kraft, P. (2004): Lower Palaeozoic of the Barrandian area.

Fatka, O. (2004): Excursion II, day 1, stop 5: Medalův mlýn.

Fatka, O. (2004): Excursion II, day 1, stop 6: Hejdův dvůr near Rejkovice.

Fatka, O., Linnemann, U. (2004): Excursion II, day 1, stop, 7: Quarry “Jezírko” at Dobříš.

Vacek, F. (2004): Excursion II, day 2, stop 1: Praha-Hlubočepy – railway cutting.

Vacek, F. (2004): Excursion II, day 2, stop 2: Zlatý kůň Hill near Koněprusy.

Štorch, P. (2004): Excursion II, day 2, stop 3: Kosov Quarry.

Štorch, P. (2004): Excursion II, day 2, stop 4: Levín – highway cut.

Kraft, P., Kraft, J., Chlupáč, I. (2004): Excursion II, day 2, stop 5: Točnick.

Kraft, P., Chlupáč, I. (2004): Excursion II, day 2, stop 6: Medový Újezd.

- Opluštil, S. (2004): Late Paleozoic basins of western and central Bohemia.
- Opluštil, S. (2004): Excursion II, day 2, stop 7: Ovčín near Radnice.
- Kraft, P., Kraft, J. (2004): Excursion II, day 3, stop 1: Ejpovice.
- Kachlík, V. (2004): Mariánské Lázně Complex, Teplá Suture Zone.
- Kachlík, V., Zulauf, G. (2004): Excursion II, day 3, stop 2: Coronitic metagabbro of the MLC, Výškovice quarry.
- Kachlík, V., Zulauf, G. (2004): Excursion II, day 3, stop 3: Metabasites of the MLC, structures and metamorphic evolution connected with exhumation of HP rocks, road cut between Tisová and Teplá River valley.
- Kachlík, V. (2004): Excursion II, day 3, stop 4: Weakly metamorphosed brecciated lavas of the Kladská Unit.
- Kachlík, V. (2004): Excursion II, day 3, stop 5: Deformation structures in eclogite at Meluzína Hill.

In 2005, a focus of joint activities shifted from Central Europe to the Avalonian regions. The meeting in Portsmouth, south England was the main event. It took place in July 5-11. The one-day conference „Devono-Carboniferous evolution of the northern margin of the Rheic Ocean“ was followed by six-days field excursion. The transversing through sediments of Devonian and Carboniferous in north Devon and Cornwall, Lizard ophiolite, and Start complex were demonstrated.

The second meeting in Halifax, Canada was organized in association with IGCP project 453. It took place in May in framework of conference of several Canadian geological societies. One of accompanying field excursions on „Accretion of peri-Gondwanan terranes, northern mainland Nova Scotia and southern New Brunswick“ focused on topics of above-mentioned IGCP projects.

A first stage of works on the book with working title „The Geology of Peri-Gondwana: The Avalonian-Cadomian Belt, adjoining Cratons and the Rheic Ocean (IGCP 497)“ was done. Editors: Ulf Linnemann, Petr Kraft, Damian Nance and Gernold Zulauf. The book is planned to be issued by GSA Books in 2006.

C/ Projects with active working groups in the Czech Republic:

Project #458 - Triassic/Jurassic boundary events

Project Leaders: J.Pálffy, S. Hesselbo, C. McRoberts

Czech Representative: M.Siblík (Siblik@gli.cas.cz)

Activities in 2005:

2005 was the last year of the Project. Completion of the field works for project IGCP 458 in Austria (in vicinity of Hinterriss in the Karwendel Mts.) enabled the study of changes in the brachiopod assemblages during the Triassic-Jurassic boundary, between Uppermost Rhaetian and Lowermost Hettangian. Siliciclast-rich interval with rare brachiopods at the base of the Hettangian marks the brachiopod extinction and survival interval. Rapid recovery of the group in the Middle Hettangian shows already presence of several distinct brachiopod communities.

Surprising finding of terebratulid brachiopods was made in the quartzites of the Lower Liassic at the Grimming Mt. in Styria, Austria. This rare facies is usually without fossils.

Preparation of the lecture for the final workshop of the IGCP project 458 (September 2005 in Hungary and Austria) and the manuscript for Palaeogeography, palaeoclimatology, palaeoecology (see below) belonged to major Czech activities.

List of Publications:

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), p. 411-435, Milano.

Tomašových, A., Siblík, M.(2005): Analyzing brachiopod distribution patterns before and after the Triassic-Jurassic mass extinction in the Northern Calcareous Alps (Austria). 5th field workshop IGCP 458 project, 5.9. - 10.9. 2005, Hungary, Austria. Book of workshop abstracts (Ed.: J.Pálffy, P. Ozsvárt), p. 25.

Tomašových, A., Siblík, M.: Evaluating compositional turnover of brachiopod communities during the end-Triassic mass extinction (Northern Calcareous Alps): removal of dominant groups, recovery and community re-assembly. - *Palaeogeography, Palaeoclimatology, Palaeoecology* (in print).

Project #463 - Upper Cretaceous Marine Red Beds

Project Leaders: C. Wang, M. Sarti, R.W. Scott and L.F. Jansa

Czech Representative: P. Skupien (petr.skupien@vsb.cz)

Activities in 2005:

The objective of the project is to establish the causes of major change in the world ocean basins from deposition of organic carbon-enriched sediments to oxic, red beds. 2005 was the fourth year of the project.

Institutions co-operating in the project activities: Czech Geological Survey (Miroslav Bubík and Lilian Švábenická), Institute of Geology, Academy of Sciences of the Czech Republic (Radek Mikuláš) and Institute of Geological Engineering, VŠB - Technical University Ostrava (Petr Skupien, Zdeněk Vašíček, Dalibor Matýsek).

In 2005 research focused on the organic (microfossil) content, integrated stratigraphy (foraminifera, dinoflagellates, calcareous nannofossils), ichnological analysis, geochemistry and clay minerals of the oceanic red beds in the Outer Western Carpathians (Moravia, Czech Republic). Our works were supported by a grant funded by the Czech Science Foundation. In the Silesian Unit the complete section (about 1000 m thick section) across the Upper Cretaceous was documented at Bystrý potok in the Moravskoslezské Bekydy Mts. This section offers opportunity for a detailed stratigraphic research and may be used as a local standard for bio-, chemo-, and eventostratigraphic correlation with much less complete sections in other tectonic units. The oceanic red beds are enclosed especially within the Mazák Formation. A detailed geochemical study (trace elements) has been conducted in cooperation with Dr. Shao-Yong Jiang (China). Stratigraphic data (especially foraminifera and dinoflagellates) was obtained from small outcrops of red beds in the Magura Unit and correlate with Silesian assemblage.

Foraminiferas of the Upper Cretaceous Red Beds in the Romanian Carpathians was studied in cooperation with M. Melinte (Bucharest).

Section containing intercalations of red calcareous claystone in the Middle Subbetic (Southern Spain) was studied in cooperation with Prof. Massimo Sarti (Italy) and Dr. Xiumian Hu (China).

Results were presented at workshop in Neuchatel, Switzerland (September 1-2, 2005) and at the 7th International Symposium on the Cretaceous in Neuchatel, Switzerland (September

5-9, 2005). Our data about stratigraphy and lithology from the continuous Bystry creek section (Silesian unit) was registered at the Database (coordinator Robert W. Scott, USA) of the Upper Cretaceous Red Bed. Stratigraphic signification of agglutinated foraminifers and dinoflagellate cysts used in database for international correlations was modified according to our data.

Planned activities in 2006:

- Detailed correlation of the change in deposition of black shales to red beds in the Czech part of the Western Carpathians (Silesian and Magura units).
- Completion of data from new sections for database of the Cretaceous Oceanic Red Beds.
- Compilation of contribution about distribution of red beds in the Czech part of the Western Carpathians for the Final Volume of IGCP 463, June 2006.
- IGCP 463 Final Workshop and excursion in Beijing, China, September 3-11, 2006

List of Publications:

Matýsek D., Skupien P. (2005). Mineralogie krídových aleuropelitu z profilu Bystrý potok (slezská jednotka, vnější Západní Karpaty) (Mineralogy of Cretaceous aleuropelites of the Bystrý potok section – in Czech). – *Geological Research in Moravia and Silesia in the year 2004*, 30-33. Brno.

Matýsek D., Skupien P. (2005): Fosforitové konkrce ve svrchní kríde slezské jednotky (Phosphorite concretions in the Upper Cretaceous of the Silesian Unit – in Czech). - *Geological Research in Moravia and Silesia in the year 2004*, 34-36. Brno.

Melinte M. C., Bubík M. (2005): Paleoceanographic implications of Upper Cretaceous red bed deposition. Case study: The Eastern Carpathians. - *Abstr. Book 7th International Cretaceous Symposium, Neuchatel*, 138-139.

Jiang S.-Y., Jansa L., Vašíček Z., Yan J.-H., Skupien P., Hu X. (2005): Geochemistry of middle Cretaceous shales from the Mazak Formation in Czech Republic: source constraints and implications for oceanic redox changes. - *Abstr. Book 7th International Cretaceous Symposium, Neuchatel*, 117.

Scott R. W., Hu Xiumian, Bubík M., Malata E., Melinte M., Sanders D., Shcherbinina E.A., Skupien P., Wagneich M. (2005): Depositional timing and rates of Cretaceous oceanic red beds. - *Abstr. Book 7th International Cretaceous Symposium, Neuchatel*, 199-200.

Skupien P. (2005): Palynology of Upper Cretaceous sediments of the Outer Western Carpathians. - *Abstr. Book 7th International Cretaceous Symposium, Neuchatel*, 206-207.

Skupien P., Bubík M., Vašíček Z., Matýsek D. (2005): Upper Cretaceous oceanic red beds in the Czech part of the Outer Western Carpathians. - *Abstr. Book 7th International Cretaceous Symposium, Neuchatel*, 207 - 208.

Bubík, M., Švábenická, L., Stráník, Z. (2005): Variegated beds from Blatnicka in the Bile Karpaty Unit: Results from the test trenches. – *Mineralia Slovaca*, 37, 282-284.

Jiang S.-Y., Jansa L., Skupien P., Vašíček Z., Yan J.-H., Hu X. (in print): Geochemistry of intercalated red and gray pelagic shales from the Mazak Formation of Cenomanian age in Czech Republic and their palaeoceanographic implication. – *Palaeogeography, Palaeoclimatology, Palaeoecology*

Project # 471 - Evolution of Western Gondwana during the Late Palaeozoic

Project leaders: C.O. Limarino and L.A. Buaotois

Czech Representative: R. Mikuláš (mikulas@gli.cas.cz)

Activities in 2005:

The study of trace fossils from the eastern part of the Culm facies (Viséan) in Moravia (Czech Republic) showed more diversified assemblages in the north-eastern part of the basin, compared to its south-western part. Though generally the characteristics in terms of classical “Seialcherian” Ichnofacies is the same (combined Cruziana – Nereites ichnoassemblages), density of colonization windows and overall diversity of ichnoassemblages tends to increase to north-east. 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 north-west, and of the lowering of sedimentary rates in the uppermost Viséan and Namurian.

Project # 479 – Sustainable Use of Platinum Group Elements

Project leaders: J. Mungall, M. Iljina, C. Ferreira-Filho

Czech Correspondent: I. Knésl (knesl@cgu.cz)

Activities in 2005:

The Czech team compiled a database of perspective localities of the PGE resources in the Bohemian massif and the Czech part of the Western Carpathians. The most prosperous sites are as follows: the Kdyne massif, the Bory massif, peridotites nearby Holubov and historical deposits Stare Ransko and Tisová. Two Czech scientists actively participated in the IGCP 479 meeting, which was a part of the 10th International Platinum Symposium (Oulu, Finland, August 2005).

Plans of the Czech team are to study distribution and fractionation of PGE in various sulfides and rocks from selected localities (sulphides and selenides from Ransko, Rožany, Tisová, and mantle rock’s xenoliths from Horní Bory and others). At the “Platinum symposium” we established a link with Prof. P. Sylvester (Memorial University of New Foundland, Canada) who analyze in-situ PGE + Au by LA-ICP-MS in sulfides as we plan to develop similar method at the Charles University in Prague.

We received a grant “Platinum-group element geochemistry of strongly differentiated magmatic complexes: An examples from the Bohemian Massif” from the Academy of Science CR, whose results will be presented within the IGCP 479 future meetings.

List of Publications:

Knésl I., Ackerman L. (2005): PGE mineralization of the Bohemian Massif, Czech Republic: An overview. In: Törmänen T. O. and Alapieti T. T. (eds.): Extended Abstracts of the 10th International Platinum Symposium ‘Platinum-Group Elements - from Genesis to Beneficiation and Environmental Impact’, August 8 – 11, 2005, Oulu, Finland, 408 – 411.

Ackerman L., Jelínek E. (2005): Platinum-group element geochemistry of subcontinental mantle xenoliths from the Bohemian Massif, Czech Republic. In: Törmänen T. O. and Alapieti T. T. (eds.): Extended Abstracts of the 10th International Platinum Symposium ‘Platinum-Group Elements - from Genesis to Beneficiation and Environmental Impact’, August 8 – 11, 2005, Oulu, Finland, 269 – 272.

Project # 486 - Au-Ag-Telluride-Selenide Deposits

Project leaders: N.J. Cook (Norway), K.Kojonen (Finland)

Czech Representative: A. Vymazalová (anvym@cgu.cz)

Activities in 2005:

The activities of the Czech working group were focused on experimental studies (Pd-Sn-Te and Ni-Sb-Te systems). Phase relations in the Pd-Sn-Te system were studied at 400°C. Experimental results revealed the existence of three new ternary phases. The crystallographic data of Pd-Te and Pd-Sn binary phases were reinvestigated. The experiments have also provided useful data concerning the ranges of solid solutions and some preliminary results at 600°C were obtained. The results were presented at the 8th Biennial SGA Meeting held in Beijing, China (August 18-21, 2005). A manuscript on mineralogical significance of the Pd-Sn-Te synthetic system for Canadian Mineralogist is under preparation.

Future activities of the Czech team will focus on experimental work of geologically important Te bearing synthetic systems and its application to natural equivalents.

List of Publications:

Vymazalová, A., Ondruš, P. and Drábek, M. (2005): Synthetic palladium tellurides, their structures and mineralogical significance. In: Mao, J., Bierlin F.P. (eds) Mineral Deposits Research: Meeting the global Challenge. Proceedings of the 8th Biennial SGA Meeting, Beijing, China, 1439-1442.

Project 491 - Middle Palaeozoic Vertebrate Biogeography, Palaeogeography and Climate

Project leaders: M. Zhu (P.R. China), G. Young (Australia)

Czech Representative: J. Zajíc (zajic@gli.cas.cz)

Activities in 2005:

2005 was the third year of the project, characterized by the following activities of the Czech WG:

- The ten days field excursion and excavation was arranged and led by Stanislav Štamberg in the Lower Permian of the Boskovice Basin on August. The excursion was got ready for Prof. Jörg Schneider and his regular and postgraduate students from the Bergakademie Freiberg. Jaroslav Zajíc and Ondrej Dostál (PhD student from the Masaryk University, Brno) actively participated in the field trips and excavations. Two localities (Kladoruby – Dolní Pepřík and Kochov – V potocích) were excavated (all fossil vertebrates are deposited in the Museum of the Eastern Bohemia in Hradec Králové) and profiled in detail. The stratigraphically important locality Lubí was rediscovered.
- The initial “Acanthodian web” (www.gli.cas.cz/acanthodians) was launched in an embryonal stage. The following sections will be included in the final version of the website: Introduction, anatomy, systematics, research and database. The main aim of the project is compilation of the world acanthodian database with help of the programme PaleoTax (<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 under preparation by Stanislav Štamberg and Jaroslav Zajíc in the form of a book.
- Permian acanthodians of the Czech Republic were described. A new taxon (*Acanthodes stambergi* Zajíc, 2005) was described. Some fine structures as labyrinths with otoliths were discovered. The juvenile, subadult, and adult ontogenetic stages were described.

List of Publications:

- Štamberg, S. 2005. Nové nálezy paprskoploutvých ryb a další fauny ve spodním permu boskovické brázdy. - 6. paleontologický seminář - sborník příspěvků. Univerzita Palackého, Olomouc, 57-58. ISBN 80-244-1111-3. (abstract)
- Štamberg, S. 2005. Paprskoploutvé ryby permokarbonských limnických pánví Českého masivu. 2. sjezd České geol. společnosti - Sborník abstrakt a exkurzní průvodce, 97. ČGS Praha. ISBN 80-7075-653-5 (abstract)
- Štamberg, S. (in print). Carboniferous/Permian actinopterygian fishes of the continental basins of the Bohemian Massif, Czech Republic - an overview. Non-Marine Permian Biostratigraphy and Biochronology. Publishing House of the Geological Society in London.
- Zajíc J. (2005): Permian acanthodians of the Czech Republic. - Spec. Pap. Czech Geol. Surv., 18, 1-42. Praha.

Activities planned in 2006:

Compilation of the database "Acanthodians of the World" will continue with a help of the programme PaleoTax (<http://www.paleotax.de>). The acanthodian web page will be completed gradually. The book concerning the new extensive and wide-ranging list of all non-marine Permo-Carboniferous fauna of the Czech Republic will be finished.

Project 499 – Evolution of Ecosystems and Climate in the Devonian

Project Leaders: P. Königshof (Germany), J. Lazauskiene (Lithuania), E. Schindler (Germany), V. Wilde (Germany), N. Yalcin (Turkey)

Czech Correspondent: O. Fatka (fatka@natur.cuni.cz)

Activities in 2005:

In this year, 12 contributions (12 abstracts, 11 oral presentations and one poster) were presented at conferences in Russia and Czech Republic.

List of Publications:

- BERKYOVÁ, S., FRÝDA, J. (2005): The Basal Choteč Event in the Prague Basin – what do we really know? - Contributions to International Conference "Devonian terrestrial and marine environments: from continent to shelf". In: Yolkin, E.A., Izokh, N.G., Obut, O.T., Kipriyanova, T.P. (eds.), IGCP 499 project/SDS joint meeting, 34.
- FATKA, O., FRÝDA, J. (2005): Pre-Variscan palaeogeography of the Bohemian Massif. - In: Breiter, K. (ed.), 2nd Congress of the Czech Geological Society, Slavonice, Abstracts and Field Trip Guidebook.
- FATKA, O., BROCKE, R. (2005): Morphologic variability and method of opening of the Devonian acritarch *Navifusa*. - In: Lehotský, T. (ed.), 6th Czech-Slovak-Polish Palaeontological Seminar, 14.-15. 9. 2005, 18-20. Olomouc.
- FRÝDA, J. (2005): Inception of larval planktotrophy in the class Gastropoda as a consequence of eutrophication of middle Paleozoic sea-surface waters. Contributions to International Conference "Devonian terrestrial and marine environments: from continent to shelf".
- FRÝDA, J. (2005): Inception of larval planktotrophy in the class Gastropoda as a consequence of eutrophication of middle Paleozoic sea-surface waters. - Contributions to International Conference "Devonian terrestrial and marine environments: from continent to shelf". - In: Yolkin, E.A., Izokh, N.G., Obut, O.T., Kipriyanova, T.P. (eds.), IGCP 499 project/SDS joint meeting, 63.
- HLADIL, J., GERŠL, M., STRNAD, L., FRÁNA, J., LANGROVÁ, A., SPIŠIAK, J. (2005): Stratigraphic variation of complex impurities in platform limestones and possible significance of atmospheric dust: a study with emphasis on gamma-ray spectrometry and magnetic

susceptibility outcrop logging (Eifelian-Frasnian, Moravia, Czech Republic). *International Journal of Earth Sciences*, DOI 10.1007/s00531-005-0052-8, Online First 19 November 2005, 21 pp. Springer-Verlag GmbH, Berlin, DE, New York, US.

HLADIL, J. (2005): Phenomenon of the Prague Basin - examples of facies and stratigraphic studies (in Czech, with English version). - In: Breiter, K. (ed.), 2nd Congress of the Czech Geological Society, Slavonice, Abstracts and Field Trip Guidebook: 39-41. Prague, CZ.

BERKYOVÁ, S., FRÝDA, J., LUKEŠ, P. (2005): The evidence of predation on the Middle Paleozoic plankton. - In: Lehotský, T. (ed.), 6th Czech-Slovak-Polish Palaeontological Seminar, 14.-15. 9. 2005, 7-8. Olomouc.

KRAFT, P., LEHNERT, O., FRÝDA, J. (2005): Vývoj pražské pánve jako odezva vývojových etap Rheického oceánu. - In: Breiter, K. (ed.), 2nd Congress of the Czech Geological Society, Slavonice, Abstracts and Field Trip Guidebook, 63,

FRÝDA, J. (2005): Původ larvální planktotrofie v třídě Gastropoda a biogeochemická evoluce paleozoických oceánů. - In: Breiter, K. (ed.), 2nd Congress of the Czech Geological Society, Slavonice, Abstracts and Field Trip Guidebook, 33.

BERKYOVÁ, S., FRÝDA, J., LUKEŠ, P. (2005): Doklady o predaci na planktonu středního paleozoika. - In: Breiter, K. (ed.), 2nd Congress of the Czech Geological Society, Slavonice, Abstracts and Field Trip Guidebook, 11.

BERKYOVÁ, S., FRÝDA, J. (2005): The Basal Choteč Event in the Prague Basin – what do we really know? Contributions to International Conference "Devonian terrestrial and marine environments: from continent to shelf". (POSTER)

One paper was published and four papers were submitted to press

FRÝDA, J., FARRELL, J. R. (2005): Systematic position of two Early Devonian gastropods with sinistrally heterostrophic shells from the Garra Limestone, Larras Lee, New South Wales. – *Alcheringa*, 29, 229-240.

FATKA, O., BROCKE, R. (in press): Morphologic variability and method of opening of the Devonian acritarch *Navifusa*. – Review of palaeobotany and palynology. Amsterdam.

FRÝDA, J., HEIDELBERGER, D., BLODGETT, R. B. (in press): Odontomariinae, a new Middle Paleozoic subfamily of slit-bearing euomphaloidean gastropods (Euomphalomorpha, Gastropoda). *Neues Jahrbuch für Geologie und Paläontologie, Abhandlungen*. Stuttgart.

KALVODA, J. (in press): Devonian of the Bohemian Massif. – In: McCann, T. (ed.): *Geology of Central Europe*, Geological Society Book. London. (22 pp.)

KALVODA J., BÁBEK O., FATKA O., LEICHMANN J., MELICHAR R., NEHYBA S., ŠPAČEK P. (in press): Brunovistulian Terrane (Bohemian Massif, Central Europe) from Late Proterozoic to Late Palaeozoic – a review. - *International Journal of Earth Science (Geologische Rundschau)*. Stuttgart.

A special session of the IGCP 499 is planned during CIMP General Meeting 2006 September 2-6, 2006 in Prague. For the pre-symposium and post-symposium excursions have been selected and excursion guide is under preparation (see <http://cimp2006.wz.cz>)

Project 502 – Global comparison of volcanic-hosted massive sulphide districts: the controls on distribution and timing of VMS deposits

Project Leaders: R. Allen (Sweden), F. Tornos (Spain), J. Peter (Canada), N. Çagatay (Turkey)

Czech Correspondent: J. Pašava (pasava@cgu.cz)

2005 was the second year of the project. This project aims to compare a number of the world's important VMS districts in order to define the key geological events that control the distribution and timing of high-value VMS deposits; and thereby develop new criteria for locating these ore deposits. Czech participants (Jan Pašava and Anna Vymazalová from the Czech Geological Survey) took an active part in the field workshop in the Iberian Pyrite Belt, which was organized by F. Tornos in April 2005. A total of 24 samples out of which 18 samples represent VMS deposits, 4 samples IOCG deposits and 2 samples Ni-(Cu) magmatic deposit were studied for their PGE content. A manuscript on fractionation of PGE in selected mineral deposits of the Iberian Pyrite Belt is under preparation.

List of publications:

Pašava, J., Vymazalová, Tornos, F. (in preparation): Fractionation of PGE in selected mineral deposits of the Iberian Pyrite Belt. *Mineralium Deposita*.

Project 503 – Ordovician Palaeogeography and Palaeoclimate

Project Leaders: T. Servais (France), D.A.T. Harper (Denmark), J. Li (China), A. Munnecke (Germany), W. Owen (U.K.), P.M. Sheehan (USA)

Czech Representative: O.Fatka (fatka@natur.cuni.cz)

Activities in 2005:

In this year, seven contributions (seven abstracts, five oral presentations and two posters) were presented at conferences in Sweden, Germany and Czech Republic.

List of Publications:

FATKA, O., FRÝDA, J. (2005): Pre-variská paleogeografie Českého masivu (Pre-Variscan palaeogeography of the Bohemian Massif). - In: Breiter, K. (ed.), 2nd Congress of the Czech Geological Society, Slavonice, Abstracts and Field Trip Guidebook.

LEFEBVRE, B., FATKA, O. (2005): Stylophorans ("calcichordates"): not the ancestry of vertebrates. Prevertebrate-vertebrate transition aspects of vertebrate origins. - A tribute to Berthold Hatschek (1854-1941), 23. Praha.

LEFEBVRE, B., FATKA, O. (2005): Stylophorans ("calcichordates"): not the ancestry of vertebrates. Prevertebrate-vertebrate transition aspects of vertebrate origins. (Acritarcha). – In: Lehotský, T. (ed.), 6th Czech-Slovak-Polish Palaeontological Workshop, 14.-15. 9. 2005, 38. Olomouc.

MANDA, Š., KRÍŽ, J. (2005): Environmental and biotic changes of the subtropical isolated carbonate platforms during the Kozlowskii and Lau events (Prague Basin, Silurian, Ludlow), 79. In: Eriksson, M. E., Calner, M. (eds.), The Dynamic Silurian Earth, Subcommission on Silurian Stratigraphy Field Meeting 2005, August 15th-22nd, Gotland, Sweden, Field guide and Abstracts. Sveriges geologiska undersökning 121, 79.

MUNNECKE, A., LEHNERT, O., FRÝDA, J., BUGGISCH, W., NÜTZEL, A., KRÍŽ, J., MANDA, Š. (2005): $\delta^{13}\text{C}$ record across the Ludlow Lau Event: new data from mid palaeolatitudes of northern peri-Gondwana (Prague Basin, Czech Republic). In: Eriksson, M. E., Calner, M. (eds.), The Dynamic Silurian Earth, Subcommission on Silurian Stratigraphy Field Meeting 2005, August 15th-22nd, Gotland, Sweden, Field guide and Abstracts. Sveriges geologiska undersökning 121, 82-83.

SERVAIS, T., DZIK, J., FATKA, O., HEUSE, T., VECOLI, M., VERNIERS, J. (2005): The Ordovician of Central Europe in a new stratigraphic context. - *System earth. Biosphere Coupling*. Erlangen.

The four following papers have been submitted to press:

FATKA, O. (in press): Cambrian of the Bohemian Massif. – In: McCann, T. (ed.): Geology of Central Europe, Geological Society Book. London. (22 pp.)

FATKA, O. (in press): Ordovician of the Bohemian Massif. – In: McCann, T. (ed.): Geology of Central Europe, Geological Society Book. London. (24 pp.)

MANDA, Š., KŘÍŽ, J. (in press): Environmental and biotic changes of the subtropical isolated carbonate platforms during Kozlowskii and Lau events (Prague Basin, Silurian, Ludlow). - GFF.

KALVODA J., BÁBEK O., FATKA O., LEICHMANN J., MELICHAR R., NEHYBA S., ŠPAČEK P. (in prep): Brunovistulian Terrane (Bohemian Massif, Central Europe) from Late Proterozoic to Late Palaeozoic – a review. - International Journal of Earth Science (Geologische Rundschau). Stuttgart.

Another one other paper is finished

FATKA, O., FRÝDA, J. (2005): Pre-Variscan palaeogeography of the Bohemian Massif. – Bulletin of Geoscience. Praha.

A special session of the IGCP 503 is planned during CIMP General Meeting 2006 September 2-6, 2006 in Prague. For the pre-symposium and post-symposium excursions have been selected and recently excursion guide is prepared (see <http://cimp2006.wz.cz>)

Project 510 - A-type granites and related rocks through time

Project leaders: Roberto Dall'Agnol (Brazil), Carol D. Frost (USA), O. Tapani Rämö (Finland)

Czech representative: M. René (rene@irsm.cas.cz)

2005 was the first year of the project characterized by preparing of constitution of the Czech Working Group and by preparing of national and international scientific projects for support of project activities. According to a very limited institutional support of members of the Czech WG (Faculty of Science, Charles University, Institute of Rock Structure and Mechanics of AS CR) only partial studies of accessory minerals in highly fractionated granites were started. These investigations were concentrated on some accessory minerals (Fe-Ti-Nb oxides, zircon, monazite, xenotime, apatite) in selected highly evolved granites of the Moldanubian Batholith and the Krušné Hory batholith, and also in felsic orthogneisses of the Moldanubian Zone. The contribution based on investigation of Fe-Ti-Nb oxides and apatites was presented on the EUG meeting in Vienna in April 2005 (V. Procházka, Faculty of Science, Charles University).

List of publications:

René M. (2005): Geochemical constraints on the origin of felsic orthogneisses from the Moldanubian Zone of the Bohemian Massif (Czech Republic). – Mineralogy and Petrology (submitted).

Procházka V., René M., Matějka D. (2005): Fe-Ti oxides in two-mica granites of the Moldanubian batholith and their petrologic significance. – Lithos (submitted).

Activities planned in 2006:

Constitution of the Czech Working Group.

Study of accessory minerals in selected highly fractionated granites of the Bohemian Massif.

Crystallization experiments to constrain of the stability of rock-forming minerals in topaz-bearing granites of the Krušné Hory batholith and estimation of the role of fluorine (together with University of Hannover, F. Holtz, joint project of AS CR and DAAD).

Project #518 – Fluvial sequences as evidence for landscape and climatic evolution in the Late Cenozoic

Project Leader: D. Bridgland (UK)

Czech Representatives: J. Tyráček, P. Havlíček (havlicek@cgu.cz)

Activities in 2005:

The follow up IGCP 518 – Fluvial sequences as evidence for landscape and climatic evolution in the Late Cenozoic build upon the achievements of the former IGCP 449. The inaugural meeting took place in eastern Turkey (Harran University, Sanliurfa), September 22 – 27. 2005. Most of the time was given to the field excursions, which in fact represented field workshops.

The character of Seyhan, Ceyhan and Karasu river valleys was studied in the Mediterranean region during the first day, irrespective the insufficient knowledge of pertinent fluvial deposits. Later on, the route continued to the Euphrates River valley and its tributary Göksu. The terrace sequences of Euphrates are well developed in Turkish territory as well as in Syria. Their study is hindered by 7 large water dams in Turkey and Syria with waters flooding long sectors of the valley so many terraces are submerged at present. Therefore, the system of five terraces recognized in Iraq was adopted. The working team seeks new localities suitable for checking the valley development and dating the whole terrace system.

The terraces of the Tigris River, particularly in its upper course are not well understood at present. Therefore, the basic data like petrology of gravel, thickness of individual terraces, type of overlying sediments, absolute and relative altitudes, relationship to volcanic rocks and lava flows were studied, sampled and documented during the excursion.

In the course of indoor meeting altogether 13 lectures were given. The Czech team performed two lectures on “Long timescale fluvial records from the Czech republic” (P. Havlíček) and on the “Euphrates River terraces between Al-Qaim and Khan Al-Baghdadi” (J. Tyráček). A poster on Labe River-floodplain development was presented by E. Břízová.

An overview study: “Fluvial record in the Czech republic” (J. Tyráček and P. Havlíček) will be published (in Proceedings of the Geologist`s Association?) next year.

4. IGCP meetings held in the Czech Republic in 2005

none

5. IGCP meetings planned for 2006

IGCP 469 workshop as a part of the 7th European Palaeobotany Palynology Conference (September 2006, Prague, Czech Republic)

IGCP 499 workshop as a part of the CIMP General Meeting 2006 (September 2-6, 2006 in Prague)

IGCP 503 workshop as a part of the CIMP General Meeting 2006 (September 2-6, 2006 in Prague)

6. Other relevant information

The Czech IGCP National Committee was one of organizers of the GEOCHIM 2005 - a postgraduate training course on Geochemical Exploration Methods and their Environmental Applications. This certificated course took part in Prague and Dolní Rožínka between September 5-19, 2005 and 14 scientists representing 11 - mostly developing countries participated in this event.

In order to promote IGCP activities in the Czech Republic the Committee has also continued in seeking funds for the IGCP National Committee special foundation established in 1996. Generous donations, which enabled to offer 15 grants in the total amount of 91 500.- Czk was kindly provided by a major sponsor of the Czech IGCP National Committee:

Severočeské doly, a.s. (SD a.s., Chomutov)

and also by

Česká naftařská společnost, s.r.o. (Hodonín)

Galihad Investment, spol. s.r.o. (Kladno),

GeoTec – GS, a.s. (Praha)

Website address of the Czech IGCP National Committee is <http://www.gli.cas.cz/igcp/>

The Czech IGCP NC expressed its continuing support to the planned IYPE activities.