

# CZECH IGCP NATIONAL COMMITTEE



## *COMPREHENSIVE ANNUAL REPORT*

**2009**

Prague 2009



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## COMPREHENSIVE ANNUAL REPORT

**2009**

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*Date of submission of Report:* December 18<sup>th</sup>, 2009

*Signature of Chairman:* .....

1. Czech IGCP National Committee

*Chairman:* RNDr. Jan PAŠAVA, CSc.  
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**2. Members of the Czech IGCP National Committee (2007-2009):**

Ing. M. Eis (*Severočeské doly, a.s., Chomutov*), Dr. O. Fatka (*Faculty of Science, Charles University*), Dr. P. Havlíček (*Czech Geological Survey, Prague*), Dr. J. Hladil (*Geological Institute, Czech Academy of Sciences*), Dr. P. Kraft (*Faculty of Science, Charles University*), Dr. R. Mikuláš (*Geological Institute, Czech Academy of Sciences*), Dr. S. Opluštil (*Faculty of Science, Charles University*), Dr. J. Pašava (*Czech Geological Survey, Prague*), Ing. P. Skupien (*Technical University, Ostrava*), M. Kuna (*Czech Commission for UNESCO*), Mgr. K. Verner (*Faculty of Science, Charles University / Czech Geological Survey*), Dr. A. Vymazalová (*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 leaders from the Czech Republic:**

**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](mailto:kraft@natur.cuni.cz))

**Activities in 2009:**

The project was on extended term in 2009 and several important events were organized. One of them was a special session “From Cadomian subduction to Variscan collision: Pre-Mesozoic geology of the Bohemian Massif and adjacent domains” (convenors: U. Linnemann and G. Zulauf) and related field excursion that were organized within the framework of the 161<sup>st</sup> Annual Meeting of the DGG “GeoDresden 2009”. Early Paleozoic development of the Rheic Ocean was

illustrated and discussed during two days excursion to the Barrandian area that was organized by Czech geologists and paleontologists (convenors: P. Kraft and O. Fatka). Guide for this excursion with the results of the IGCP project no. 497 was compiled by several authors:

Fatka, O., Kraft, P., Kříž, J., Štorch, P., Vacek, F., Brocke, R. (2009): Lower Palaeozoic of the Barrandian area. In: Lange J.-M., Linnemann, U., Röhling H.-G. (eds.): GeoDresden 2009. Geologie der Böhmisches Masse. Regionale und Angevandte Geowissenschaften in Mitteleuropa. Exkursionsführer und Veröffentlichungen der Deutschen Gesellschaft für Geowissenschaften, Heft 241, 29-47.

New information on the fragments of the Rheic Ocean margin is discussed in the following paper, dedicated to the IGCP project no. 497:

Štorch, P., Kraft, P. (2009): Graptolite assemblages and stratigraphy of the lower Silurian Mrákotín Formation, Hlinsko Zone, NE interior of the Bohemian Massif (Czech Republic). Bulletin of Geosciences 84 (1), 51-74. DOI 10.3140/bull.geosci.1077

Several Czech geologists and paleontologists will directly benefit from the IGCP project no. 497 in their research activities during next years.

**IGCP 580 - Application of magnetic susceptibility as a paleoclimatic proxy on Paleozoic sedimentary rocks and characterization of the magnetic signal**  
**Project Leaders: A-C. da Silva, M.T. Whalen, J. Hladil (Czech Republic), D. Chen, S. Spassov, F. Boulvain.**

**Czech representatives: J. Hladil (starting period [hladil@gli.cas.cz](mailto:hladil@gli.cas.cz)), L. Koptíková (continuing period [koptikova@gli.cas.cz](mailto:koptikova@gli.cas.cz)).**

### **Activities in 2009:**

A scope of the project has been defined around magnetic susceptibility and Devonian carbonate sedimentary rocks, by focusing on magnetism, mineral phases, complex impurities in limestone and other relevant problems (“core plan”). This project, however, encompasses also a lot of problems about biostratigraphy, lithology, environment and Earth system evolution to continue, in these (paleo)environmental aspects, the international highlights of the IGCP 499 and 497 projects – the very successful projects, but in their terminal stage and on the O.E.T. status in 2009.

Hence, there are a lot of relevant research subjects which are crossing the natural science and exact disciplines. With this extended “interdisciplinary and application plan”, it gives participants of the IGCP 580 the ability to extend numerous related tasks in the Earth system studies, correlation and comparison (up to the present day geology and climate forcing of the background sedimentation and diagenesis; Phanerozoic and Recent, and also present and future settings). Technically, the project addresses the solution of the tasks on the boundary of science and technologies, contains training, education and implications for not fully developed countries.

In spite of these ambitious first and second plan project goals, the practical and core subject is to collect new data-sets on magnetic susceptibility stratigraphy (MS) in field and to enhance the database of MS logs already available (main focus: Devonian strata). These data then should be used to find out more about the origin of MS signals through interdisciplinary cooperation with specialists on geochemistry, geophysics, sedimentology and other disciplines.

Until now, more than 120 scientists agreed to contribute to this project for better understanding of (paleo)climatic variations during the Devonian Period by using the relevant sets of methods. ***Also the Czech working group increased by one third since the date of launching the project, from 10 to 15 active members at the date of this report.***

In the territory, the Regional Devonian Workshop, Prague & Graz; 25-27th May 2009, held in Prague, claimed its relationship to the just-launched IGCP 580 project.

The main coming event is, however, the all-project congress "Magnetic susceptibility, correlations and paleoenvironments" which is the 1<sup>st</sup> official IGCP 580 Meeting held in Liege, Belgium, on December 2-6, 2009.

The scientific and technical releases are numerous, and concern mainly fine-scale and high-resolution stratigraphic alignments together with solution of environmental/paleoenvironmental tasks in general, and with numerous specializations mainly the relationships between carriers of magnetism and signals, as well as a complex understanding of their changes with sedimentary facies, diagenesis and deformation. The current studies and papers solve the tasks related to the Devonian, Paleozoic, Phanerozoic and Recent/Present time intervals, and geographically encompass the Czech, Central European and world settings (e.g., correlations with objects in Portugal, Nevada, Uzbekistan, or in other corners of the world).

The significance of the atmospheric dust input into carbonate sediments for interregional correlation of MS stratigraphic signal is one of the priority issues that are developed by the Czech participants of the project, particularly with respect to novelty and efficiency of the fully integrated MS-GRS-TECHMP system (magnetic susceptibility - gamma-ray spectrometry - trace element chemical and mineral phase determination).

#### **List of publications and communications:**

##### ***Publications***

- Hladil, J., Koptikova, L., Galle, A., Sedlacek, V., Pruner, P., Schnabl, P., Langrova, A., Babek, O., Frana, J., Hladikova, J., Otava, J., Gersl, M., 2009. Early Middle Frasnian platform reef strata in the Moravian Karst interpreted as recording the atmospheric dust changes: the key to understanding perturbations in the punctata conodont Zone. *Bulletin of Geosciences* 84(1): 75-106.
- Koptikova, L., Hladil, J., Slavik, L., Frana, J., 2009. Lochkovian-Pragian boundary in the Prague Synform: lithological, mineralogical, geophysical and geochemical aspects as results of sea-level fall. In: Suttner, T.J., Berkyova, S., Hubmann, B., Koptikova, L., Slavik, L. (Eds.), 2009. Regional Devonian Workshop Prague & Graz: Prague, 25-27th May 2009. *Berichte der Geologischen Bundesanstalt (Verlag der Geologischen Bundesanstalt, Wien)*, 79: 28-31.
- Machado, G., Hladil, J., Koptikova, L., Fonseca, P.E., Rocha, F.T., Galle, A., 2009. The Odivelas Limestone: evidence for a Middle Devonian reef system in western Ossa-Morena Zone (Portugal). *Geologica Carpathica* 60(2): 121-137.

##### ***Other communications released with the project***

- Babek, O., Hladil, J., Francu, E., Kalvoda, J., Melichar, R., 2009. Structure and thermal alteration of Moravo-Silesian Zone, Czech Republic. In: Sobien, K., Grabowski, J. (Eds.), *Paleomagnetic studies of Devonian rocks in Poland and Czech Republic: geological implications*, International Scientific Workshop, Book of abstracts, February 18, 2009, 37 pp., Polish Geological Institute: 4-6. Warsaw, PL.
- da Silva, A.C., Whalen, M.T., Hladil, J., Chen, D., Spassov, S., Devleeschouwer, X., Boulvain, F., 2009. IGCP 580 - Magnetic susceptibility, correlations and palaeoenvironments. In: Bahamonde, J.R., Henriot, J.P., Samankassou, E. (Eds.), *Carbonate Mounds in Shallow and*

- Deep Time, A joint MiCROSYSTEMS – COCARDE – CHECREEF Workshop and Field Seminar, September 16-20, 2009, Oviedo, Spain. Book of Abstracts: A45. Oviedo, ES.
- Grabowski, J., Babek, O., Hladil, J., Narkiewicz, M., Pruner, P., Schnabl, P., 2009. Remagnetizations in the Variscan orogen and foreland in Czech Republic and Poland: timing, origin and links with orogenic processes. In: Abstract Book of the IAGA 11th Scientific Assembly, Sopron, Hungary, August 24-29, 2009: 506-SAT-P1450-1102. Sopron, HU.
- Grabowski, J., Babek, O., Hladil, J., Pruner, P., Schnabl, P., Nizinkiewicz, H., 2009. New paleomagnetic results from Devonian of Moravo-Silesian Zone: implications for dating tectonic deformations. In: Sobien, K., Grabowski, J. (Eds.), Paleomagnetic studies of Devonian rocks in Poland and Czech Republic: geological implications, International Scientific Workshop, Book of abstracts, February 18, 2009, 37 pp., Polish Geological Institute: 12-14. Warsaw, PL.
- Hladil, J., Cejchan, P., Gersl, M., Babek, O., 2009. Impurity phases in large-scale platform-reef limestone complexes, their change with deposition time and diagenesis, and implications for magnetic susceptibility stratigraphic records: all with particular reference to Devonian of the Moravian Karst area (Brunovistulian Terrane, eastern border of Bohemian Massif). In: Sobien, K., Grabowski, J. (Eds.), Paleomagnetic studies of Devonian rocks in Poland and Czech Republic: geological implications, International Scientific Workshop, Book of abstracts, February 18, 2009, 37 pp., Polish Geological Institute: 34-37. Warsaw, PL.
- Koptikova, L., Hladil, J., da Silva, A.C., Whalen, M.T., Boulvain, F., Chen, D., Spassov, S., Devleeschouwer, X., 2009. The IGCP Project 580 Application of magnetic susceptibility on Paleozoic sedimentary rocks has been launched: the project outlines, scope and the first results related to Central European region. In: Suttner, T.J., Berkyova, S., Hubmann, B., Koptikova, L., Slavik, L. (Eds.), 2009. Regional Devonian Workshop Prague & Graz: Prague, 25-27th May 2009. Berichte der Geologischen Bundesanstalt (Verlag der Geologischen Bundesanstalt, Wien), 79: 25-27. Vienna, AT.
- Mikulas, R., Skala, R., Koptikova, L., Hladil, J., 2009. Impaktova struktura Alamo v USA (The Alamo impact structure, U.S.A.). Vesmir, 88, 2: 96-100. Prague, CZ.
- Pruner, P., Krs, M., Hladil, J., Venhodova, D., Schnabl, P., 2009. Paleomagnetic evidence for Variscan rotation of Moravian Devonian rocks. In: Paleomagnetic studies of Devonian rocks in Poland and Czech Republic: geological implications, International Scientific Workshop, Book of abstracts, February 18, 2009, 37 pp., Polish Geological Institute: 7-9. Warsaw, PL.
- Schnabl, P., Pruner, P., Slechta, S., Koptikova, L., Vacek, F., Hladil, J., 2009. State of the art in paleomagnetism of the Devonian limestones of the Prague Synform (Bohemicum, Bohemian Massif). In: Sobien, K., Grabowski, J. (Eds.), Paleomagnetic studies of Devonian rocks in Poland and Czech Republic: geological implications, International Scientific Workshop, Book of abstracts, February 18, 2009, 37 pp., Polish Geological Institute: 28-29. Warsaw, PL.
- Spassov, S., da Silva, A.C., Whalen, M.T., Hladil, J., Chen, D., Boulvain, F., Devleeschouwer, X., 2009. Application of magnetic susceptibility on Palaeozoic sedimentary rocks. In: Abstract Book of the IAGA 11th Scientific Assembly, Sopron, Hungary, August 24-29, 2009: 116-THU-O1445-0999. Sopron, HU.
- Stepankova, J., Pruner, P., Hladil, J., Otava, J., 2009. Paleomagnetism of Devonian and Carboniferous sedimentary rocks from the Drahany Upland, Moravia. In: Sobien, K., Grabowski, J. (Eds.), Paleomagnetic studies of Devonian rocks in Poland and Czech Republic: geological implications, International Scientific Workshop, Book of abstracts, February 18, 2009, 37 pp., Polish Geological Institute: 10-11. Warsaw, PL.
- Strnad, L., Hladil, J., Drabkova, V., 2009. Laser ablation ICP-MS analysis of growth rhythms in stromatoporoid skeletons. In: 19th Annual V. M. Goldschmidt Conference (Davos, Switzerland). Geochimica et Cosmochimica Acta, 73(13, Suppl. S): A1284. Oxford, UK.
- Werner, T., Grabowski, J., Pruner, P., Schnabl, P., Hladil, J., Melichar, R., 2009. Local scale deformation for Devonian carbonates of Moravo-Silesian Zone (Czech Republic) derived

from magnetic fabrics. In: Abstract Book of the IAGA 11th Scientific Assembly, Sopron, Hungary, August 24-29, 2009: 111-TUE-P1130-0773. Sopron, HU.

Several subjects related to MS and MS stratigraphic studies will be presented by Czech and Moravian participants at the congress 'Magnetic susceptibility, correlations and paleoenvironments' which is the 1<sup>st</sup> IGCP 580 Meeting held in Liege, Belgium, on December 2-6, 2009. Communications by: J. Hladil, L. Koptikova, P. Cejchan, O. Babek, P. Schnabl, S. Slechta, M. Chadima, F. Vacek, L. Lisa, involving numerous co-authors from the Czech universities, research and technical institutes. The final shape of these communications will be announced in additional reports. Examples of the preliminarily announced subjects of contributions are as follows:

Hladil, J.: Natural atmospheric mineral dust: its potential for the MS stratigraphy. (Keynote Lecture).

Babek, O., Kalvoda, J., Cossey, P., Devuyst, F-X., Herbig, H-G., Sevastopulo, G.: Correlation potential of magnetic susceptibility and outcrop gamma-ray logs at Tournaisian-Visean boundary sections in Western Europe.

Boulvain, F., da Silva, A.C. Mabile, C., Poulain, G., Hladil, J. Gersl, M., Koptikova, L., Schnabl, P.: Magnetic susceptibility correlation of km-thick Eifelian–Frasnian sections (Belgium – Czech Republic).

Cejchan, P. Hladil, J., Vondra, M., Vich, R.: Stratigraphic alignment of magnetic susceptibility records by dynamic time warping.

Chadima, M., Kadlec, J., Hroudá, F., Slechta, S.: Frequency dependence of magnetic susceptibility of weakly magnetic sediments: implications for magnetic granulometry.

Koptikova, L., Hladil, J., Slavik, L., Frana, J.: Mineralogy of fine grained non-carbonate particulates embedded in neritic to pelagic limestones, and connection to magnetic susceptibility and gamma-ray signals: a case study based on Lochkovian, Pragian and lower Emsian strata from the Pozar-3 section (Prague Synform, Czech Republic).

Lisa, L., Chadima, M., Grygar, T., Jones, M.J. and Gregor, M.: Relationship of magnetic susceptibility with sedimentological and micromorphological features, and geochemical proxy parameters; case study from Last Glacial loess deposits in southern Moravia.

Machado, G., Slavik, L., Koptikova L., Hladil, J., Fonseca, P.: Emsian-Eifelian mixed carbonate-volcaniclastic sequence in western Ossa-Morena zone (Covas Ruivas, Odivelas limestone).

Schnabl P., Cajz V., Pruner P., Slechta S., Venhodova D., Koptikova L., Vacek F., Hladil J.: Use of field dependent susceptibility in determination basaltic tuff material in sedimentary record.

Vacek, F.: Magnetic susceptibility and gamma-ray spectrometry used for correlation of two Silurian-Devonian boundary GSSPs: Klonk near Suchomasty and Karlstejn sections (Barrandian, Czech Republic).

### **Activities planned for 2010:**

The rapidly forming and developing IGCP 580 was approved only on April, 10, 2009. Hence the priority was given to the transformation of an informal stream in this IGCP research into more formal structures of the actual IGCP project. A principal organizing activity was connected with cooperative preparations of the first All-Project meeting in Liege (December 2009). Therefore, the precise regional (or Czech) plan for 2010 cannot be announced yet because the very details are not fully settled at the date. But even the present stage of the development promises very good perspectives for organizing of meetings of various size and scope.

## **B/ Projects with active working groups in the Czech Republic:**

### **Project 499 – Evolution of Ecosystems and Climate in the Devonian**

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

**Czech Correspondent: O. Fatka ([fatka@natur.cuni.cz](mailto:fatka@natur.cuni.cz))**

### **Activities in 2009:**

In 2009, the project was on extended term. The main contributions by the Czech working group were related to biostratigraphy and paleobiology. In sedimentology and isotope characteristics of sections, the papers solving general problems of the “Middle” Palaeozoic environments prevailed. Czech participants of the IGCP 499 participated in regional meetings (e.g., Prague & Graz), but also attended the world congresses (e.g., NAPC in Cincinnati).

### **List of Publications:**

- Berkyová S., Brocke, R., Fatka, O., Frýda, J., Budil, P., Schindler, E. (2009): Prasinophyte bloom and intense micritization as evidences for enhanced nutrient load during Basal Choteč event-preliminary report. Palaeozoic seas Symposium Graz, abstracts. 2<sup>nd</sup> joint meeting of spores/pollen and acritarch subcommissions, Faro, 23-24 September 2009.
- Berkyova, S., Koptikova, L., Slavik, L., Fryda, J., Hladil, J., 2009. Excursions Part 2: Czech Republic. In: Suttner, T.J., Berkyova, S., Hubmann, B., Koptikova, L., Slavik, L. (Eds.), 2009. Regional Devonian Workshop Prague & Graz: Prague, 25-27th May 2009. Berichte der Geologischen Bundesanstalt (Verlag der Geologischen Bundesanstalt, Wien), 79, 61-69.
- Brocke, R., Fatka, O., Berkyová S., Budil, P., Frýda, J., Schindler, E. (2009): Early Middle Devonian (Eifelian) phytoplankton bloom associated with the Basal Chotec Event in the Barrandian area (Czech Republic). 2<sup>nd</sup> joint meeting of spores/pollen and acritarch subcommissions, abstracts, 79-81. Faro.
- Budil, P., Horbinger, F., Mencl, R., 2009. Lower Devonian dalmanitid trilobites of the Prague Basin (Czech Republic). Earth and Environmental Science Transactions of the Royal Society of Edinburgh, 99, 2, 61-100.
- Fryda, J., Racheboeuf, P.R., Frydova, B., Ferrova, L., Mergl, M. & Berkyova, S. 2009. Platyoceratid gastropods – stem group of patellogastropods, neritimorphs or something else? Bulletin of Geosciences, 84, 1, 107–120.
- Elrick, M., Berkyova, S., Klapper, G., Sharp, Z., Joachimski, M., Fryda, J., 2009. Stratigraphic and oxygen isotope evidence for My-scale glaciation driving eustasy in the Early-Middle Devonian greenhouse world. Palaeogeography, Palaeoclimatology, Palaeoecology, 276, 170-181.
- Loydell, D.K., Butcher, A., Fryda, J., Luening, S., Fowler, M., 2009. Lower Silurian 'hot shales' in Jordan: a new depositional model. Journal of Petroleum Geology, 32, 3, 261-270.
- Slavik, L., Carls, P., Koptikova, L., Hladil, J., 2009. Lochkovian conodont succession in the Pozary Quarries: prospects for refinement of global zonation of the Lochkovian Stage. In Suttner, T.J., Berkyova, S., Hubmann, B., Koptikova, L., Slavik, L. (Eds.), 2009. Regional Devonian Workshop Prague & Graz: Prague, 25-27th May 2009. Berichte der Geologischen Bundesanstalt (Verlag der Geologischen Bundesanstalt, Wien), 79, 38-39.



**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 ([jan.pasava@geology.cz](mailto:jan.pasava@geology.cz))**

**Activities in 2009:**

2009 was the last year of the project with O.E.T. status. 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.

The Czech participants (Jan Pašava and Anna Vymazalová from the Czech Geological Survey) continued research on the distribution of PGE in major VMS deposits. New set of representative massive sulfide samples (pyrite, chalcopyrite) was collected at the Tisová Cu (Beshi-type) deposit and PGE data should be received by the end of 2009. New PGE data was obtained from the samples that represent the two only known high-temperature vent fields in the Indian Ocean (Kairei and Edmond vent – collaborative study with IFM-GEOMAR group). These vents, however, showed as PGE-poor with most of PGE values below detection limit.

**Activities planned for 2010:**

In order to keep existing international group of scientists active, leadership of the IGCP 502 submitted a request to SGA (Society for Geology Applied to Mineral Deposits) to create a working group for the study of volcanic-hosted massive sulphide deposits. SGA Council will discuss this request at its upcoming meeting (March 2010).

**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](mailto:fatka@natur.cuni.cz))**

**Activities in 2009:**

2009 was the last year of this successful project with O.E.T. status. Activities of the Czech troupe were focused on the presentation of final results. One oral and one poster presentations and two abstracts were presented at the 9th North American Paleontological Convention, Cincinnati, Ohio, June 21-26, 2009:

Fatka, O., Budil, P. & Kraft, P. (2009): Supposed cryptic behavior of Middle Ordovician harpetid trilobites in the Prague Basin (Czech Republic). 9<sup>th</sup> North American Paleontological Convention, 166. Cincinnati.

Budil, P., Fatka, O., Mergl, M. & Kraft, P. (2009): Feeding strategies of trilobites occurring in the Kraluv Dvur Formation (Upper Ordovician, Prague Basin, Czech Republic). 9<sup>th</sup> North American Paleontological Convention, 174. Cincinnati.

Special volume of the Bulletin of Geosciences (ISI listed – with IF from January 2010) was printed in late 2008. It contains the following eleven contributions:

Königshof, P. Obut, O. & Izokh, N. 2008. Editorial.

- Baird, G.C. & Brett, C.E. 2008. Late Givetian bioevents in New York State: New discoveries and questions. *Bulletin of Geosciences*, 83(4), 357-370.
- Obut, O.T. & Shcherbanenko, T.A. 2008. Late Devonian radiolarians from the Rudny Altai (SW Siberia). *Bulletin of Geosciences* 83(4), 371-382.
- Carls, P., Slavík, L. & Valenzule-Ríos, J.I. 2008. Comments on the GSSP for the basal Emsian stage boundary: the need for its redefinition. *Bulletin of Geosciences* 83(4), 383-390.
- Artyuszkova, O.V. & Maslov, V.A. 2008. Detailed correlation of the Devonian deposits in the South Urals and some aspects of their formation. *Bulletin of Geosciences* 83(4), 391-399.
- Schemm-Gregory, M. 2008. New interpretations of the phylogeny and taxonomy of delthyridoid spiriferids (Brachiopoda, Lower and Middle Devonian). *Bulletin of Geosciences* 83(4), 401-448.
- Mesentseva, O.P. 2008. Trepostomids (Bryozoa) from the Devonian of Salair, Kuznetsky Basin, Gorny and Rudny Altai, Russia. *Bulletin of Geosciences* 83(4), 449-460.
- Kurilenko, A.V. & Kulkov, N.P. 2008. A proposed crinoid zonation of the Devonian deposits of eastern Transbaikal. *Bulletin of Geosciences* 83(4), 461-472.
- Fedoseev, G.S. 2008. The role of mafic magmatism in age specification of Devonian continental trough deposits: evidence from the Minusa Basin, western Siberia, Russia. *Bulletin of Geosciences* 83(4), 473-480.
- Liao, J.-C., Königshof, P., Valenzule-Ríos, J.I. & Schindler, E. 2008. Depositional environment interpretation and development of the Renanué section (Upper Eifelian–Lower Frasnian; Pyrenees, N. Spain). *Bulletin of Geosciences* 83(4), 481-490.
- Frýda, J., Racheboeuf, P.R. & Frýdová, B. 2008. Mode of life of Early Devonian *Orthonychia protei* (Neritimorpha, Gastropoda) inferred from its post-larval shell ontogeny and muscle scars. *Bulletin of Geosciences* 83(4), 491-502.
- Valent, M. & Malinky, J.M. 2008. Early Devonian (Emsian) hyolith *Ottomarites discors* (Barrande, 1867) with colour pattern. *Bulletin of Geosciences* 83(4), 503-506.

### **Project 506 – Marine and non-marine Jurassic**

**Project Leaders: J. Sha, N. Morton, G. Pienkowski, W. Wimbledon, Y. Wang**

**Czech Representative: P. Skupien ([petr.skupien@vsb.cz](mailto:petr.skupien@vsb.cz))**

### **Activities in 2009:**

The project received high funding in 2009. Research of the Czech group focused on the organic (microfossil) content, palynofacies and organic facies in two totally different regions Tethyan and Boreal. Czech activities are financially supported through a grant from the Czech Science Foundation. Tethyan studies are situated to the Outer Western Carpathians (Brodno section - Slovakia, Skalice section – Czech Republic) and Northern Calcareous Alps (Leube Quarry – Austria). Jurassic/Cretaceous boundary beds (Upper Volgian and Ryazanian) in the Nordvik Peninsula (North Siberia) were studied from Boreal region.

The results were presented at 8<sup>th</sup> IGCP 506 meeting in Bucharest, Romania (28 August – 3 September 2009).

### **List of Publications:**

Skupien P. (2009): Palynology and palynofacies of Uppermost Jurassic – Lower Cretaceous sediments. Abstracts and field guide, The 8th symposium of IGCP 506, Marine and non-marine Jurassic“, Bucharest, 25-26.

### **Planned activities in 2010:**

- Compilation of contribution about palynology of Jurassic/Cretaceous boundary for the Final Volume of IGCP 506.

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

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

**Czech representative: M. René ([rene@irsm.cas.cz](mailto:rene@irsm.cas.cz))**

### **Activities in 2009:**

Additional studies of accessory minerals from topaz-bearing granites and related rocks were performed (Krásno, Vysoký Kámen, Hora sv. Kateřiny, Mikulov). In P-high topaz granites (Horní Slavkov–Krásno ore district) recently relatively rare Nb-Ta oxides were found (wodginite, tapiolite). However, the most common hosts of Nb and Ta in this area are represented by Nb-Ta rutile, ferrocolumbite and manganocolumbite.

More than 900 m deep section of the Teplice-Altenberg caldera volcanic sequence in the eastern part of the Krušné Hory Mts. batholith, occurred in the borehole Mi-4 (Mikulov) documenting a sharp change from calc-alkaline melt in lower rhyolitic and dacitic units to A-type melt in the upper part of this sequence.

Application of the Li isotopes to petrogenesis of the granitic rocks during the complete orogenic cycle, including A-type activity, has been explored on a set of granitic rocks from the Western Carpathians (Slovakia) and Moldanubian Zone of the Bohemian Massif (Czech Republic).

### **List of publications:**

Breiter K., Müller A. (2009): Evolution of rare-metal granitic magmas documented by quartz chemistry. – *Eur. J. Mineral.*, 21, 335-346.

Breiter K. (2009): Mineral and textural evolution of subvolcanic A-type granite: Hora Sváté Kateřiny stock, Krušné hory Mts., Czech Republic. - *Z. geol. Wiss.*, 36, 365-382.

Breiter K. (2009): Two contrasting magma types in late-variscan Erzgebirge: areal distribution and chemical and mineralogical characteristic. – *Schriftenreihe Deutsch. Gesell. Geowissensch.*, 63, 137.

Finger F., Gerdes A., René M., Riegler G. (2009): The Saxo-Danubian granite belt: Magmatic response to post-collisional delamination of mantle lithosphere below the south-western sector of the Bohemian Massif (Variscan orogen). – *Geol. Carpath.*, 60, 205-212.

Janoušek V., Magna T., Holub F.V., Oberli F., Wiechert U. (2009): On the origin of Li isotope signatures in magmatic rocks from the Central Bohemian Plutonic Complex. – *Geochim. Cosmochim. Acta*, 73, A586.

Kohút M., Magna T., Janoušek V., Oberli F., Wiechert U. (2009): Fingerprinting sources of granitic rocks with Li isotopes. – *Geochim. Cosmochim. Acta*, 73, A676.

René M. (2009): Geochemical and mineralogical constraints of the Saxothuringian topaz granites origin. – *Schriftenreihe der Deutsch. Gesell. Geowissensch.*, 63, 264.

### Activities planned in 2010:

We plan to advance the study of accessory minerals in topaz-bearing granites and related rocks of the Krušné Hory batholith (Krásno-Horní Slavkov ore district, volcanic sequence of the Teplice caldera). Results of the study of A-granites and related subvolcanic to volcanic rocks from eastern part of the Krušné Hory batholith will be presented at the final meeting of IGCP-510 in Helsinki. Presentation of accessory minerals study results from topaz-granites and related rocks is planned for the IMA meeting in 2010 in Budapest.

#### **4. IGCP meetings held in the Czech Republic in 2009**

The Regional Devonian Workshop

May 25-27, 2009, Prague (Czech Republic) and Graz (Austria) - already related to newly started IGCP 580 project.

#### **5. IGCP meetings planned for 2010**

none

#### **6. Other relevant information**

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 10 grants in the total amount of 190 000,- CZK (equivalent of about 7,300 EUR) was kindly provided by the following sponsor of the Czech IGCP National Committee:



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The Czech IGCP NC supported financially the IYPE activities on national level in 2009 that also involved promotion of geosciences through various expositions in different cities in the Czech Republic.

The recent election for the period from 2010 to 2012 confirmed the following members of the Czech IGCP National Committee: Ing. M. Eis (*Severoceské doly, a.s., Chomutov*), Dr. O. Fatka (*Faculty of Science, Charles University*), Dr. J. Hladil (*Geological Institute, Czech Academy of Sciences*), Mgr. L. Koptíková (*Geological Institute, Czech Academy of Sciences*), Dr. P. Kraft (*Faculty of Science, Charles University*), Dr. R. Mikuláš (*Geological Institute, Czech Academy of Sciences*), Dr. P. Pacherová (*Czech Geological Survey*), Dr. J. Pašava (*Czech Geological Survey, Prague*), Dr. M. René (*Institute of structure and mechanics of rocks, Czech Academy of Sciences*), Ing. P. Skupien (*Technical University, Ostrava*), Ing. M. Kuna (*Czech Commission for UNESCO*), Dr. A. Vymazalová (*Czech Geological Survey, Prague*), Dr. J. Zajíc (*Geological Institute, Czech Academy of Sciences*).

A special issue of *Global and Planetary Change* 68 (2009) was dedicated to Dr. Jaroslav Tyráček – highly internationally recognized Czech quaternary geologist who used to be a member of the Czech IGCP NC and participated in numerous IGCP projects (e.g., IGCP 73, 253, 378, 449 and 518). We wish him a long and happy retirement.

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