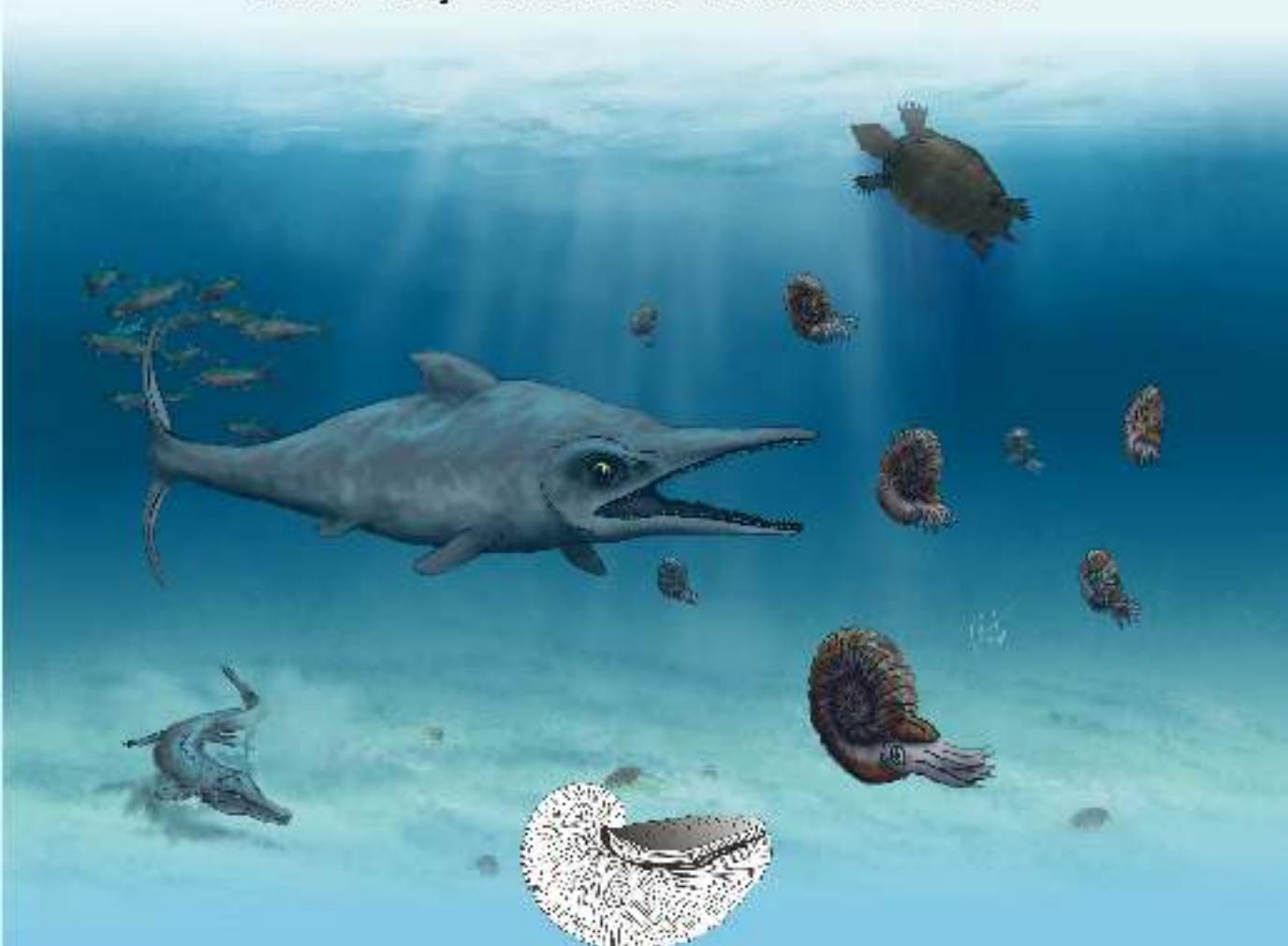




## XII<sup>th</sup> Jurassica Conference

### Workshop of the ICS Berriasian Group and IGCP 632

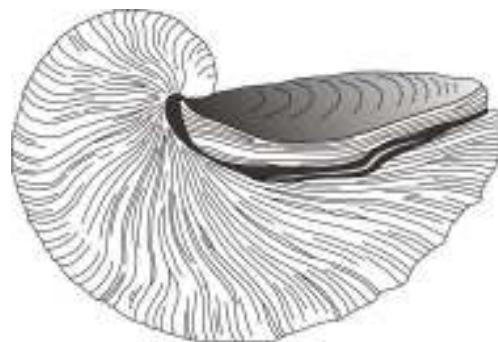
#### Field Trip Guide and Abstracts Book



Smolenice, Slovakia, April 19–23, 2016

Earth Science Institute, Slovak Academy of Sciences  
Bratislava  
2016

# **XII<sup>th</sup> Jurassica Conference**



## **Field Trip Guide and Abstracts Book**

**April 19–23, 2016,  
Smolenice, Slovakia**

**Edited by:** Jozef Michalík and Kamil Fekete

Earth Science Institute, Slovak Academy of Sciences  
Bratislava 2016



## Scientific Committee:

**Jingeng Sha**, Nanjing Inst. of Geol. and Palaeo.; Chinese Academy of Sciences, China  
**Anna Feldman-Olszewska**, Polish Geological Institute, Warszawa  
**William A. P. Wimbledon**, School of Earth Sciences, University of Bristol, UK  
**Jozef Michalík**, Earth Science Institute, Slovak Academy of Sciences, Bratislava  
**Roman Aubrecht**, Dep. of Geol. and Palaeontology, Comenius University, Bratislava  
**Jolanta Iwańczuk**, Polish Geological Institute, Warszawa  
**Michał Krobicki**, Polish Geol. Inst.; AGH Univ. of Science and Technology, Kraków  
**Otília Lintnerová**, Dep. of Economic Geology, Comenius University, Bratislava  
**Dušan Plašienka**, Dep. of Geol. and Palaeontology, Comenius University, Bratislava  
**Daniela Reháková**, Dep. of Geol. and Palaeontology, Comenius University, Bratislava  
**Ján Schlögl**, Dep. of Geology and Palaeontology, Comenius University, Bratislava  
**Ján Soták**, Earth Science Institute, Slovak Academy of Sciences, Banská Bystrica  
**Vladimír Šimo**, Earth Science Institute, Slovak Academy of Sciences, Bratislava  
**Adam Tomašovych**, Earth Science Institute, Slovak Academy of Sciences, Bratislava  
**Andrzej Wierzbowski**, Polish Geological Institute, Warszawa

## Organizing Committee:

**Jozef Michalík**, Earth Science Institute, Slovak Academy of Sciences, Bratislava  
**Anna Feldman-Olszewska**, Polish Geological Institute, Warszawa  
**Ľubica Puškelová**, Earth Science Institute, Slovak Academy of Sciences, Bratislava  
**Kamil Fekete**, Earth Science Institute, Slovak Academy of Sciences, Bratislava  
**Tomáš Fuksi**, Earth Science Institute, Slovak Academy of Sciences, Bratislava  
**Marián Golej**, Earth Science Institute, Slovak Academy of Sciences, Bratislava

Edited by:      Jozef Michalík (Earth Science Institute, Slovak Academy of Sciences)  
                          Kamil Fekete (Earth Science Institute, Slovak Academy of Sciences)



SLOVAK RESEARCH  
AND DEVELOPMENT  
AGENCY

The editors are grateful for the financial support:  
Slovak Research and Development Agency, SRDA  
(project No. 14-0118).

The manuscripts in this abstract book have not been subjected to the review. The authors are fully responsible for the scientific content, language and copyright of submitted figures and data in their articles.

© Earth Science Institute, Slovak Academy of Sciences, Bratislava 2016

**ISBN 978-80-85754-36-0**

## Table of contents

Table of contents .....	3
Preface .....	7
GUIDE TO THE FIELD TRIP .....	8
Introduction.....	8
Tectonic setting of the Western Carpathians (Plašienka).....	8
Pre-Alpine basement of the Western Carpathians (Plašienka).....	11
Alpine evolution of the Western Carpathians (Plašienka) .....	11
General structure of the Malé Karpaty Mountains (Michalík, Plašienka).....	12
The Tatic units (Plašienka) .....	13
Field trip route.....	16
Field stop 1: Devín Castle rock: Mid-Jurassic breccias in the Devín Unit (Michalík) .....	16
Field stop 2: Devínska Nová Ves–Slovinec cliff (Reháková) .....	19
Field stop 3: Borinka Village, Prepadlé Valley, the Borinka Unit (Plašienka) .....	20
Structure of the northern part of the Malé Karpaty Mts.....	24
The Fatic (Krížna) cover nappe system (Michalík, Plašienka) .....	24
The Vysoká Nappe in the Malé Karpaty Mts (Michalík). ....	27
The Hronic (Choč) cover nappe system (Michalík. Plašienka).....	28
Field stop 4: Kuchyňa, Vývrat Valley below the Prístodolok Hill (Michalík).....	29
Field stop 5: Rohožník, Rohožnícka Valley (Tmavý Jarok) (Michalík) .....	30
Facultative field stop: Mt Roštún (Veľká Vápenná): the Annaberg Limestone with Jurassic clasts in red fissure-fillings (Soták, Michalík) .....	31
Field stop 6: Smolenice, Hlboča Valley (Michalík, Grabowski, Lintnerová) .....	33
The Smolenice Castle.....	33
Field stop 7: Chtelnica - Upper Triassic to Lower Jurassic succession of the Považie Nappe with the Sinemurian “konzentratt-Lagerstätte”-type ammonite-rich deposits (Schlögl, Tomašových, Meister, Golej) .....	34
References.....	40
 CONFERENCE ABSTRACTS .....	45
<i>Lower–Middle Jurassic:</i> .....	45
<b>Jingeng Sha and Vivi Vajda:</b> Continental Crises of the Jurassic: Major Extinction Events and Environmental Changes – aims and perspectives of the IGCP 632 Project .....	45
<b>Jingeng Sha:</b> Palaeogeographic changes during the Triassic–Jurassic transition in China.....	48
<b>Pawel Brański and Grzegorz Pieńkowski:</b> Triassic–Jurassic boundary sections in the Polish Basin – new mineralogical and geochemical data.....	50
<b>Michał Krobicki:</b> Lower Jurassic (Pliensbachian) <i>Lithiotis</i> -type bivalve-bearing limestones of the Albanian Alps – sedimentological and palaeoecological preliminary observations .....	51

---

<b>Grzegorz Pieńkowski, M. Hodbod and C.V. Ullmann:</b> Fungal plant decomposition accelerated Early Jurassic climate change .....	52
<b>Michał Krobicki:</b> Review of the Middle Jurassic crabs (Brachyura) – their stratigraphic and palaeoenvironmental distribution .....	54
<b>Vladimír Šimo:</b> Trace fossil assemblage of Lower Jurassic bioturbated deep water marly limestones of fleckenkalk-fleckenmergel facies in the Central Western Carpathians. ....	55
<b>Michał Krobicki, Jolanta Iwańczuk, Andrzej Wierzbowski and Anna Feldman-Olszewska:</b> Toarcian-Aalenian and Bajocian syn-rift events in the Western Carpathians (Pieniny Klippen Belt and Tatra Mountains; Ukraine, Slovakia and Poland).....	56
<i>Upper Jurassic:</i> .....	57
<b>Daniel Tyborowski, Błażej Błażejowski, Piotr Gieszcza and Marcin Krystek:</b> Marine and terrestrial reptiles from the Upper Jurassic limestones of Owadów-Brzezinki.....	57
<b>Hans-Jürgen Gawlick, Hisashi Suzuki and Sigrid Missoni:</b> On the way to a more precise Middle-Late Jurassic radiolarian biostratigraphy a tool for a better palaeogeographic and geodynamic reconstruction of the western Neotethyan realm: key sections in the Northern Calcareous Alps .....	58
<b>Daria K. Ivanova, Ján Schlögl and Adam Tomašových:</b> Two types of benthic Middle Jurassic foraminifera from the Vršatec Limestone (Pieniny Klippen Belt, Western Carpathians, Slovakia) .....	60
<b>Mikhail A. Rogov:</b> Infrazonal ammonite biostratigraphy of the Upper Kimmeridgian of Polish Lowland (preliminary results) and Late Kimmeridgian events .....	62
<b>Bronisław A. Matyja, Andrzej Pszczołkowski and Andrzej Wierzbowski:</b> A Tithonian <i>Chitinooidella</i> horizon and “Volgian” and “Portlandian” ammonites in the Owadów-Brzezinki section (central Poland) – a clue for Upper Jurassic interregional correlations .....	65
<b>Andrzej Wierzbowski:</b> Towards a uniform Oxfordian-Kimmeridgian boundary – current state of knowledge .....	67
<b>Svetlana Yu. Malenkina:</b> Preliminary study and first analytical results of Upper Jurassic black shales from Moscow Region.....	68
<b>Elena V. Shchepetova, Ivan V. Panchenko, Evgenij Yu. Baraboshkin, V. D. Nemova, M. E. Smirnova and M. V. Zuykova:</b> Fish-debris tempestites within Volgian-Ryazanian radiolarian lithofacies of Western Siberia.....	71
<b>Hubert Wierzbowski, Žofia Dubicka, Tomasz Rychliński, Ewa Durska and Błażej Błażejowski:</b> Depositional environment of the Sławno Limestone (uppermost Jurassic, central Poland): evidence from microfacies analysis, microfossils and geochemical proxies .....	74
<b>Marián Golej, Ján Schlögl and Andrzej Wierzbowski:</b> The first findings of the bivalve genus <i>Aulacomyella</i> in the Upper Jurassic deposits of the Krížna Nappe and the Pieniny Klippen Belt (Western Carpathians) .....	76
<b>Urszula Hara, Zdeněk Vašíček and Petr Skupien:</b> Tithonian/Berriasian bryozoan-stromatoporid biota of the Štramberk Limestone (Outer Carpathians, Czech Republic).....	78
<b>Vladimir V. Arkadiev, andrey Yu. Guzhikov, V.A. Grishchenko, A. G. Manikin, Yu. N. Savel'eva, A. A. Feodorova and O.V. Shurekova:</b> Berriasian-Valanginian boundary in the Crimean Mountains .....	78

<b>Anna Feldman-Olszewska, Zbigniew Malolepszy, Sylwia Kijewska, Andrzej Gluszyński, G. Wróbel, T. Adamczak-Bialy, J. Chelmiński and E. Szynkaruk:</b> 3-D geological model of Jurassic deposits from the Lublin Basin, E Poland .....	82
<b>Katarzyna Socha and Michał Makos:</b> Revealing what has been overlooked - petroleum potential of the Jurassic deposits in Central Poland. ....	84
 <i>Posters:</i> .....	86
<b>Oxana S. Dzyuba and Boris N. Shurygin:</b> J/K boundary interval in Siberia: Litho-, bio-, magneto-, and chemostratigraphy .....	86
<b>Kamil Fekete and Silvia Ozdínová:</b> Lithology and microfacies of the Jurassic–Lower Cretaceous Nižná Limestone Fm in the Krásna Hôrka Quarry (PKB).....	88
<b>Hans-Jürgen Gawlick, Roman Aubrecht, Felix Schlagintweit, Sigrid Missoni and Dušan Plašienka:</b> Detection of chrome spinels of harzburgitic provenance in the Kimmeridgian of the central Northern Calcareous evidenced Late Jurassic erosion of an obducted Neotethyan ophiolites in the southern Eastern Alps .....	89
<b>Jacek Grabowski, Hans-Jürgen Gawlick, Jolanta Iwańczuk, Oliver Krische, Daniela Reháková and Krystian Wójcik:</b> Tithonian–Berriasiian magnetostratigraphy in the Northern Calcareous Alps (Leube quarry, Northern Calcareous Alps, Austria) – first results.....	91
<b>Anna Jezierska and Piotr Łuczyński:</b> Unconformity between the Triassic and the Jurassic in the High-Tatric Unit, Tatra Mountains. ....	93
<b>Elena V. Shchepetova and Mikhail A. Rogov:</b> Organic carbon-rich shales within coarse-grained lithofacies of Jurassic–Cretaceous transition at the Russian Platform .....	95
<b>Adam Tomašových, Ján Schlögl, Darrell S. Kaufmann and Natália Hudáčková:</b> Time averaging of Holocene cephalopod assemblages in condensed sediments and implications for the fossil record.....	96
<b>Volodymir G. Bakmutov, Cristina Emanuela Casellato, Eva Halássová, Daria K. Ivanova, Daniela Reháková and William A. P. Wimbleton:</b> Bio- and magnetostratigraphy of the Upper Tithonian–Lower Berriasiian in southern Ukraine .....	97
 WORKSHOP OF THE ICS BERRIASIAN GROUP .....	101
<i>JKB workshop-stratotypes:</i> .....	101
<b>Andrey Yu. Guzhikov, Vladimir V. Arkadiev, Evgenij Yu. Baraboshkin, A. A. Feodorova, O.V. Shurekova, E. E. Baraboshkin, A. G. Manikin, V. V. Golozubov, S. A. Kasatkin, and V. P. Nechaev:</b> New Bio- and Magnetostratigraphic Data at the Jurassic–Cretaceous Boundary of the Chigan Cape (Vladivostok Region, Russia).....	101
<b>Mikhail A. Rogov, Oxana S. Dzyuba, Viktor A. Zakharov, Boris N. Shurygin, Boris L. Nikitenko and Elena B. Pestchevitskaya:</b> The Nordvik section – Boreal auxiliary section for the base of the Berriasiian and candidate section for the SSSP of the Ryazanian Stage .....	105
<b>Petr Schnabl, Petr Pruner, Kristýna Čížková, Tiiu Elbra and William A. P. Wimbleton:</b> New palaeomagnetic interpretations near the Jurassic–Cretaceous boundary in the Nordvik Peninsula .....	108

- Guzhikov A.Y. 2013. Solving unsolvable problems in stratigraphy (Comments on the paper “New data on the magnetostratigraphy of the Jurassic–Cretaceous boundary interval, Nordvik Peninsula (northern east Siberia)” by Bragin et al.). *Russ. Geol. Geophys.* 54, 349–354.
- Houša V., Pruner P., Zakharov V.A., Košták M., Chadima M., Rogov M.A., Šlechta S. & Mazuch M. 2007: Boreal–Tethyan correlation of the Jurassic–Cretaceous boundary interval by magnetoand biostratigraphy. *Stratigr. Geol. Correl.* 15, 297–309.
- Schnabl P., Pruner P., Wimbleton W.A.P. 2015. A review of magnetostratigraphic results from the Tithonian–Berriasiian of Nordvik (Siberia) and possible biostratigraphic constraints, *Geol. Carpath.* 66, 6, 489–498.

## Kashpir section (Volga River, Russia), the proposed auxiliary section for the J/K interval in Subboreal Realm

EVGENIJ YU.BARABOSHKIN<sup>1</sup>, MIKHAIL A. ROGOV<sup>2</sup>, ANDREY YU. GUZHIKOV<sup>3</sup>, OXANA S. DZYUBA<sup>4</sup>, O.S. URMAN<sup>4</sup>, BORIS N. SHURYGIN<sup>4</sup>, ELENA B. PESTCHEVITSKAYA<sup>4</sup> and A.G. MANIKIN<sup>3</sup>

<sup>1</sup>Lomonosov Moscow State University, Geological Faculty, Vorobjovy Gory, 119234, Moscow, Russia; EJBaraboshkin@mail.ru

<sup>2</sup>Geological Institute of Russian Academy of Sciences, 119017, Pyzhevsky Pereulok, 7, Moscow, Russia; russianjurassic@gmail.com

<sup>3</sup>Chernyshevsky Saratov State University, Geological Faculty, Astrakhanskaya Str. 83, 410012, Saratov, Russia; aguzhikov@yandex.ru

<sup>4</sup>Trofimuk Institute of Petroleum Geology and Geophysics, Siberian Branch of Russian Academy of Sciences, Koptyug ave. 3, 630090, Novosibirsk, Russia; dzyubaos@ipgg.sbras.ru; shuryginbn@ipgg.sbras.ru

Kashpir reference section is located to the south of Syzran' town near Kashpir Village, on the right bank of Volga River (N 53°01'56", E 48°27'05"), where Middle Volgian – Hauterivian deposits are exposed (Fig. 1). Kashpir is one of historical sections of the Volgian Stage, which was reported in numerous publications and was proposed as the stratotype of Kashpurian Stage by I.G. Sasonova and N.T. Sasonov. The Jurassic – Cretaceous transition interval of the section has been re-described recently (Rogov et al., 2015) and characterised by ammonites (Rogov et al., 2015; Baraboshkin et al., 2015), belemnites and Buchias (Dzyuba, Urman, Shurygin, 2015), palynomorphs (Harding et al., 2011; Pestchevitskaya, Lebedeva, Ryabokon, 2011), ostracods (Kolpenskaya, 1995), stable isotopes (Gröcke et al., 2003, the Ryazanian only), palaeomagnetic and mineralogical data (Baraboshkin et al., 2015; Ruffell et al., 2002). Therefore, Kashpir section is one of the most

well-studied sections in Subboreal Realm. Even if it is highly condensed, it contains a number of potential direct markers (ammonites, belemnites, buchiids and dinocysts; palaeomagnetic reversal and stable isotope data), which could be used for interregional correlation of J/K boundary interval (Figs. 1, 2). Unfortunately only stable isotopes and palaeomagnetic reversals one may use for the direct Boreal–Tethyan correlation of the both Tithonian/Volgian and Berriasiian / Ryazanian. It needs additional study. Nevertheless, Kashpir section could be proposed as auxiliary section in Subboreal Realm to the GSSP, which hopefully will be chosen in the future.

*This study has been supported by RFBR grants № 14-05-31152, 13-05-00745a, 16-05-00207a, 15-05-03149a, 12-05-00196a, program 30 of the Presidium of the RAS, and the RF Ministry of Education and Sciences in the scientific field (project 1757, 1582).*

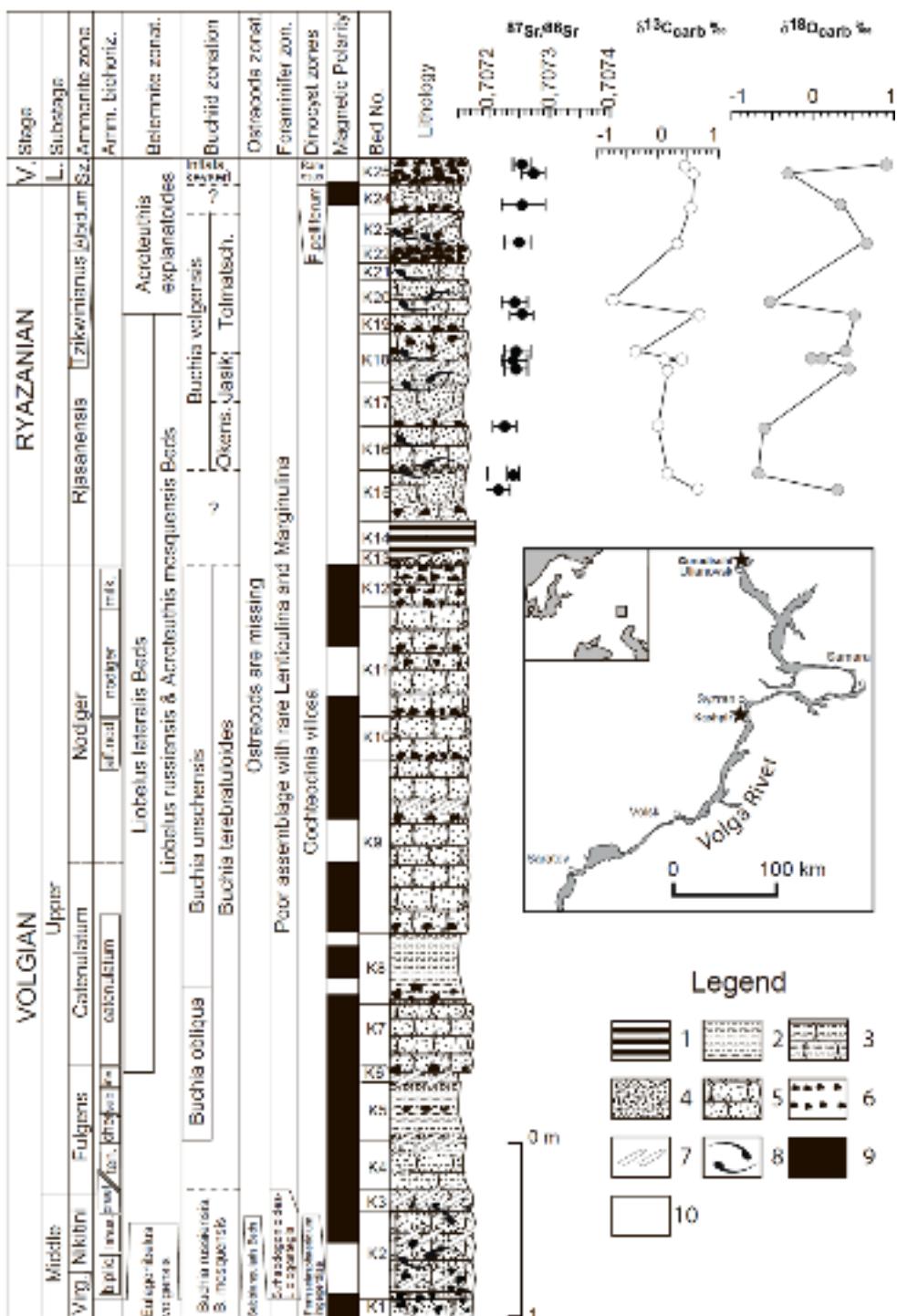


Fig. 1. Composite stratigraphy of Kashpir section (Based on Yakovleva, 1985; Kolpenskaya, 1995; Gröcke et al., 2003; Harding et al., 2011; Baraboshkin et al., 2015; Dzyuba, Urman, Shurygin, 2015; Rogov et al., 2015). The map demonstrates the location of Kashpir and Gorodishchi sections. Legend: 1 – oil shales; 2 – poorly cemented; 3 – Ca-cemented; sandstones: 4

– poorly cemented; 5 - Ca-cemented; 6 – phosphorite pebbles and nodules; 7 – belemnite horizons; 8 – shell (mainly *Buchia*) debris; geomagnetic polarity: 9 – normal; 10 – reversal.

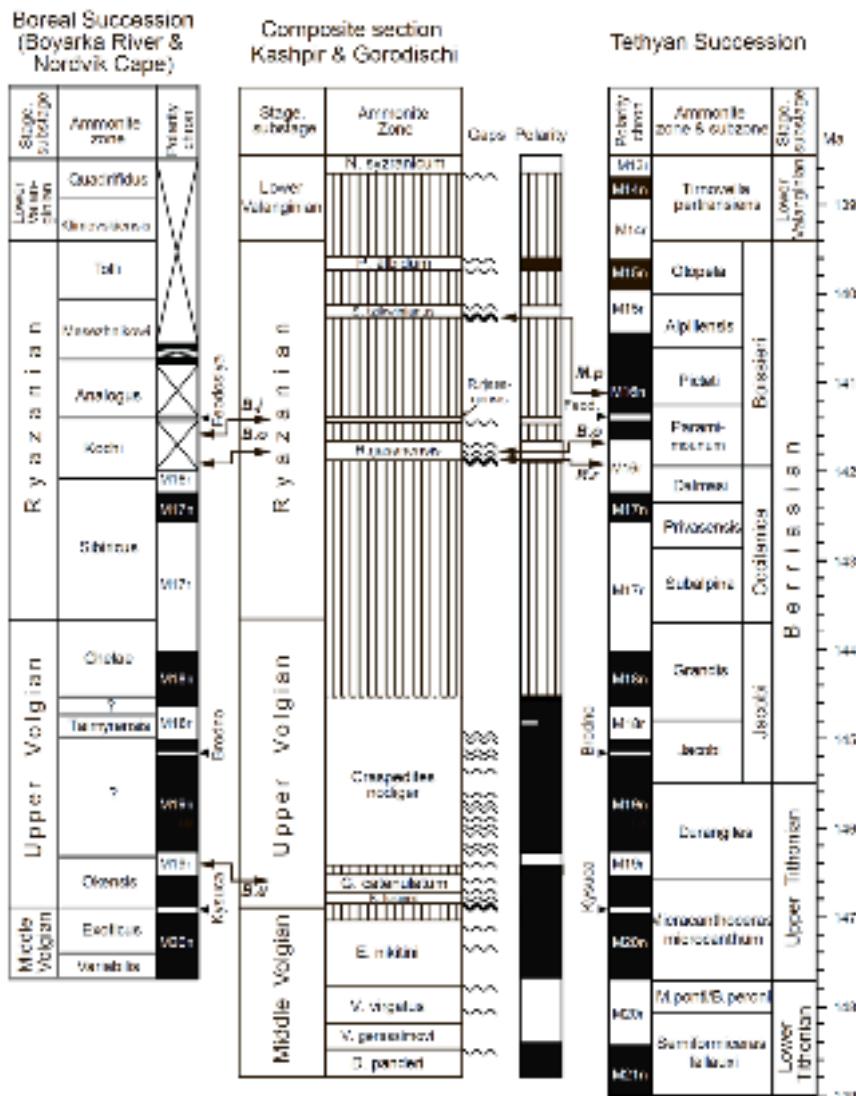


Fig. 2. Magnetostratigraphic correlation of the Jurassic-Cretaceous boundary composite succession of the Middle Volga region with other regions (after Baraboshkin et al., 2015, with changes; Rogov, Alifirov, Igolnikov, 2015). Thick wavy lines – discontinuities, recognized by (Harding et al., 2011); vertical lines - discontinuities. FADs of some Boreal / Tethyan markers: *M.p.* – *Meiourgonyaaulax pertusa* (Pestchevitskaya, Lebedeva, Ryabokon, 2011); *R.r.* – *Riasanites riasanensis*; *Buchia*: *B.j.* – *B. jasikovi*; *B.o.* – *B. okensis*; *B.u.* – *B. unschensis*. The legend and the position of Gorodishchi section see at Fig. 1.

#### References:

- Baraboshkin, E.Yu., Guzhikov, A.Yu., Manikin, A.G., Pimenov, M.V. 2015. Bio- and magnetostratigraphic data on the Jurassic-Cretaceous boundary of the Kashpir and Gorodishchi sections (Volga region, Russia). In: Baraboshkin, E.Yu., Bykov, D.E. (Eds.), *The International Scientific Conference on the Jurassic/Cretaceous boundary*. Proceedings volume. Kassandra, Togliatti, 25–31.

- Dzyuba, O.S., Urman, O.S., Shurygin, B.N. 2015. Belemnites and bivalves from the Jurassic-cretaceous boundary interval of the Kashpir Section, Middle Volga Basin, Russia: implications for biostratigraphy and panboreal correlation. In: Baraboshkin, E.Yu., Bykov, D.E. (Eds.), *The International Scientific Conference on the Jurassic/Cretaceous boundary*. Proceedings volume. Kassandra, Togliatti, 36–41.
- Gröcke, D.R., Price, G.D., Ruffel, A.H., Mutterlose, J., Baraboshkin, E.J. 2003. Isotopic evidence for Late Jurassic - Early Cretaceous climate change. *Palaeogeography, Palaeoclimatology, Palaeoecology* 202, 1-2, 97–118.
- Harding, I.C., Smith, G.A., Riding, J.B., Wimbledon, W.A.P. 2011. Inter-regional correlation of Jurassic/Cretaceous boundary strata based on the Tithonian-Valanginian dinoflagellate cyst biostratigraphy of the Volga Basin, western Russia. *Review of Palaeobotany and Palynology* 167., 82–116.
- Kolpenskaya, N.N. 1995. Ostracods and their biostratigraphic significance for the Upper Jurassic deposits of the Russian Platform. Abstract of the unpublished PhD Thesis, Sankt-Petersburg, 16 p. (In Russian).
- Pestchevitskaya, E., Lebedeva, N., Ryabokon, A. 2011. Uppermost Jurassic and lowermost Cretaceous dinocyst successions of Siberia, the Subarctic Urals and Russian Platform and their interregional correlation. *Geologica Carpathica* 62, 3., 189–202.
- Rogov, M.A., Alifirov, A.S., Igolnikov, A.E. 2015. Revised ammonite succession of the Upper Volgian of Nordvik section: zonal boundaries and uncertainties. In: Baraboshkin, E.Yu., Bykov, D.E. (Eds.), *The International Scientific Conference on the Jurassic/Cretaceous boundary*. Proceedings volume. Kassandra, Togliatti, 70–76.
- Rogov, M.A., Baraboshkin, E.Yu., Guzhikov, A.Yu., Efimov, V.M., Kiselev, D.N., Morov, V.P., Gusev, V.V. 2015. The Jurassic-Cretaceous boundary in the Middle Volga region. *Field guide to the International meeting on the Jurassic/Cretaceous boundary*. September 7–13, 2015, Samara (Russia). Samara State Technical University, Samara, 130 p.
- Ruffell, A.H., Price, G.D., Mutterlose, J., Kessels, K., Baraboshkin, E., Gröcke, D.R. 2002. Palaeoclimate indicators (clay minerals, calcareous nannofossils, stable isotopes) compared from two sections in the late Jurassic of the Volga Basin (SE Russia). *Geological Journal* 37., 17–33.
- Yakovleva, S.P. 1985. Peculiarities of foraminifera distribution in the Volgian deposits of the European part of the USSR. In: *Stratigraphy and correlation of the Upper Jurassic of the USSR*. Moscow, GIN AN SSSR, p.104–111. (In Russian).

## Complex stratigraphy, lithology and magnetic proxies of the J/K boundary interval in the Pieniny Klippen Belt (Western Carpathians, Slovakia)

JOZEF MICHALÍK<sup>1</sup>, DANIELA REHÁKOVÁ<sup>2</sup>, JACEK GRABOWSKI<sup>3</sup>, OTÍLIA LINTNEROVÁ<sup>4</sup>, ANDREA SVOBODOVÁ<sup>5</sup>, JÁN SCHLÖGL<sup>2</sup>, KATARZYNA SOBIEN<sup>3</sup> and PETR SCHNABL<sup>6</sup>

<sup>1</sup>Institute of Earth Sciences of the Slovak Academy of Sciences, Dúbravská cesta 9, P.O.Box 106, 840 05 Bratislava, Slovakia; geolmich@savba.sk;

<sup>2</sup>Department of Geology and Palaeontology, Faculty of Natural Sciences, Comenius University, Mlynská dolina G-1, 811504 Bratislava, Slovakia; rehakova@fns.uniba.sk

<sup>3</sup>Polish Geological Institute – National Research Institute, Rakowiecka 4, 00-975 Warsaw, Poland; jgra@pgi.gov.pl; katarzyna.sobien@pgi.gov.pl

<sup>4</sup>Department of Economic Geology, Faculty of Natural Sciences, Comenius University, Mlynská dolina G-1, 811 04 Bratislava, Slovakia; lintnerova@fns.uniba.sk

<sup>5</sup>Faculty of Science, Charles University, Albertov 6, Prague, Czech Republic, asvobodova@gli.cas.cz ;

<sup>6</sup>Geological Institute, Czech Academy of Science, Rozvojová 269, 165 00 Prague, Czech Republic; schnabl@gli.cas.cz

The most complete and well preserved Jurassic /Cretaceous sequences occur in the Pieniny Klippen Belt (Outer Carpathians) and in the Krížna Unit of the Central Carpathians. Plankton (calpionellid-, calcareous dinocyst- and nannoplankton) and O and C isotope fluc-