SILURIAN TIMES

NEWSLETTER OF
THE INTERNATIONAL SUBCOMMISSION ON SILURIAN STRATIGRAPHY (ISSS)
(INTERNATIONAL COMMISSION ON STRATIGRAPHY, ICS)

No. 24 (for 2016)

***Edited by* ZHAN Renbin**

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Silurian Subcommission website: http://silurian.stratigraphy.org

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Cover photo

Group photo of the post-conference (IGCP 591 closing meeting in Ghent) field excursion to western Wales led by Prof. Mark Williams from the University of Leicester. The group is sitting in front of Pentre Ifan Neolithic dolmen (erected about 5500 years ago) in the Preseli Hills, Pembrokeshire, western Wales. There are many such ancient monuments in this region of Wales, but Pentre Ifan is regarded as the best example of a dolmen. It may have been a communal burial chamber, or it may have been constructed to mark a place of cultural significance to the people who lived in this area. The huge capstone sitting on top of the other stones is a glacial erratic, and is thought to weigh about 16 tonnes according to Mark Williams' explanation.

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SILURIAN TIMES Number 24 (for 2016)

CHAIRMAN'S CORNER

Dear Silurian Colleagues,

Once again, 2016 was an active year for the ISSS. Our joint meeting with the IGCP 591, ICSC, ISOS and ISDS in Ghent, Belgium was a great success. The ISSS business meeting held in Ghent focussed on progress achieved by working groups studying candidate sections for new GSSPs of the bases of Aeronian, Telychian and Sheinwoodian stages. I wish to thank Thijs Vandenbroucke, Bradley Cramer, Anne Christine da Silva, Julie De Weirdt, Pieter Gurdebeke and other members of the organizing committee for organizing and hosting this excellent conference. I would certainly like to extend my thanks to Mark Williams, Jeremy Davies, Rob Hillier, Keith Nichols and Thijs Vandenbroucke who organized post-conference field trip to the lower Palaeozoic of Welsh Basin in U.K. During the field trip, several ISSS executive members visited a potential GSSP candidate section for the base of the Aeronian Stage in Rheidol Gorge near Pont-erwyd, east of Aberystwyth.

Several corresponding and voting members of the ISSS took part in the 35th International Geological Congress, in Cape Town, South Africa (August 28–September 16), including the ICS business meeting and congress field excursions.

Proceedings of the conference held in Quebec City in 2015 (5th International Symposium on the Silurian System) were published in two special issues of Canadian Journal of Earth Sciences in 2016 (Volume 53, number 7 and 8). Michael Melchin and Jisuo Jin are thanked for their hard editorial work to get this volume published.

The ISSS supported IGCP project proposal „Reading geologic time in Paleozoic rocks: the need for an integrated Stratigraphy" submitted by Anne-Christine da Silva *et al.* in 2016.

A working group for the base of the Aeronian Stage has been active, as shown in the results presented in Ghent. Since then, further work continues on Chinese candidate section at Shennongjia in Hubei province, joined by another promising candidate in Sichuan province (Yuxiancun section). First formal proposal – the Hlásná Třebaň Section in the Barrandian area of the Czech Republic – has been submitted for publication by Petr Štorch, Štěpán Manda, Jiří Frýda, Zuzana Tasáryová, Leona Chadimová and Michael Melchin. A paper is also in preparation on the Rheidol Gorge section in Wales, U.K.

The working group for base Telychian GSSP is working with two candidate sections: Shennongjia section in Hubei province of China and El Pintado Reservoir section in Seville province of Spain. Work on the former section is in progress, the latter one has been described by Loydell *et al.* (2015), although no formal GSSP proposal has been submitted.

The least advanced is the work on new base Sheinwoodian GSSP. The only considered section, the Banwy River section in Wales, was described by Loydell and Cave (1996) and some more chemostratigraphic work is needed. No alternative boundary section has been found so far, although the progress on a possible candidate section in Shaanxi, China, continues.

I am in my first year as Chair of the ISSS. I would like to extend my thanks to previous chair, Michael Melchin, for his long term service to our Silurian community and invaluable help as I take over the Silurian agenda. I also greatly appreciate colleagues who served as a vice-chair (Peep Männik), secretary (Jacques Verniers and Renbin Zhan) and all the voting members of the ISSS. I am looking forward close collaboration with our new vice-chair Carlo Corradini and re-elected secretary Renbin Zhan. His hard hork on Silurian Times is appreciated in particular.

The planned highlight of the ISSS activities for 2017 will be the 4th International Conodont Symposium „Progress on Conodont investigation" organized by Pander Society, University of Valencia, University of Cagliari and Institute of Geology of the CAS, in conjunction with ISDS and ISSS, in Valencia, Spain, in June 25–30. For further information see http://icos2017.blogspot.com.es/. The pre-conference fieldtrip will bring participants to Spanish Pyrenees whereas the post-conference excursion is organized to Barrandian area (Czech Republic) and Carnic Alps (Austria). I would like to give my thanks to José Ignazio Valenzuela Ríos, Teresa Liao, Carlos Martínez Pérez, Carlo Corradini, Ladislav Slavík and Thomas Suttner who are working hard to get the Valencia meeting and its field trips organized. Another meeting of interest may be 10th Baltic Stratigraphic Conference organized by Faculty of Geology of the University of Warsaw, Polish Geological Institute, Institue of Palaeobiology PAN and Polish Geological Society in Chęciny, in Holy Cross Mountains, Poland in September 12–14. See http://konferencje.eceg.uw.edu.pl/en/home for details. The pre-conference field trip will be devoted to „Lower Palaeozoic to Middle Devonian of the Holy Cross Mountains".

Last but not least, I would like to encourage members of the Silurian executive and ISSS corresponding members for suggestions regarding the next quadri-annual Silurian Symposium to be organized in 2019. Suggestions and official proposals will be much appreciated. Until then, our three respective working groups for base Aeronian, base Telychian and base Sheinwoodian GSSPs should submit official proposals for potential GSSPs of the respective units. Ogg *et al.* (2016) stated in their Concise Geologic Time Scale that „A majority of international stage boundaries (GSSPs) should be established by 2020 when a major comprehensive update of the Geologic Time Scale should be published in collaboration with Elsevier Publishing. Time has been passing quickly and our Subcommission should follow its own plans. We should be able to vote on some of the proposed GSSPs in 2019. For this reason, another, less formal workshop devoted to our main task – replacement of inadequate GSSPs of the Silurian stages – has to be organized in 2018. Along with current work on the Aeronian, Telychian and Sheinwoodian GSSPs, any advances in the work on other problematic boundaries (Sheinwoodian/Homerian and Homerian /Gorstian) would also be welcomed, since the latter working groups should be formed before the 6th International Symposium on the Silurian System in 2019.

References:

Loydell, D.K. and Cave, R. 1996. The Llandovery-Wenlock boundary and related Stratigraphy in eastern mid-Wales with special reference to the Banwy River section. *Newsletters on Stratigraphy*, 34(1), 39–64.

Loydell, D.K., Frýda, J. and Gutiérrez-Marco, J.C. 2015. The Aeronian/Telychian (Llandovery, Silurian) boundary, with particular reference to sections around the El Pintado reservoir, Seville Province, Spain. *Bulletin of Geosciences*, 90(4), 743–794.

Ogg, J.G., Ogg, G. and Gradstein, F.M. 2016. *A Concise Geologic Time Scale*. Elsevier, 240 pp.

Looking forward to seeing you in Valencia Spain in late June.

Petr Štorch
Chair, International Subcommission on Silurian Stratigraphy

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International Commission on Stratigraphy
Subcommission on Silurian Stratigraphy

ANNUAL REPORT 2016

1. TITLE OF CONSTITUENT BODY and NAME OF REPORTER

Subcommission on Silurian Stratigraphy (ISSS)

Submitted by:

Petr ŠTORCH, *Chair, ISSS*
Department of Palaeobiology and Stratigraphy
Institute of Geology of the Czech Academy of Sciences
Rozvojová 269, Prague, CZ 165 00, Czech Republic
Tel.: +420 233 087261; Email: storch@gli.cas.cz

2. OVERALL OBJECTIVES AND FIT WITHIN IUGS SCIENCE POLICY

Mission statement

The objectives of the Subcommission relate to three main aspects of IUGS policy:

(1) The development of an internationally agreed scale of chronostratigraphic units, fully defined by GSSPs at Series and Stage levels and related to a hierarchy of units (Substages, Standard Zones, Subzones etc.) to maximize relative time resolution within the Silurian Period;

(2) Establishment of frameworks and mechanisms to encourage international collaboration in understanding the evolution of the Earth during the Silurian Period;

(3) Working towards an international policy concerning conservation of geologically important sites (such as GSSPs, global and regional stratotype sections, *etc*.).

Goals

- Rationalization of Global chronostratigraphical classification
- Intercalibration of fossil biostratigraphies, integrated zonations, and recognition of global datums.
- Establishment of magneto- and chemo-stratigraphic scales
- Redefinition of stage boundaries and restudy of global boundary stratotype sections
- Correlation of Silurian rock successions and events, including marine and non-marine
- Application of astronomically tuned cyclostratigraphy integrated with radiometric data and biostratigraphy

3. ORGANISATION - interface with other international projects / groups

Organisation

The ISSS is a Subcommission of the International Commission on Stratigraphy. The Subcommission is organized by an Executive consisting of Chairman, Vice-Chairman and Secretary, who are all Voting Members of the Subcommission. In the Subcommission elected for 2016–2020 there are fifteen other Voting Members. The network of Corresponding Members has first of all a responsibility for communication in both directions between the Subcommission and researchers on Silurian topics in their region. Secondly they represent a broad spectrum of specialized stratigraphical disciplines from those countries or regions where Silurian rocks are extensively studied in relation to fundamental and/or applied geological research.

Current research activities and future plans are communicated through publication of the annual ISSS newsletter, *Silurian Times*, distributed by both email attachment and as a web release.

Website: http://silurian.stratigraphy.org/ contains newsletters, meeting announcements, discussion posting-boards, bibliography of Silurian articles, links to related sites, and other information.

Interface with other international projects / groups

The ISSS was a key partner in IGCP 591 – The Early to Middle Paleozoic Revolution. The closing IGCP 591 meeting occurred in 2016, involving the ISSS members of the project:

Closing Meeting of IGCP 591 „The Early Paleozoic Revolution“ Ghent University, Ghent, Belgium, July 6–9, 2016.

New IGCP project proposal “Reading geologic time in Paleozoic rocks: the need for an integrated stratigraphy” submitted by Anne-Christine da Silva received unequivocal support from the ISSS. The Subcommission is convinced that broad application of astronomically tuned cyclostratigraphy, combined with radiometric dating and integrated with high-resolution stratigraphy, will lead to substantial improvement of the existing Paleozoic time scale.

Close collaboration continues to develop with stratigraphically neighbouring subcommissions on Ordovician (ISOS) and Devonian (SDS) stratigraphy, as documented by numerous international conferences organized in conjunction with the two bodies (Conferences in Lund 2013, Kunming 2014, Ghent 2016, Valencia 2017). The meeting in Valencia joins 4th International Conodont Symposium of Pander Society.

3a. Nominated Officers for 2016-2020:

Chair: **Petr ŠTORCH**
Vice-Chair: **Carlo CORRADINI**
Secretary: **ZHAN Renbin**

4. EXTENT OF NATIONAL/REGIONAL/GLOBAL SUPPORT FROM SOURCES OTHER THAN IUGS

National/regional support has been provided to Ghent conference organizers and

individual ISSS members to facilitate their participation at the conference.

5. CHIEF ACCOMPLISHMENTS IN 2016 (including any publications arising from ICS working groups)

Silurian Times No. 23 was edited by the secretary, Renbin Zhan, and distributed in March, 2016, posted on the web site for the ISSS, and circulated as an email attachment to all titular, corresponding and interested members of the Subcommission. It contained the reports on previous meetings, announcements of upcoming meetings and publications, and the latest news and recent publications on Silurian research.

Two special issues of Canadian Journal of Earth Sciences were published in 2016 representing the proceedings of the joint meeting of the 5th International Symposium on the Silurian System and the Annual Meeting of IGCP 519, held in Quebec, Canada, in July, 2015. These issues were edited by Jisuo Jin and Michael Melchin.

The ISSS annual symposium was held jointly with the IGCP Project 591 Closing Meeting in Ghent, Belgium, July 6–9, followed by post-meeting field trip to the lower and middle Paleozoic of Wales, July 10–15. A special session was devoted to "Silurian boundaries and GSSPs". Both the meeting and field-trip were very well organized by Thijs Vandenbroucke *et al.* and Mark Williams *et al.*, respectively, and attended by 11 voting and tens of corresponding members of the ISSS. Particular attention was devoted to the Rheidol Gorge locality – a candidate section of the base of the Aeronian GSSP – visited by 4 voting members and 3 corresponding members of the Subcommission. Strong commendations are extended to the organizing committee of this meeting on behalf of the ISSS.

Work is in progress on the restudy of potential GSSP candidate sections for the Base of Wenlock (Banwy River Section, Wales), the Base of Aeronian (Shennongjia and Yuxian sections, China; Hlasna Treban Section, Czech Republic and Rheidol Gorge Section, UK and base of the Telychian (Shennongjia Section, China). Four papers were presented at the IGCP 591/ISSS meeting in Ghent pertaining to recent progress related to these boundaries. In addition, the working group for the Base of Aeronian GSSP visited potential candidate section of the base of Aeronian GSSP at Yuxian, China. The ISSS particularly thanks Dr Junxuan Fan and his students and colleagues for their hard work in organizing this trip and field work.

6. SUMMARY OF EXPENDITURE IN 2016

Expenditures	
Expenses for ISSS Chair related to IGCP/ISSS meeting in Ghent and Field Trip in Wales, including visit to base Aeronian GSSP candidate section with ISSS members	US$2,500
Financial support for IGCP/ISSS meeting in Ghent and Field Trip in Wales, including visit to base Aeronian GSSP candidate section with ISSS members	US$1,000
Total	US$3,500

7. SUMMARY OF INCOME IN 2016:

Carried forward from 2015	US$ 0
ICS Allocation	US$3,500
Refund from 2015 Silurian Symposium, Quebec	US$750
Total	US$4,250

8. BUDGET FROM ICS IN 2016

ICS Allocation	US$3,500

Balance (carried forward from 2016) US$750

9. WORK PLAN, CRITICAL MILESTONES, ANTICIPATED RESULTS AND COMMUNICATIONS TO BE ACHIEVED NEXT YEAR:

- The major meeting of the ISSS for 2017 will be held in collaboration with the Symposium ICOS4 "Progress on Conodont investigation" organized by Pander Society in collaboration with SDS and ISSS. This will be held in Valencia, Spain, June 25–30, predated by a pre-conference fieldtrip to Central Pyrenees (June 20–25) and followed by a post-conference field trip to Prague Synform and Carnic Alps (July 1–9).
- Field meeting in Yichang, central China in mid-October 2017 will be organized together with IGCP 653 "the Onset of the Great Ordovician biodiversification Event".
- Three ISSS groups working on restudy of the base of the Aeronian GSSP, base of the Telychian GSSP and base of the Wenlock GSSP, continue their study of selected candidate sections in Shennongjia, China (Junxuan Fan *et al.*, GSSPs of the Aeronian and Telychian stages); Yuxian, China (Junxuan Fan *et al.*, Aeronian GSSP); Hlasna Treban, Czech Republic (Petr Storch *et al.*, Aeronian GSSP), Rheidol Gorge, Wales, UK (Michael Melchin *et al.*, Aeronian GSSP), El Pintado reservoir, Spain (David Loydell *et al.*, Telychian GSSP) and Banwy River, Wales (David Loydell *et al.*, GSSP of the base of the Wenlock Series). Submission of the first formal proposal of an Aeronian GSSP candidate section is anticipated in 2017, with further submissions anticipated for 2018.
- General update of the website for Silurian Subcommission by Dr Junxuan Fan. We gratefully acknowledge the support of the Nanjing Institute of Geology and Palaeontology, Chinese Academy of Sciences for this work.

Potential funding sources external to IUGS

Organizers of Valencia and Yichang meetings will do their best to secure sufficient funding for those meetings. Most of the remaining costs of preparing Silurian Times, Working Group newsletter, and other activities will be met by local support from host

institutions and participation by individuals through national research grants and travel grants from their own authorities.

10. OBJECTIVES AND WORK PLAN FOR NEXT 4 YEARS (2016-2020)

Principal work will focus on GSSP-related research – restudy of some previously ratified but currently inadequate basal stratotypes. Research on Aeronian and Telychian GSSP candidates will be completed within this time span and new stratotypes will be chosen. We hope to be able to vote on these candidate sections. Restudy of the Homerian GSSP will subsequently join, along with further study on the Wenlock Series GSSP.

Application of astronomically tuned cyclostratigraphy integrated with radiometric data and high-resolution biostratigraphy. In 2016 the ISSS supported proposal on new IGCP project "Reading geologic time in Paleozoic rocks: the need for an integrated stratigraphy" submitted by Dr Anne-Christine da Silva from Liege.

We are working on the development of databases that would bring together and make available information from all sources associated with the Silurian researchers. One such database has been created at the Nanjing Institute of Geology and Palaeontology by Dr Junxuan Fan, who is also Webmaster for ISSS. This database, called Geobiodiversity Database (GBDB), is fully operational and has been named as the official database of the ICS.

11. BUDGET AND ICS COMPONENT REQUESTED FOR 2017

Contribution toward transportation, accommodation & registration of the Chair and Vice-Chair, to participate in the joint meeting of ICOS/ISSS/ISDS in Valencia, Spain	US$2,500
Contribution to assist other ISSS titular members to participate in the ICOS/ISSS/ISDS conference in Valencia, Spain	US$2,500
Financial support for GSSP working group members studying potential GSSP candidate sections for the base of Aeronian, Telychian and Wenlock in China, UK, Spain and the Czech Republic.	US$4,000

The ISSS is doing pioneering work in the area of restudy of previously ratified GSSPs. Recent work has shown that many of the Silurian GSSPs, all of which were ratified in the mid-1980s, have serious deficiencies in terms of their potential use as benchmarks for high-resolution global correlation. Three working groups are currently focusing on restudy of the base of the Aeronian Stage (R-A boundary), base of the Telychian Stage (A-T boundary) and the base of the Wenlock Series. Future working groups will study the other GSSPs of Silurian System. The funds will be particularly directed at young members of the working group, and members who have no access to other funds for international travel to participate in this research.

Total proposed budget for 2017	**US$9,000**

Balance forward from 2016	US$750
Total proposed budget component requested from ICS for 2017	US$8,250

APPENDIX (Names and Addresses of Current Officers and Voting Members)

Nominated officers

Petr Štorch, *Chair*
Department of Palaeobiology and Stratigraphy
Institute of Geology of the Czech Academy of Sciences
Rozvojová 269, Prague, CZ 165 00, Czech Republic
Tel.: +420 233 087261; Email: storch@gli.cas.cz

Carlo Corradini, *Vice-Chair*
Dipartimento di Scienze Chimiche e Geologiche
Università di Cagliari, via Trentino 51, I- 09127, Cagliari, Italy
Tel.: +39 070 6757744; Email.: corradin@unica.it

Zhan Renbin, *Secretary*
Nanjing Institute of geology and Paleontology
Chinese Academy of Sciences, 39 East Beijing Road, Nanjing, 210008, China
Tel.: +86 25 83282132, 25 83282196; Email: rbzhan@nigpas.ac.cn

List of Voting Members

Anna I. Antoshkina
Institute of Geology, Komi Science Centre, Ural Division
Russian Academy of Sciences
54 Pervomaiskaya str., 167 982, Syktyvkar, Komi Republic, Russia
Tel.: 8212-425-353; Email: Antoshkina@geo.komisc.ru

Carlton E. Brett
Department of Geology, University of Cincinnati
345 Clifton Court, Cincinnati, OH 45221-0013, Ohio, USA
Tel.: +1 513 5564556; Email: carlton.brett@uc.edu

Bradley D. Cramer
Department of Earth and Environmental Sciences
University of Iowa, Iowa City, 52242 Iowa, USA
Tel.: +1 319 3350704; Email: bradley-cramer@uiowa.edu

David Holloway
Museum Victoria, P.O.Box 666E, Melbourne, Victoria 3001, Australia
Tel.: +61 3 92705041; Email: dhollow@museum.vic.gov.au

Jin Jisuo
Department of Earth Sciences, University of Western Ontario
1151 Richmond Street N., London, Ontario N6A 5B7, Canada
Tel.: +1 519 6612111; Email: jjin@uwo.ca

Anna Kozłowska
Institut of Paleobiology, Polish Academy of Sciences
51/55 Twarda, 00-818, Warszawa, Poland
Tel.: +48 22 6978872; Email: akd@twarda.pan.pl

Jiří Kříž
Department of Regional Geology of Sedimentary Formations
Czech Geological Survey, Klárov 3, Praha 1, CZ 118 21, Czech Republic
Email: jiri.kriz@geology.cz

David K. Loydell
School of Earth and Environmental Sciences, University of Portsmouth
Burnaby Road, Portsmouth PO1 3QL, UK
Tel.: +44 23 92842698; Email: david.loydell@port.ac.uk

Peep Männik
Institute of Geology, Tallinn University of Technology
Ehitajate tee 5, Tallinn 19086, Estonia
Tel.: +372 6 454189; Email: mannik@gi.ee

Michael J. Melchin
Department of Earth Sciences, St. Francis Xavier University
Antigonish, Nova Scotia B2G 2W5, Canada
Tel.: +1 902 8675177; Email: mmelchin@stfx.ca

Axel Munnecke
GeoZentrum Nordbayern, University of Erlangen-Nürnberg
Loewenichstrasse 28, 91054 Erlangen, Germany
Tel.: +49 9131 8526957; Email: axel.munnecke@gzn.uni-erlangen.de

Silvio H. Peralta
Instituto de Geología, CONICET, Universidad Nacional San Juan
Avda. Ignacio de la Roza y calle Meglioli, 5400, Rivadavia, San Juan, Argentina
Tel.: 0264-4265103; Email: speralta@unsj-cuim.edu.ar

Thijs Vandenbroucke
Department of Geology, Ghent University
Krijgslaan 281/ S8, BE-9000, Ghent, Belgium
Tel.: 09-264-4515; Email: Thijs.Vandenbroucke@UGent.be

Wang Yi
Nanjing Institute of geology and Paleontology, Chinese Academy of Sciences
39 East Beijing Road, Nanjing, 210008, China
Email: yiwang@nigpas.ac.cn

Živilė Žigaitė
Department of Organismal Biology, Uppsala University
Norbyvägen 18A, 752 36 Uppsala, Sweden
Email: zivile.zigaite@ebc.uu.se

Working group leaders

Base of Aeronian GSSP Restudy Working Group
Leader **Petr Štorch**

Base of Telychian GSSP Restudy Working Group
Leader **Michael J. Melchin**

Base of Wenlock GSSP Restudy Working Group
Leader **David K. Loydell**

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REPORTS OF ACTIVITIES IN 2016

1. The Closing Meeting of the International Geoscience Programme Project 591 jointly with ISCS, ISOS, ISSS and ISDS

by **Thijs VANDENBROUCKE**

This joint meeting was held at Ghent University, Ghent Belgium between 5 and 9 July 2016. More than 400 experts of Lower Palaeozoic study, together with over 50 graduate students from 41 countries attended this meeting.

Context

The IGCP 591 project "The early to middle Palaeozoic revolution: Bridging the Gap between the Great Ordovician Biodiversification Event and the Devonian Terrestrial Revolution" was an international collaboration programme (IUGS/UNCESCO) that ran from 2011 until 2016. It brought together 432 enthusiasts from 41 countries and focused on the Early Ordovician to Early Devonian. This interval contains significant palaeoclimate and palaeobiological events in Earth history, including palaeobiodiversity events and/or perturbations to the global carbon cycle. It also contains the acme and amelioration of the Early Palaeozoic Ice Age and the roots of the invasion of life onto land. The Earth did not go quietly into the middle Palaeozoic and the primary research objective of IGCP 591 was to investigate this dynamic and important interval in the history and evolution of life and our planet.

The closing meeting of the IGCP 591 project (5-9 July 2016, Ghent, Belgium) focussed on "A combined data-model approach to understand the early to middle Palaeozoic Revolution". The meeting was co-organised with the International Subcommissions on Cambrian, Ordovician, Silurian and Devonian Stratigraphy and IGCP 596. Contributions at the meeting documented major steps in the evolution of Phanerozoic climate, its links to biotic change, and the ways in which these climates can be tracked by fossil proxies and simulated by advanced numerical computer models. As such, it formed an efficient platform to summarise the scientific progress made during the 6-year long programme. The successor programme IGCP 653 was introduced at the meeting, as were a few other proposals for future spin-off collaboration programmes.

Technical sessions

A total of 138 participants registered for the meeting and attended the technical sessions on 6, 7 and 9 July 2016. These included sessions on Ocean geochemistry and Ocean Anoxic Events through time, Palaeozoic climate and environments: models and data, Palaeozoic cyclostratigraphy and astrochronology, Large scale biodiversity patterns and palaeo-ecology, Graptolite biostratigraphy, Silurian boundaries and GSSPs, Regional Geology and general stratigraphy, Micropalaeontology (palynology & conodonts), and Palaeogeography.

The 5 Key note addresses were delivered by: Dr. Poul Emsbo (United States Geological Survey), Prof. Timothy Lenton (University of Exeter, UK), Dr. David De Vleesschouwer (Marum/Bremen University, Germany), Prof. Stephen Hesselbo (University of Exeter, UK) and Dr. Seth Finnegan (University of California, Berkeley, USA)

Two additional invited lectures were by: Dr. Emma Hammarlund (University of Southern Denmark) and Dr. Yannick Donnadieu (CNRS, Aix-Marseille Université, France). The full programme contained 74 regular oral presentations and 35 poster presentations. The meeting concluded with a panel discussion on the outcome and results of the 6-year project and perspectives for future projects across the research community.

Workshops

Pre-meeting workshop on 5 July 2016: GCM climate models in deep-time

This was a short course/workshop on climate modeling convened by Dr. Yannick Donnadieu. This workshop provided a practical introduction to various aspects of climate modelling, targeted at an audience of data-gatherers, showcasing how models work exactly, what we can and cannot do with/learn from climate models, and how data can be integrated most efficiently. The instructors for this short course were: Prof. Alan Haywood (University of Leeds, UK), Dr. David Ferreira (University of Reading, UK), Dr. Jorge Alvarez Solas (Universidad Complutense de Madrid, Spain) and Dr. Didier Roche (CEA/CNRS-INSU/UVSQ, Gif-sur-Yvette, France).

Mid-meeting workshop on 8 July 2016 (AM): A Short Course on the Construction of High-precision Astronomically-calibrated Time Scales

This was a mid-meeting workshop led by Prof. Stephen Meyers (University of Wisconsin, USA). This short course examined the application of astrochronology to enhance the accuracy and precision of geologic time scales. Astrochronology uses the geologic record of climate oscillations—those ascribed to periodic changes in the Earth's orbit and rotation—to measure the passage of time from rhythmic layers in strata. We discussed the potential for developing a complete astronomically-tuned Phanerozoic time scale, the fundamental challenges to achieving this goal, and potential solutions to address these challenges.

Mid-meeting workshop on 8 July 2016 (PM): Numerical Biochronology: Sequencing Large Numbers of Palaeobiologic First- and Last-Appearance Events.

Instructor: Prof. Peter Sadler, University of California Riverside, USA. The workshop reviewed the logic of a range of computer algorithms available for correlation and seriation of biostratigraphic and chemostratigraphic events. These algorithms implement familiar ground rules from biostratigraphy to generate time lines with finer resolution than traditional biozones. Hands-on application to real Palaeozoic data sets allowed the participants to explore a range of options in the CONOP (CONstrained OPtimization) software.

Field Trip: 10–15 July 2016: **Revolutions that made the Palaeozoic world:** ***Revealed in the ancient strata of Wales***

This field trip provided an introduction to Lower Palaeozoic Welsh Basin geology and was led by Prof. Mark Williams (University of Leicester, UK), Dr. Jeremy Davies (University of Aberystwyth, UK), Dr. Rob Hillier (National Museum of Wales, UK), Keith Nicholls (University of Chester, UK) and Thijs Vandenbroucke (Ghent University). Wales is the birthplace of lower Palaeozoic geology. 28 participants from all over the world visited some of the classical sites that contributed to the development of the Cambrian, Ordovician and Silurian systems, all of which are named from Wales. We visited rock successions that show the birth of the Welsh Basin on the margins of Gondwana during the early Cambrian, the journey of Wales through the Iapetus Ocean in the Ordovician, and the collision of Avalonia with Laurentia, and demise of the basin during the Silurian. We investigated the effects of a developing Cambrian marine metazoan biosphere, massive climate change at the end of the Ordovician, and the development of terrestrial ecosystems in the Silurian and Devonian. The field trip was a fantastic way to conclude a very successful project.

Thijs Vandenbroucke, Julie De Weirdt & Brad Cramer

Pre-meeting climate modelling workshop

Technical sessions at UGent

Field trip Group Photo in Wales

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2. Notes on the ISSS business meeting in Ghent Belgium in July 2016
by **ZHAN Renbin**

Time and date: 4:45pm~6:00pm, July 7, 2016

Place: Het Pand, Onderbergen, Ghent, Belgium

Chair: Prof. Mike Melchin (Canada)

Attendees: 33 Silurian workers and experts including 12 titular members of ISSS (Carlton Brett, Mikael Calner, Carlo Coradini, Brad Cramer, David Loydell, Mike Melchin, Petr Štorch, Thijs Vandenbroucke, Jacques Verniers, Wang Yi, Zhan Renbin, Zivile Zigaite)

The roughly one and half hour business meeting was chaired by Mike Melchin (chair of ISSS) and includes two different parts.

The **first part** of the meeting was about 20 minutes long and was jointly held together with the business meeting of International Subcommission on Devonian Stratigraphy (ISDS). Both subcommissions discussed the possibility to have a joint meeting in 2017. Prof. José Ignacio Valenzuela Ríos from the University of Valencia gave a brief presentation on their proposal organizing the symposium in Spain in the summer of 2017. It will also be combined together with the 4th International Conodont Symposium. The proposed meeting will include three-day indoor academic sessions, one-day mid-conference field excursion, and about a week pre- and post-conference field excursions respectively. After a general vote by a show of hands among the audience, both subcommissions agree to have a joint symposium in Spain in 2017.

Then both Silurian and Devonian experts and students separated to different rooms to continue their business meetings respectively. The **second part** of our ISSS business meeting contains two major points that was also chaired by Mike Melchin.

First, Mike Melchin asked those group leaders to report their work on the restudy of different GSSPs, particularly the progress had been achieved during the past year or so.

The base of Aeronian. Petr Štorch, leader of the International Working Group for the Restudy on the base of Aeronian, introduced that there are three candidate sections worthy to be concerned, one in Wales, one in the Prague Basin, and another in China. There are actually two alternative sections in South China, one in the Shennongjia Mountains and another in Changning of Sichuan. Both Mike Melchin and Fan Junxuan and their research group are working on these two sections, and preliminary results on the graptolite systematics will be finished by the end of 2017.

The base of Telychian. Nothing new about this boundary, said Mike Melchin, head of

the International Working Group for this boundary. Concerning the Shennongjia section, the graptolite sequence has already been established, but no bentonites were found there.

The base of Wenlock. No new progress had been made on the British section, said David Loydell, leader of the International Working Group for this boundary. Petr Štorch introduced that the proposed candidate section in Ziyang, northern part of South China paleoplate has some small scale faults running across it and the graptolites from this section are pretty low in diversity. Tang Peng from the Nanjing Institute of Geology and Palaeontology (Chinese Academy of Sciences) (NIGPAS) added that there are at least three sections in Ziyang and its neibouring area, namely the Ziyang A, the Ziyang B and the Langao sections. Besides graptolites, some conodonts, chitinozoans and acritarchs are also found from the graptolitic siltstone and shale, which substantially enhance the potential of correlation for these sections. Some preliminary results had already been published in *Palaeoworld*, *Estonian Journal of Earth Sciences*, etc.

The base of Homerian. Mike Melchin suggested a working group to be established if necessary and if any volunteers to be in charge of this. Petr Štorch introduced something about the section in the Prague basin, and the major work they are conducting is still concentrated on the graptolite systematics at the moment.

The base of and the subdivision of Pridoli. No new suggestions have been proposed on this particular issue at the moment.

The second major point Mike Melchin made was his closing remarks as the Chairman of ISSS. He told the audience it would be the last business meeting he was chairing for ISSS. He expressed his sincere thanks to the vice chairman Peep Männik and two secretaries of ISSS during the past eight years, Jacques Verniers and Zhan Renbin, for their support and collaboration.

Mike Melchin announced that the next executives of ISSS are Petr Štorch (Chair) and Carlo Coradini (vice chair), and three new titular members elect, Brad Cramer, Thijs Vandenbroucke and Živilė Žigaitė. He also mentioned that three former ISSS titular members will formally resign, i.e. Markes Johnson, Jacques Verniers and Alain Le Hérissé.

At the end of the business meeting, Petr Štorch, chairman elect of ISSS, on behalf of all Silurian workers in the world, expressed our sincere thanks to Mike Melchin for his sacrifice and significant contribution to the international Silurian study during the past eight years. Petr promised that all on-going working groups will continue as ever, and the Subcommission will concentrate on the establishment of a comprehensive regional and global correlation chart for the Silurian System.

GUIDELINES FOR THE ISSS AWARD: KOREN' AWARD

Description: This award is intended to recognize and encourage excellence in research related to Silurian stratigraphy and paleontology by younger researchers. It will be presented every four years at the Silurian Symposium.

It is proposed that this award be formally termed the "Koren' Award" in honor of the late Dr. Tatiana Koren' (1936-2010), former Secretary and Vice Chair of the Silurian Subcommission (as well as member of Ordovician and Devonian subcommissions) and a global expert on graptolites who made many lasting contributions to the biostratigraphy of the Silurian System (see Memorial in 2011 in *Silurian Times* (No. 18) and *Ordovician News* (No. 28)).

Selection Procedure: Recipient of this award will be based on nominations from voting (titular) members of the Silurian Subcommission overseen by a committee of three titular members. The nomination will consist of an updated CV, including list of publications relevant to Silurian stratigraphy and letter or letters of recommendation from one or two or several voting members of ISSS. Letters should emphasize the fit of the nominee for the criteria listed below.

The nominations will be reviewed by the committee on awards (presently Carl Brett, Renbin Zhan and Petr Štorch) who will prepare a slate of candidates including brief synoptic biographies that will be voted upon by all titular members. The candidate receiving the largest number of votes will receive the award.

Criteria for selection: The candidate may be chosen from among any paleontologists/stratigraphers who fit the following criteria:

A successful candidate should:

1) be 40 years of age or younger.
2) possess a graduate degree (ideally Ph.D, although candidates with masters degrees may be considered).
3) have completed at least five years of professional research (Ph.D studies included).
4) have a substantial record of publication (mostly senior authored) related to Silurian stratigraphy, paleontology, paleobiology, paleobiogeography or paleoceanography, etc. in peer-reviewed journals.
5) be actively contributing to Silurian research at the time of the award.
6) demonstrate an outstanding ability to communicate ideas verbally (as in conference talks) and in writing.
7) be supported by two or more titular members of the Silurian Subcommission.

Besides, the ISSS will avoid awarding two continuous recipients from the same country or state in 8 years.

Certificate and bonus: Each winner of the "Koren' Award" will received a formal Certificate issued by ISSS with the Chair's signature and $300US as bonus, both of which will be awarded at the closing ceremony of each Silurian Symposium every four years.

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ANNOUNCEMENTS OF MEETINGS

The 4th International Conodont Symposium

"Progress on Conodont investigation"

Jointly with:

The International Subcommission on Devonian Stratigraphy

The International Subcommission on Silurian Stratigraphy

Valencia, Spain; 25-30 June 2017

2nd Circular

The Congress follows the decision of the Pander Society took in Mendoza, July 2013 to organise the next ICOS meeting in Europe. Subsequently, the International Subcommission on Devonian Stratigraphy (SDS) and the International Subcommission on Silurian Stratigraphy (ISSS) decided to hold the annual meeting in 2017 in Spain. Therefore, the congress will be open to all topics on conodonts and on Devonian and Silurian. In addition, it will serve as the venue for the Pander Society and the SDS, ISSS business meetings.

Venue and Organization

The Congress will take place on campus Burjasot of the University of Valencia (UV). It will be organized by the Botany and Geology Department (UV) in cooperation with the University of Cagliari (UC), the Institute of Geology (Czech Academy of Sciences, CAS) and the Institute of Earth Sciences (University of Graz, UG).

Chair: José Ignacio Valenzuela Ríos, Professor at the University of Valencia, chair of the Spanish National Committee for the IGCP.

Organizing Committee: Teresa Liao and Carlos Martínez-Pérez (UV). Carlo Corradini (UC). Ladislav Slavík (CAS) and Thomas Suttner (UG).

Provisional Programme

Mon 20 - Sun 25 June: Pre-conference field trip in the Spanish Pyrenees.

Sun, 25 June: Evening Registration and Ice-breaker in Campus Burjasot.

Mon, 26 June: Registration. Opening Session: A honoured speech by Prof. Dr. Peter Carls.

Scientific Session. Official Evening Reception.

Tue, 27 June: Scientific Sessions. *Pander Society* Business Meeting

Wed, 28 June: Mid conference field trip in the Iberian Range. Social day.

Thu, 29 June: Scientific Session. Official Dinner: 50th Anniversary of Pander Society. Chief Pander Prof. Xulong Lai.

Fri, 30 June: Scientific Session. Business Meetings of SDS and ISSS. Closing conference by Dr. Manuel Rigo.

Sat 1 - Sun 9 July: Post conference field trip in the Barrandian and the Carnic Alps.

Scientific Sessions

- The Rise of Conodonts prior to and during the Great Ordovician Biodiversification Event. IGCP 653 project. Chairs: Ian Percival and Yong Yi Zhen.
- GECkO: Global Events impacting COnodont evolution: Chairs: Annalisa Ferretti, Alyssa Bancroft and John Repetski.
- Progress on Middle Devonian conodont investigation from 60's to present: high resolution on bio-chronostratigraphy, regional correlation, graphic correlation and global Event Stratigraphy. Chairs: Sofie Gouwy and Teresa Liao.
- Devonian global events, environments and time. Chairs: John Marshall, Ladislav Slavík and Carlton Brett.
- Triassic Conodont: biostratigraphy, isotopes and Geochemistry. Chair: Manuel Rigo.
- Recent advances in Conodont Palaeobiology: Chairs: Phillip C.J. Donoghue, Mark A. Purnell and Carlos Martínez-Pérez.

Besides these thematic sessions, abstracts on any topic related to the meeting are accepted.

Important dates

- Early conference registration and payment: **deadline February 15, 2017**
- Fieldtrip registration and payment: **deadline February 15, 2017**
- Abstract submission: **deadline February 28, 2017**

Extended Abstracts submission

Abstracts are limited to a maximum length of 3 pages (approximately 500 words per page) including references; optionally, up to 2 figures can be added. Please submit your abstract-text (as word-doc. or docx.) file using the **Abstract Template**. Figures shall be sent as **tiff, eps** or **png** files with a resolution **300 dpi**; they should match the maximum width of either a text column (67.5 mm) or page (135 × 185 mm). Send your abstract/s directly to 4ICOSVALENCIA2017@gmail.com - with author name. Please, visit the Congress homepage is http://icos2017.blogspot.com.es/ for the instructions of authors. Deadline submission: **February 28, 2017**

Technical sessions

All presentations are arranged within the scientific programme on 26 to 30th June and will

take place in the conference room on Campus Burjasot (UV). Oral presentations are scheduled for 15 minutes. Keynote lectures are extended to 30 minutes. Presentations are accepted in Microsoft Office 2011 (PPT 2011) or in PDF. Files are going to be uploaded before starting each session and may prepare your contribution on an external device. Poster presentation will be prepared on format A0, portrait (width: 841 mm, height: 1189 mm). Participants are encouraged to display their posters for the entire duration of the scientific sessions. The official conference language is English.

Registration rates

The registration fee includes participation in the meeting, name badge, printed congress program, electronic abstract volume, ice-breaker party (Sunday, June 25), coffee-breaks and lunches (Monday, June 26 – Friday, June 30).

	Early Registration until 15 Feb 2017	Standard Registration from 16 Feb 2017	On site Registration
Regular Participants	300	400	500
Students	180	200	250
Accompanying persons	100	150	150

All fieldtrips fees include transportation, guides books, lodging and meals.

Pre-conference Fieldtrip: Spanish Pyrenees	600
Mid-conference Fieldtrip: Iberian Range	30
Post-conference Fieldtrip: Barrandian and the Carnic Alps	1100

Payment Mode

Please transfer Conference and Field-trip fees to the following bank data:

Bank name: LABORAL KUTXA
Beneficiary´s name: 4 ICOS 2017
Account number IBAN: ES19 3035 0303 57 3031038619
BIC/Swift code: CLPEES2MXXX

Please, indicate your name when making payment as follows: " First name initial surname 4 ICOS 2017 registration".

Example "J.Valenzuela 4ICOS2017 registration"

Fieldtrips

Pre-conference Fieldtrip: Upper Silurian-Lower Carboniferous Conodonts and Stratigraphy of the Central Pyrenees; **June 20–25** (5 nights). The fee is **600 €**. Number of participants is limited to 25.

Mid-conference Fieldtrip: Conodonts and Stratigraphy of the Iberian Range; Wednesday, **June 28**. The registration fee is **30 €**.

Post-conference Fieldtrip: Silurian and Devonian Conodonts and Stratigraphy of the Prague Synform and Ordovician to Carboniferous Conodonts and Stratigraphy of the

Carnic Alps, July 1-9 (8 nights).

The total fee is **1100€** including one flight from Prague to Venice, local transports, lodging and full board excluding the transfer days. Number of participants is limited to 20. The details itineraries of each fieldtrips are in the Congress homepage.

Please, make sure an earlier reservation flights to Valencia and Valencia-Prague.

Contact for visa application or any request

Participants who require a support letter for visa application, please directly contact: 4ICOSVALENCIA2017@gmail.com

Postal address: **ICOS 2017**, Department of Botany and Geology; University of Valencia; c/ Dr. Moliner 50; E-46100 Burjasot; Spain.

The Congress homepage is http://icos2017.blogspot.com.es/

The city of Valencia - Essential information

Valencia is the third largest city of Spain, located in the Mediterranean coast and is well connected by plane (with three local airports Valencia, Alicante and Castellón) and by high-speed trains with Madrid, Barcelona and Alicante. The airport is 10 km west of the city centre. Budget flights serve major European cities. The airport is connected to downtown by metro (lines 3 and 5).

If you travel by train from Madrid, Alicante or Barcelona, all fast trains use the ***Valencia Joaquin Sorolla*** new station, 800 m south of the old town. It's linked with nearby ***Estación del Norte***, 500 m away, by free shuttle bus. Once you are at the old station, go directly to *Plaza España* metro stop.

If you travel by bus from Madrid, **AVANZA** company operates hourly bus services (€29.75, four hours trip). **ALSA** company has up to 10 daily buses (€29 to €35, four to five hours trip). They end in the ***Bus station*** (close to *Turia* metro stop).

Campus Burjasot is located to the north-west of the city centre and is connected by metro lines 1 and 2 (from *Plaza España*/ *À. Guimerà*/ *Turia* to *Empalme* stop) and by tram line 4 (from Empalme to V. A. Estellés stop). Buy a Bonometro (about 8.20 €/10 journeys) at major stations or pay a single ticket (1.50 €).

Metro (www.metrovalencia.es)

AVE fast train (www.renfe.es)

AVANZA (www.avanzabus.com)

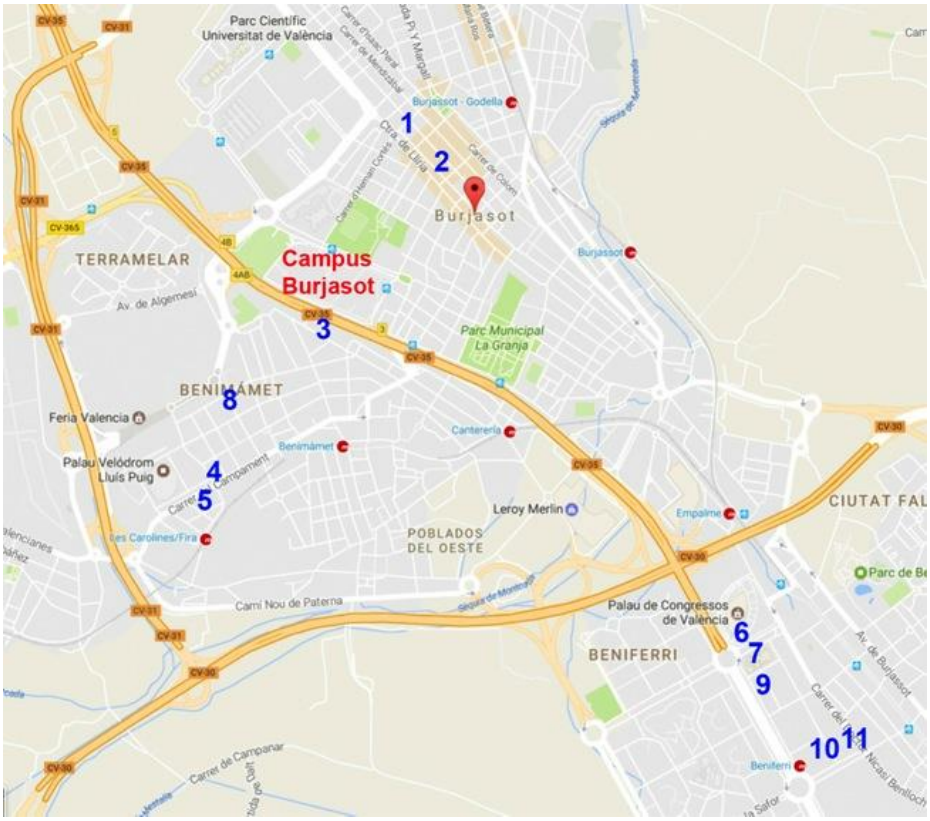
ALSA (www.alsa.es)

Weather information

The weather in Valencia at the beginning of the summer can be hot (in the 30s). We suggest you to protect your skin with sun protection and wear comfortable clothes and sun glasses.

Accommodation

The hotels listed below are close to the conference place (Campus Burjasot, University of Valencia). Participants should contact hotels directly to make their reservations.



1. Hotel Trapemar. 2. Trapemar Los Silos. www.trapemar.com
3. Apartamentos Jardines del Turia. www.jardinesdelturia.es
4. Hotel Beleret. www.hotelbeleret.com-valencia.com
5. Hostal Residencial RR. www.hostal-residencial-rr.com
6. Sercotel Hotel Sorolla Palace. www.hotelsorollapalace.com
7. Meliá Valencia. 8 TRYP Valencia Feria. www.melia.com
9. Apartamentos Turísticos Valencia Rental. +34 963470600 or via booking
10. Hotel ILUNION VALENCIA. www.ilunionvalencia.com
11. Hotel Eurostars Gran Valencia. www.eurostarhotels.com

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FORTHCOMING ACTIVITY: INVITATION TO SUBMIT TO THE GECkO VOLUME

GECkO: Global Events impacting COnodont evolution

by **Annalisa Ferretti, Alyssa Bancroft and John Repetski**

The session "GECkO: Global Events impacting COnodont evolution" (with Alyssa Bancroft and John Repetski) has been recently accepted as part of the 4th International Conodont Symposium "Progress on Conodont Investigation" to be held in Valencia, Spain. Our intention is to publish a Special Issue with the most significant contributions arising from the meeting, complemented by specific research articles in order to guarantee a full coverage of the subject. Any related Silurian contribution also extra-congress is welcome!

Keynote Speaker: Mark Purnell (University of Leicester)

Session contents: Conodont elements are the only mineralized skeletal remains of a soft-bodied, nektonic, extinct early chordate that inhabited the ancient oceans for about 300 million years (from the late Cambrian through the Triassic). The utility of conodonts in biostratigraphic correlation has been well demonstrated, but it has also resulted in the general notion that conodonts are just a chronostratigraphic tool, an index fossil. The effectiveness of conodont elements as chronostratigraphic markers coupled with the search for the biological affinities of the conodont animal, has often obscured the fact that conodonts not only witnessed all major global changes during their 300 million year existence, but that they were also affected by these changes. The range of conodonts spans an interval of Earth's history in which there were major chemical perturbations to the ocean-atmosphere system and major bauplans evolved as life emerged from the water and invaded the land. During this time predation strategies triggered defensive responses initiating "arms races" within niches and three major extinction events (two of which were among the largest in Earth's history) resulted in complete restructuring of biologic communities. With such a tremendous explosion of environmental changes and resultant biologic adaptations, conodonts have generally been considered to be static entities dwelling within the confines of their oceanic environment, a "constant" in an ever-evolving world. Are we not, perhaps, "fossilized" in perpetuating this idea?

The GECkO Session will seek to take the concept of conodont animals beyond the simple idea that their primary utility is to serve as biostratigraphic markers and geochemical archives and to again begin looking at their temporal complexity and their potential to reflect events that occurred at a global scale. In other words, our goal, is to systematically examine the entire conodont record in search of evidence of *conodont-based bioevents*. Are there indications in the conodont record reflecting major events in the lineage of this group? Not only the usual changes in diversity and abundance close to oceanic perturbations and related to extinction/radiation events, but also events at higher levels (morphological changes, new environmental adaptations, new apparatus

GECkO: GLOBAL EVENTS IMPACTING CONODONT EVOLUTION

Keynote Speaker
MARK PURNELL
University of Leicester

With a record that spans approximately 300 million years (late Cambrian through Late Triassic), conodonts witnessed all principal events in the evolution of life on Earth, from the invasion of the land to the exploration of the air, from the explosion of biomineralization in the oceans to the rise of dinosaurs and mammals, including three of the major extinction events that ever occurred in the Phanerozoic. Mainly used for biostratigraphic or geochemical studies, conodont potential for unravelling changes perceived to be of global extent has been rarely explored.

While specialists have accepted the rapid change in conodont element morphology through this critical interval in Earth history, the conodont animal has often been perceived as a static entity in a constantly evolving scenario, when biological equilibrium in the oceans was undergoing profound alteration and faunal recovery took place in phases which seem to have had a recurrent pattern. It is now essential that we begin to further investigate how conodonts as biologic entities responded to, or were impacted by, the paleogeographic changes, eustatic and climatic fluctuations, shifting redox conditions, and major faunal turn-overs and reorganizations that took place during the "Conodontozoic".

The GECkO Session at ICOS 4 in Valencia aims to unite lines of investigation that are seemingly unrelated in order to define and compare the signals and responses of the conodont organism(s) to global events during the Paleozoic and earliest Mesozoic.

Abstract submission to 4ICOSVALENCIA2017@gmail.com

DEADLINE 28 FEBRUARY, 2017

Annalisa Ferretti, Alyssa Bancroft, John Repetski

UNIMORE UNIVERSITÀ DEGLI STUDI DI MODENA E REGGIO EMILIA

IGS INDIANA GEOLOGICAL SURVEY INDIANA UNIVERSITY

USGS science for a changing world

TOPICS TO BE EXPLORED:

- **Conodont diversity from the late Cambrian to Late Triassic. How do changes in niche space affect the evolution of conodonts?**
- **Evolution, evolutionary rates and power of resolution**
- **Facies-controlled and time-controlled conodont taxa**
- **Apparatus architecture through time**
- **The effect of chemical perturbations in the ocean-atmosphere system on conodont diversity**
- **Recurrence and resurrection of morphological types in elemental shaping**
- **Mineralogy and crystallization patterns in conodont evolution**
- **Predation or defense as evolutionary pulse in conodont evolution?**
- **'Refugia' or Lazarus taxa among conodonts?**
- **Conodont taxonomy and taxonomic rank of conodont 'species'**
- **The Apocalypse: what went wrong?**

Papers resulting from the GECkO Session will be published as a Special Issue of a peer-reviewed journal with a high impact factor

structures, possible trophic shifts, etc.). This topic is far from new (O.H. Walliser explored this argument several times), but we will try to re-propose the question focusing on conodonts as living animals and not simply phosphatic elements used to correlate specific intervals of Earth's history or processed for thermal maturity or isotopic analyses. We will certainly also focus on changes related to extinction events, but seeing these throughout the entirety of the conodont record and comparing e.g., Ordovician to Permian data will be even more rewarding and informative than going through the conodont record in a step-wise fashion.

Some of the **Specific Topics** to be explored are listed below:

- Conodont diversity from the late Cambrian to Late Triassic. How do changes in niche space (e.g., environment, food sources) affect the evolution of conodonts?
- Evolution, evolutionary rates and power of resolution.
- Facies-controlled and time-controlled conodont taxa.
- Apparatus architecture through time.
- The effect of chemical perturbations in the ocean-atmosphere system on conodont diversity.
- Recurrence and resurrection of morphological types in elemental shaping.
- Mineralogy and crystallization patterns in conodont evolution.
- Predation or defense as evolutionary pulse in conodont evolution?
- "Refugia" or Lazarus taxa among conodonts?
- Conodont taxonomy and taxonomic rank of conodont 'species'.
- The Apocalypse: what went wrong?

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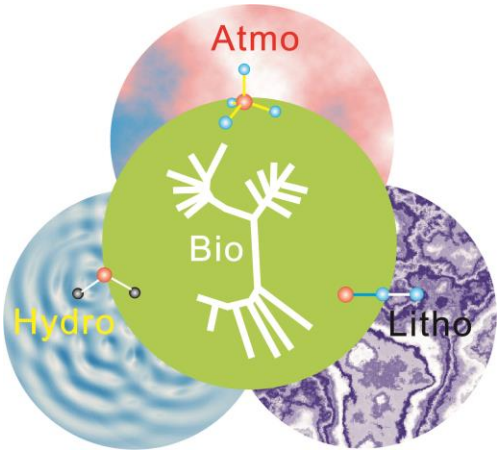
The 4th International Conference of Geobiology

—— Rocks, life and climate

June 24-26, 2017
Wuhan, China

FIRST CIRCULAR



http://www.geobiology.cn/2017meeting

1. INVITATION

Dear colleagues and friends,

Geobiology is rapidly growing at the interface between geoscience and bioscience. As seen elsewhere in the world, geobiology in China received great attention in recent years by both scientists and administrative officials. Following the geobiology workshop in 2008, we organized three International Geobiology Conferences at Wuhan in 2010, 2012, and 2014. To explore the interaction among rocks, life and climate, we are going to hold the 4th International Conference of Geobiology in 2017 at Wuhan, central China.

The Chinese Organizing Committee, in collaboration with related national/international organizations and research institutes, is delighted to cordially invite you to the 4th International Conference of Geobiology. This meeting offers an important forum in which geologists, paleontologists, biologists, microbiologists, biogeochemists and other scientists with diverse approaches and methodologies can meet, and exchange ideas on a wide range of topics related to the coupling system of the biosphere and geosphere. I hope that such exchange and integration will accelerate the development of geobiology and the earth system sciences as a whole.

I hope that this invitation may help you to apply for visa in local Chinese embassies. I look forward to seeing you at Wuhan in June, 2017.

Sincerely,

Shucheng XIE

Nov. 30, 2016

2. SPONSORS AND ORGANIZERS

Sponsors

National Natural Science Foundation of China
National Committee of Stratigraphy of China
Geological Society of China
Paleontological Society of China
Microbiological Society of China
China University of Geosciences
Nanjing Institute of Geology and Palaeontology, Chinese Academy of Sciences (CAS)
Institute of Vertebrate Paleontology and Paleoanthropology, CAS
International Commission on Stratigraphy
International Paleontological Association

Organizer

State Key Laboratory of Biogeology and Environmental Geology, China University of Geosciences (CUG, Wuhan)

Co-organizers

State Key Laboratory of Paleobiology and Stratigraphy, NIGPAS, Nanjing
Key Laboratory of Evolutionary Systematics of Vertebrates, CAS, Beijing

3. ACADEMIC AND ORGANIZING COMMITTEE

Academic Committee (in alphabetical order)
Chairman: Hongfu YIN, China University of Geosciences, Wuhan, China

Members:
Ariel ANBAR, Arizona State University, USA
Mike BENTON, University of Bristol, UK
David BOTTJER, University of Southern California, USA
Yucheng CHAI, National Natural Science Foundation of China
Xu CHEN, Nanjing Institute of Geology and Paleontology, CAS, China
Richard EVERSHED, University of Bristol, UK
Stanley FINNEY, California State University at Long Beach, USA
David HARPER, University of Copenhagen, Denmark
Nianzhi JIAO, Xiamen University, China
Andrew KNOLL, Harvard University, USA
Kurt KONHAEUSER, University of Alberta, Canada
Lee KUMP, The Pennsylvania State University, USA
Timthoy LYONS, University of California, Riverside, USA
Zhanxiang QIU, Institute of Vertebrate Paleontology and Paleoanthropology, CAS, China
Joachim REITNER, University of Göttingen, Germany
Jiayu RONG, Nanjing Institute of Geology and Palaeontology, CAS, China
Shuzhong SHEN, Nanjing Institute of Geology and Paleontology, CAS, China
Degan SHU, Northwest University, China
Roger SUMMONS, Massachusetts Institute of Technology, USA
Shu SUN, Institute of Geology and Geophysics, CAS, China
Chengshan WANG, China University of Geosciences, Beijing, China
Pinxian WANG, Tongji University, China
Paul WIGNALL, University of Leeds, UK
Miman ZHANG, IVPP, CAS, China
Zhonghe ZHOU, IVPP, CAS, China

Organizing Committee (in alphabetical order)

Chairman: Shucheng XIE
Members: Zhongqiang CHEN, Hailiang DONG, Jan-Peter Duda, Xiaojuan FENG, Xiumian HU, Xianyu HUANG, Guodong JIA, Xulong LAI, Chao LI, Yiliang LI, Yu LIU, Yongxin PAN, Zhenbing SHE, Guilian SHENG, Liang SHI, Xiaoying SHI, Jinnan TONG, Fengping WANG, Hongmei WANG, Yongbiao WANG, Yongdong WANG, Shuhai XIAO, Xunlai YUAN, Renbin ZHAN, Chuanlun ZHANG, Shihong ZHANG, Xingliang ZHANG, Yao ZHANG, Yuandong ZHANG, Zhaoqun ZHANG, Maoyan ZHU
Secretary general: Genming LUO

4. PRELIMINARY SCHEDULES AND IMPORTANT DATES

Preliminary schedules
June 23, all day-registration
June 24-26, opening session, plenary session and topic sessions

Important dates
Nov. 30, 2016: 1st circular
February 1, 2017: Proposal of sessions and conveners
March 30, 2017: Early bird registration and 2nd circular
April 1, 2017: Deadline for abstract submission
May 1, 2017: Final circular

5. SCIENTIFIC PROGRAM

The official language of the conference will be English.

Interaction and co-evolution between organisms and environments at critical periods of the geological history and in modern days will be the subject of this meeting. Tentatively, the following symposia are suggested, and more session proposals are encouraged before February 1, 2016. These symposia may be subdivided into sessions if more than a dozen presentations are included.

(1) Precambrian geobiology
1a. Microbes and the Great Oxidation Event
1b. Co-evolution of Proterozoic oceans, atmospheres and life
1c. Habitability of early earth and other celestial bodies

(2) Phanerozoic geobiology
2a. Cambrian explosion and mass extinction
2b. Origin, diversification and extinction of major groups through drastic environmental change in the Ordovician and Silurian
2c. Mass extinction and recovery through Permian to Triassic
2d. Geobiology of vertebrates and plants

(3) Geomicrobiology
3a. Microbes-mineral interactions and geological consequences
3b. Microbial sediments in modern days and ancient times
3c. Deep biosphere

(4) Geobiology and climate
4a. Molecular and isotopic paleoclimate reconstruction
4b. Biogeochemical cycles and climate change
4c. Geobiology of greenhouse climate and oceanic anoxia

(5) Phylogeny and geobiology events
5a. RNA world, LUCA, and phylogenomic approaches to the origin of life
5b. Genomic approaches to Phanerozoic geobiology

5c. Genomics of microbial functional groups

6. CALL FOR ABSTRACTS

All participants are invited to submit abstracts on all related topics of the sessions listed above. All abstracts received will be peer-reviewed and linguistically edited. All abstracts are encouraged to submit as an email attachment (MSWord file) to Mr Jun HU (hujuncug@163.com). The deadline of the abstract submission is **April 1, 2017.**

Sample (size, one A4 printing page)

Title (Times New Roman, 12 point, bold)
Authors (Times New Roman, 10 point)
Affiliations (Times New Roman, 10 point)
Abstract text (Times New Roman, 10 point)
References (Times New Roman, 8 point, less than 5 references)
Xie, S., Pancost, R.D., Chen, L., Evershed, R.P., Yang, H., Zhang, K., Huang, J. and Xu, D. 2012. Microbial lipid records of highly alkaline deposits and enhanced aridity associated with significant uplift of Tibetan Plateau in late Miocene. *Geology*, 40, 291-294.

7. REGISTRATION FEES AND PAYMENT POLICY

Registration fees
Full payment should be done online at:
http://www.geobiology.cn/2017meeting
which will be active for payment after February 10, 2017.
Before March 30, 2017: formal participant 400US$, student 250US$, accompany 200US$.
After March 30, 2017: formal participant 500US$, student 300US$, accompany 250US$.
Payment policy
All payments, including registration fee and accommodation fee, must be paid in US dollar.
Cancellation policy
A 40 US$ administration fee will be withheld for cancellations received in writing prior to April 1, 2017
No refunds will be issued after this date.

8. WEBSITES AND CONTACT

Websites
http://www.geobiology.cn/2017meeting
will be accessible to participants after January 15th, 2017.
Contact
Jun HU, Tel.: +86 15527725502; Fax: +86 27 67883456
Email: hujuncug@163.com
Postal Address
State Key Laboratory of Biogeology and Environmental Geology, China University of

Geosciences, No. 388 Lumo Road, Wuhan, Hubei Province, China, Postcode 430074

9. ACCOMMODATION

All activities of the conference (lecture, accommodation, and meals, etc.) will take place in the New Beacon Luguang International Hotel (4-star hotel) which is about 25-minute walk from the campus of CUG. The hotel to the shopping center is about 5-minute walk.

The organizer encourages all participants to accommodate in New Beacon Luguang International Hotel (4-star hotel). The cost is 60 US$ per night for a standard double-bed or single-bed room with standard facilities.

The organizer will help to reserve the rooms on the 7th-17th floors for all the invitees and participants who have registered to attend the conference or submitted the abstract.

The hotel address: No. 124 Minyuan Road, East Lake High-tech Development Zone, Wuhan. Tel: 0086-27-59361111, Fax: 0086-27-59254988;

Sale executive manager: Miss Shu, Tel: 13871519549.


Images showing a standard single-bed room (left), and a standard double-bed room (right)

10. CONFERENCE VENUE

The 4th International Conference of Geobiology will be held in the New Beacon Luguang International Hotel (4-star hotel), Wuhan, China.

About Wuhan

You may browse the website http://english.wh.gov.cn/ for the information related to Wuhan.

Wuhan is the capital of Hubei Province in Central China. The Yangtze River and Hanshui River divide Wuhan into three parts: Hankou, Hanyang and Wuchang, which are generally known as Wuhan's Three Towns. The universities including CUG are located at Wuchang. Wuhan occupies a land of 8494.41km^2, most of which is plain and decorated with a great number of lakes. It has a population of about 8 million.

Wuhan belongs to subtropical humid monsoon climate. There are sufficient rainfall and sunshine as well as four distinct seasons. In recent thirty years, the average rainfall in June is 151mm, with 12 rainy days; the temperature in June ranges 22℃~ 30℃, with the mean temperature of 26℃.

Wuhan possesses strong economic and regional advantages. It connects the east with the west, channels the north to the south, and links rivers with seas by means of its developed water, land and air traffic. Some of China's metropolises such as Beijing, Shanghai, Guangzhou, Chengdu, and Xi'an are all within a circle around the center of Wuhan with the radius of 1000km. Wuhan is the important strategic supporting point of Central China.

11. REPLY FORM

Please fill in the attached reply form and send it back to the contact persons listed above (hujuncug@163.com) before March 30, 2017.

The 4th International Conference of Geobiology
——Rocks, life and climate
June 24-26, 2017
Wuhan, China

REGISTRATION AND REPLY FORM

Register online at http://www.geobiology.cn/2017meeting
Or mail/fax this form to hujuncug@163.com or 00862767883456 (fax no.)

First Name_____ Last Name _____
Accompany Name (If attending, please register below)
_____
Institution _____
Address_____
City_____Country _____Postal (Zip) Code _____
Email Address _____Telephone_____ Fax _____
1. I plan to register as (please tick): Formal participant ( ), Student ( ), Accompany ( )
2. I am interesting in giving an oral presentation with the full title of
_____
in the following session preferred
_____
3. I need to help with the reservation of the accommodation in the hotel (please tick) ( )
4. My suggestions and comments of scientific sessions are :
_____
_____
Signature and date
****

Dayangcha International Workshop

on the Cambrian-Ordovician boundary（DIWCOB）

（September 20- 25, 2017 Changchun NE China）

First Circular

Rationale

In the past 16 years, there have been tremendous advances in understanding of the Cambrian-Ordovician boundary on the basis of the study of the GSSP fixed at Green Point, Newfoundland in 2001. New discoveries and knowledge of fossils (conodonts, graptolites, trilobites etc.), radiometric dates and chemo-stratigraphic data have been published at an unprecedented pace. In the meantime, because each research group has been working more or less independently, there have been numerous discrepancies and inconsistencies with regard to important biomarkers of the Cambrian-Ordovician boundary and its relation to chemostratigraphic excursions, and sequence stratigraphic surfaces. This workshop is motivated by the need to resolve these discrepancies and to discuss the feasibility of re-defining a set of criteria for subdivision and correlation of the Cambrian-Ordovician boundary, in China and beyond.

The workshop, supported by NSFC and Ministry of Science and Technology of China (NCSC), will be organized by National Commission on Stratigraphy of China (NCSC), Jilin Provincial Bureau of Land and Resources (JPBLR) and Wuhan Center for Geological Survey (WCGS) (Institute of Geology and Mineral Resources (WIGMR) and hosted by the Research Center of Paleontology and Stratigraphy (RCPS) of Jilin University together with Baishan City Bureau (BCBLR) and Jiangyuan District Bureau of Land and Resources (JDBLR). It will be held from 20-25 September, 2017 at Jilin University, Changchun, NE China. A full two-day in-door meeting will cover all aspects of research on the Cambrian-Ordovician boundary, and the following field excursion of three days will travel to Jiangyuan area of Baishan City to examine the Dayangcha section (potential GSSP for the Cambrian-Ordovician boundary) and another relevant sections nearby, where participants can discuss and identify critical problems that need to be resolved and evaluate possible criteria for subdivision and correlation of the Cambrian-Ordovician boundary. It is hoped that our efforts will better coordinate the development of tools and criteria for study of global Cambrian-Ordovician boundary sections.

Organizing and Scientific Committee

Professor Stanley C. Finney, Department of Geological Sciences
California State University - Long Beach, USA
Professor David A.T. Harper, Department of Earth Sciences and Principal, Van Mildert College, Durham University, Durham UK
Professor Shanchi Peng, Nanjing Institute for Geology and Palaeontology, Nanjing, China
Professor Zejiu Wang, NCSC, Beijing, China
Professor Gabriella Bagnoli, University of Pisa, Italy
Professor Huazhou Yao, WCGS, Wuhan, China
Professor Chunlin Sun, RCPS, Jilin University, Changchun, China

Additional field trip leaders

Professor Svend Stouge, University of Copenhagen, Denmark
Professor Jörg Maletz, Free University, Germany
Professor Xiaofeng Wang, WCGS, Wuhan, China
Professor Chuanshan Wang, WCGS, China
Dr. Chunpo Yan, WCGS, Wuhan, China
Miss Wei Sun, RCPS, Jilin University, Changchun, China

Host city

Changchun, Capital of Jilin province, located on northeastern China is known as the spring city of the Northland, internationalized metropolis in Northeast Asia, China's biggest automobile industrial city and international films city.

The Organizing Committee would like to invite all researchers with an interest in the stratigraphy, sedimentology, geochemistry and palaeobiology around the Cambrian-Ordovician boundary to participate in the Dayangcha International Workshop on the Cambrian-Ordovician boundary.

A full two-day conference program will cover all aspects of the Cambrian-Ordovician boundary geobiology, and will include sightseeing to visit the puppet emperor's Palace inside Changchun.

Venue

Topical sessions will be held at the Jilin University

Travel and accommodation

Changchun is well connected by air and by high speed train to Beijing, Shanghai, Guangzhou, Hong Kong and other provincial capital cities of China. The Organizers will arrange students to meet you in Changchun airport or railway station if participants inform us in advance of your exact arrival date and time.

Geological palace of Jilin University

The last emperor's Palace

Symposium Schedule and Topics

I. Registration

September 20（exact location to be advised in Second Circular）

II. Indoor Meeting：September 21- 22

1. Report and discussion topics suggested

The meeting schedule will ensure that each participant has 15-20 minutes reporting time followed by 5 minutes discussion. We hope that each participant will be able to report at the meeting on progress and problems in your research on the above topic, or in a related field

(latest Cambrian and Early Ordovician) that you have studied in recent years. Specific reporting time will be informed when receive your receipt.

2. September 22 afternoon: Sightseeing - visiting the last emperor's Palace or other places

III. Field Workshop (September 23-25)

(Schedule subject to change as required)

Sep. 23: Travel to Jiangyuan County of Baishan City

Sep. 24 morning: Field work in the Dayangcha section, to examine the litho-, bio-, chemo- and sequence-stratigraphic succession, including the boundary level with characteristic conodonts and graptolites described in the field guidebook.

Sep. 24 afternoon: Field work in the Erdoupuzi area to examine the beds bearing graptolites of *Psigraptus* biozone, and visit to quarry focusing on lithological features of Early Tremadocian, bearing conodonts, graptolite and trilobites etc.

Sep. 25: Field work to Changbaishan to examine the Cambrian-Ordovician boundary on the way to the largest Crater Lake in China--- the famous Changbaishan Tianchi (in the Changbai mountain volcanic cone on top of the main peak), recognized by the Guinness Book of Records as the World's highest Volcano Lake. You will see peaks everywhere around the Lake, and a clear green pond that is the source of Songhua River, Tumen River and Yalu River and then travel back to Changchun in the evening.

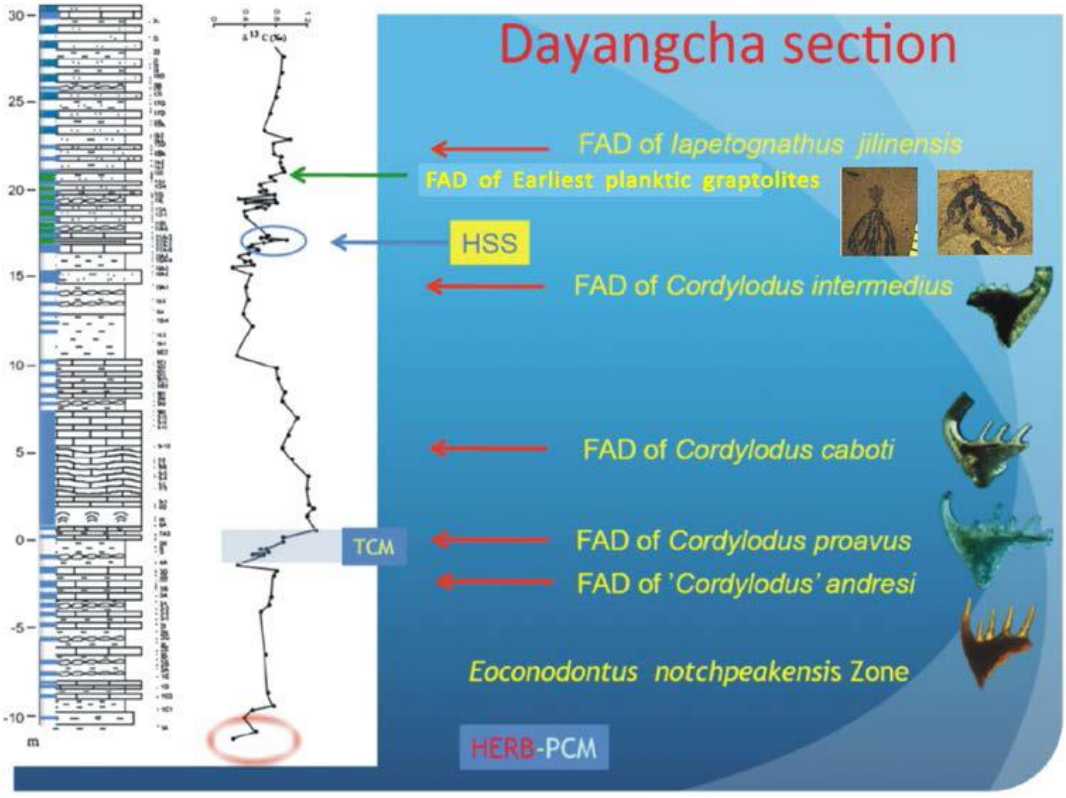
Registration and abstract submission

Registration and abstract submission will open on January 10, 2017. Please fill out the attached expression of interest form and email it to Miss Zhang Miao at 171581744@qq.com or Prof. Wang Xiaofeng (ycwangxiaofeng@ 163.com)

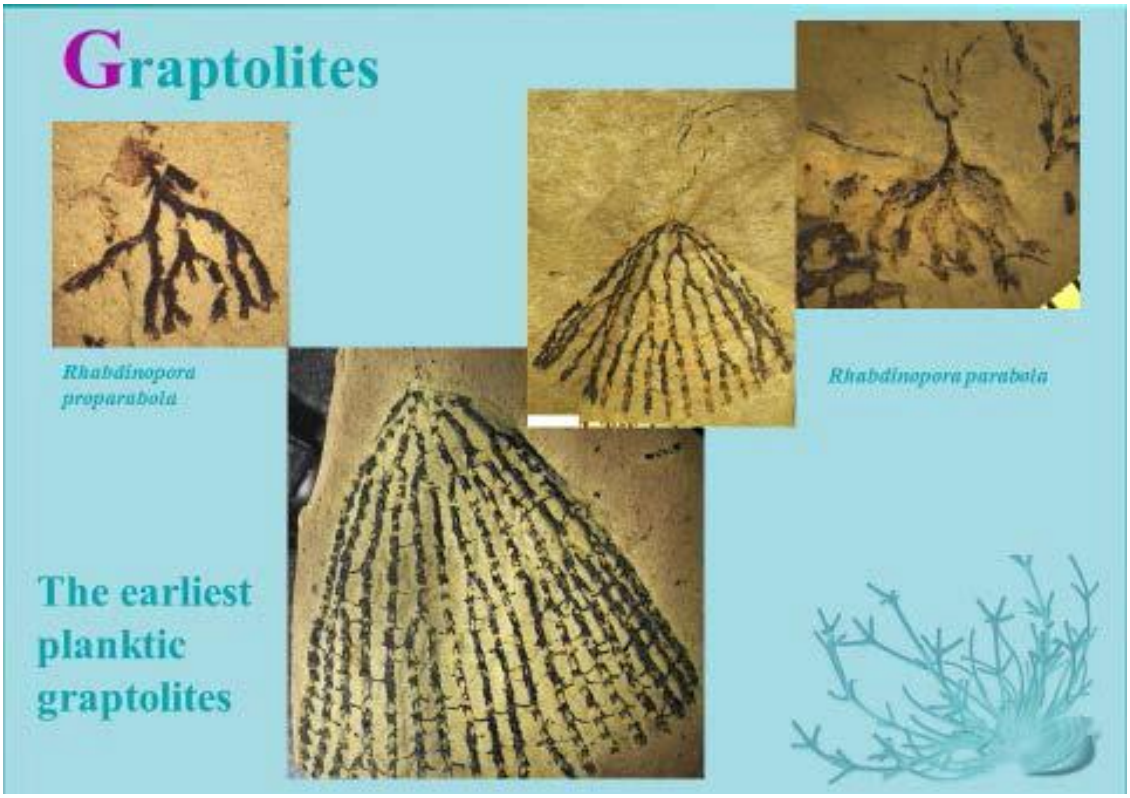
All participants will be invited to submit abstract(s) for posters and oral presentations from January 10, 2017 onwards. Authors are responsible for the scientific content of their abstracts.

The deadline for registration and abstract submission will be 31 May, 2017.

Dayangcha section



Showing complete conodont succession and its relation with $\delta^{13}C$ excursions



The earliest planktic graptolites recorded from the Dayancha section

Tianchi in Changbai Mountains, located in the southeast of Jilin Province, is a lake in China and North Korea. Water up to 2150 m above sea level, is known as "the sky pond"

Geologists (Maletz J.,Stouge S., Wang Xiaofeng, Tang Zhihua and Wang Chuanshan working around Tianchi, the largest Crater Lake in China

Registration fee

Registration will be about Chinese Yuan 4000 or USD **600** per person for 5 days (each day for USD 120). Final rates will be provided in a subsequent circular, and are anticipated, but cannot be guaranteed, to be less than the preliminary estimates given here.

Workshop fees will cover the participant's costs of accommodation, attending the conference and field trips，entitling them to attend the welcome reception, conference sessions, morning and afternoon refreshments, conference dinner, abstract submission, and related field trip and conference information.

Student and early bird rates will be offered. We anticipate being able to offer a limited number of financial assistance packages to student attendees dependent upon availability of funds. If you are interested in applying for one of these, please complete the form below and return it to Miss. Zhang Miao (email:

171581744@qq.com) or Prof. Wang Xiaofeng (ycwangxiaofeng@163.com)

Accompanying delegates will get half-price discount for the registration fee.

Provisional program

An Icebreaker Reception will be held on the evening of 20th September 2017.

The Symposium will take place on **21st and 22nd** September 2017.

Themed symposia will focus on the Cambrian-Ordovician boundary and Ordovician palaeontology, stratigraphy and geochemistry. Further specific themes will be announced based on responses to this First Circular.

Presentations on current research will be in the form of 15-20 minute talks, and poster displays. Talks and posters are to be presented in English.

Registration and abstract submission will open in January 10, 2017

The deadline for registration and abstract submission will be 31 May, 2017

Dayangcha International Workshop on the Cambrian-Ordovician boundary
（DIWCOB）（September 20-25, 2017 Changchun NE China）
Expression of interest form

*Title _____
*First name _____
*Surname_____
*Institution _____
Contact postal address (including country)

_____

_____

Contact e-mail address _____
I am [if applicable]
A full-time student (please provide your institution and name of supervisor)

_____

I will be bringing a partner or accompanying delegate or delegates

Name(s) : _____

I anticipate contributing a talk/poster [please indicate which] with the provisional title/topic:

_____

_____

_____

Please return completed form to Miss. Zhang Miao (171581744@qq.com) or Prof. Wang Xiaofeng (ycwangxiaofeng@163.com)

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Dayangcha International Workshop

on the Cambrian-Ordovician boundary（DIWCOB）

（September 20-25, 2017 Changchun NE China）

Financial Assistance Form

1. Applicant's Name:

2. Nationality:

3. Institution and Email Address:

4. Are you a PhD student [ ] or a post-doctoral fellow [ ]? If so, please indicate your advisor:__

And ask your advisor to provide a support letter to be emailed to Miss Zhang Miao (171581744@qq.com) or Prof. Wang Xiaofeng (ycwangxiaofeng@163.com) before April 1st 2017

5. Are you planning to give an oral presentation at the meeting?

Yes [ ] No [ ]

6. Please briefly describe your financial needs to participate in this meeting and the relevance of this meeting to your research:

7. Signature/date: _____

Please return this form before April 1st 2017 to Miss Zhang Miao at 171581744@qq.com or Prof. Wang Xiaofeng (ycwangxiaofeng@163.com)

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International Geoscience Programme

Project 653 — Annual Meeting 2017

Filling the gap between Cambrian Explosion and the GOBE

8 October – 13 October, 2017

Yichang, China

First Circular

Sponsors

National Natural Science Foundation of China

State Key Laboratory of Palaeobiology and Stratigraphy (Nanjing Institute of Geology and Palaeontology, Chinese Academy of Sciences)

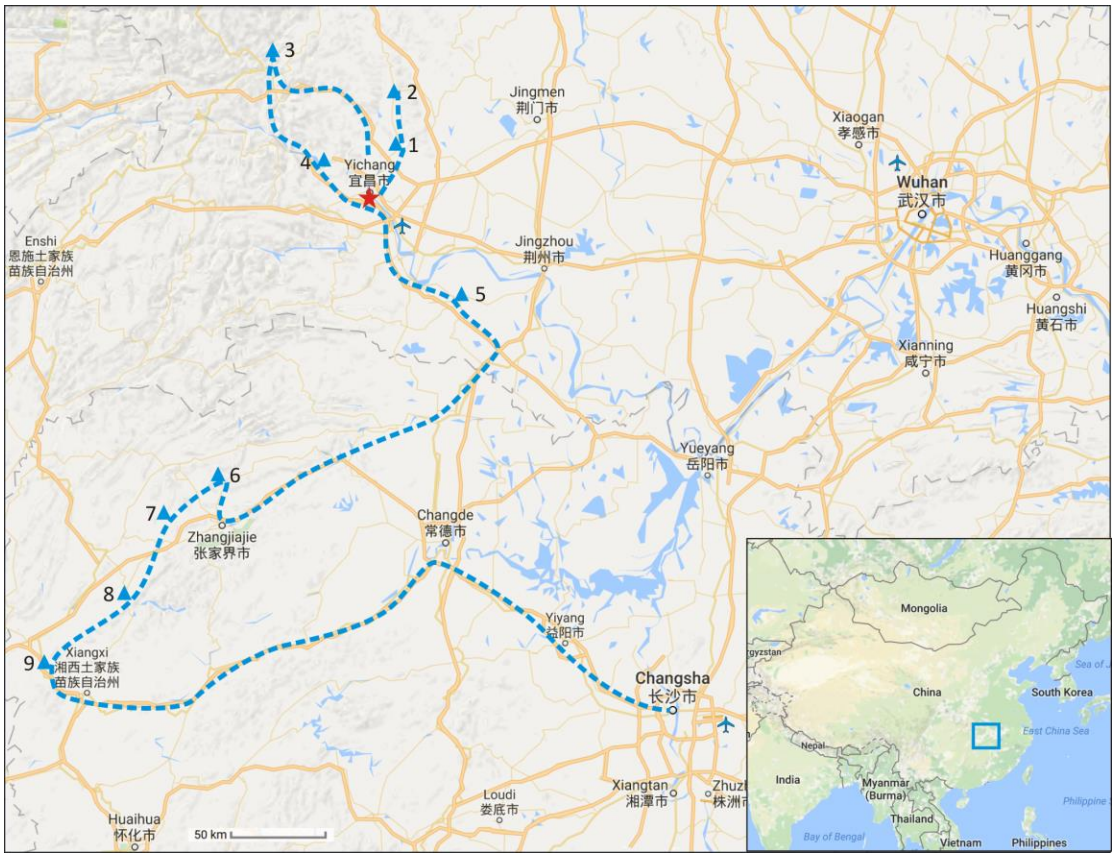
Key Laboratory of Economic Stratigraphy and Palaeogeography of Chinese Academy of Sciences (Nanjing Institute of Geology and Palaeontology)

Time

8 October (Monday) – 13 October (Friday), 2017

Venue

Taohualing Hotel, Yichang City, Hubei Province, China



★Yichang City, Hubei Province, China. 1. GSSP of Dapingian Stage at Huanghuachang, Yichang, Hubei Province; 2. GSSP of Hirnantian Stage at Wangjiawan, Yichang, Hubei Province; 3. Gudongkou Reservoir Bank section, Xingshan County, Hubei Province; 4. Yangtze Gorges National Geopark and Yangtze Gorges Dam, Zigui, Hubei Province; 5. Liujiachang and Xiangshuidong sections, Songzi County, Hubei Province; 6. UNESCO Global Geopark, Zhangjiajie, Hunan Province; 7. Mayang section, Yongshun, Hunan Province; 8. GSSP of Guzhangian Stage (Series 3, Cambrian) at Luoyixi, Guzhang, Hunan Province; 9. GSSP of Paibian Stage (Furongian, Cambrian) at Paibi, Huayuan, Hunan Province.

General Information

Yichang, located in western Hubei Province, central China, is one of the major cities in the Yangtze Gorges area. The city has a long and glorious history since the Han Dynasty (over two thousand years ago). It has now developed into a modern city of industry, business and tourism, with a population of 4 million. Among the most popular tourism sites near the city, are the spectacular Yangtze Gorges and the Yangtze Gorges Dam (hitherto the largest dam in the world).

Yangtze Gorges area was the birthplace and cradle of modern Chinese geology, where J.S. Lee and A.W. Grabau conducted and published their geological investigations in 1920s. The area yields many classic geologic sections of Neoproterozoic to Permian ages, among which include the GSSPs of Dapingian and Hirnantian Stages (Ordovician). The Cambrian and Ordovician rocks in the area are of typical shallow-water, platform facies, which consist of carbonates and shales. This area is also a classical area of practical courses in teaching field geology for university students due to the complete marine stratigraphic records of the Cryogenian to Triassic.

The annual meeting of IGCP 653, entitled 'Filling the gap between Cambrian Explosion and the GOBE', will investigate the initiating causes and processes that produced the rapid diversification of marine organisms during the Ordovician Period, known as the 'Great Ordovician Biodiversification Event' (GOBE). Because the timing of the radiations varied among biotic clades and palaeocontinents and may have its roots in the Cambrian, stratigraphic sections ranging from Guzhangian (Series 3, Cambrian) to Middle Ordovician will be visited during the post-conference field excursion. A workshop on the Burgess Shale–type Guole Lagerstätte of the Jiangshanian (Furongian) age from Guangxi Autonomous Region, South China will be organized during the meeting for participants to examine specimens of trilobites, non-trilobites arthropods, brachiopods, graptolites, Cnidarians, echinoderms, hyoliths, palaeoscolecids worms, algae, etc. from the site.

The meeting in Yichang includes three days of indoor scientific sessions for delegates to present their latest research and a full day mid-conference field trip to the GSSPs of Dapingian and Hirnantian Stages including a historical site of local *Hulu* ethnic minority (ca. 2200 BC) near the Yichang city.

Welcome to Yichang!

Provisional programme

Oct. 8, 2017: Arrival, registration (ice breaker)
Oct. 9, 2017: Oral and poster presentations
Oct. 10, 2017: Oral and poster presentations, workshop
Oct. 11, 2017: Mid-conference field trip
Oct. 12, 2017: Oral and poster presentations, conference banquet
Oct. 13—Oct. 18, 2017: Post-conference field excursion in Hubei and Hunan Provinces.

Mid-conference Field Trip

A one-day mid-conference field trip will be organized to visit the Furongian to Middle Ordovician successions, the GSSPs of Dapingian and Hirnantian stages near the Yichang city (sites 1 and 2 on the index map), and a few historical and scenery sites of Yangtze Gorges.

Post-conference Field Excursion

A six-day post-conference field excursion (Oct. 13 to Oct. 18, 2017) will be arranged to investigate a number of classic sections of the Guzhangian (Series 3, Cambrian) to Upper Ordovician around the Yangtze Gorges area (sites 3 through 9 on the index map). These sections include at least the Gudongkou section (Xingshan, Hubei), Liujiachang section (Songzi, Hubei), Mayang section (Yongshun, Hunan), and the GSSPs of Paibian Stage (Furongian Series, Huanyuan, Hunan) and Guzhangian Stage (Series 3 of Cambrian, Guzhang, Hunan). Participants will be able to find fossils of trilobites, brachiopods, graptolites, bryozoans, nautiloids, echinoderms, etc. During the excursion, visits to the Yangtze Gorges National Geopark and the Zhangjiajie UNESCO Global Geopark, will be arranged optionally if time permits. The excursion will start in Yichang, and end in Changsha City (capital of Hunan Province), where there are many direct international flights to Thailand, Vietnam, Japan, South Korea, United States (Los Angles), Germany (Frankfurt), and Hong Kong, etc.

Registration Fees (estimates) and Payment

**Note that all the registration fees here are estimates, and the final registration fees and methods of payment will be posted in the Second Circular on April 1, 2017*

The registration fee for the scientific sessions (covering icebreaker, conference dinner, coffee breaks, programme and abstract volume, all meals (lunch and dinner), mid-conference field trip, short courses, conference backpack) is estimated at $300-350.

Accommodations: $60-70 per double-room per day in the Taohualing Hotel (5-star, conference rate, including breakfast). We recommend staying at the conference hotel, and we have already reserved dozens of rooms for conference delegates.

The registration fee for the post-conference field excursion in Hubei and Hunan Provinces is estimated at $850-950, which covers the field guide, hotels (three stars or higher), meals, transportation, and the tickets to geoparks, and historical sites.

Publications

A volume including the conference programme and abstracts will be available at the meeting. A thematic issue in '*Palaeoworld*' may be arranged to publish short papers presented to the meeting (under negotiation with the journal editors) in early 2018. Deadlines for registration and submitting abstracts will be given in **Second Circular**.

Travel and accommodations

Yichang is *ca*. 300 km west of Wuhan City, the capital of Hubei Province (three-hour drive through freeway), and is easily accessible by air, train or car. There are many direct international flights every week from Moscow, Tokyo, Bangkok, Rome, Dubai etc. to Wuhan City. There are also direct flights from many domestic cities to Yichang, including Beijing, Shanghai, Nanjing, Hangzhou etc. Another option is the high-speed train (200-250 km/hour) connecting Yichang with Wuhan, Shanghai, Nanjing, Chongqing and Chengdu cities. We will arrange cars to pick up delegates arriving in Wuhan.

For accommodations, we have already reserved dozens of rooms in the five-star Taohualing Hotel (*ca*. 60-70 US dollars per room for conference rate) for delegates. For those prefer to stay elsewhere, there are over ten hotels ranking three stars or higher in Yichang City from which to choose. Most of them are within ten kilometers from the venue in the downtown. Information about additional hotel options will be provided in the second circular.

Important dates

December 19, 2016: Distribution of First Circular
March 1, 2017: Website of the conference available for information and registration
April 1, 2017: Distribution of Second Circular
September 15, 2017: Distribution of Last Circular

Scientific Committee

Thomas SERVAIS (Chair, Lille, France)
David A.T. HARPER (Durham, UK)
Olga T. OBUT (Novosibirsk, Russia)
Christian M.Ø. RASMUSSEN (Copenhagen, Denmark)

Alycia L. STIGALL (Athens, Ohio, USA)
ZHANG Yuandong (Nanjing, China)

Organizing Committee

ZHANG Yuandong (Chair), Nanjing Institute of Geology and Palaeontology, China
ZHAN Renbin (Vice-Chair), Nanjing Institute of Geology and Palaeontology, China
LIU Jianbo (Vice-Chair), Peking University, China
FAN Junxuan (Secretary General), Nanjing Institute of Geology and Palaeontology, China
WANG Yi (Vice Secretary General), Nanjing Institute of Geology and Palaeontology, China
WU Rongchang, Nanjing Institute of Geology and Palaeontology, China
ZHU Xuejian, Nanjing Institute of Geology and Palaeontology, China
YAN Kui, Nanjing Institute of Geology and Palaeontology, China
TANG Peng, Nanjing Institute of Geology and Palaeontology, China
WANG Wenhui, Central South University, China
LI Qijian, Nanjing Institute of Geology and Palaeontology, China
ZHANG Linna, Nanjing Institute of Geology and Palaeontology, China
HOU Xudong, Nanjing Institute of Geology and Palaeontology, China

Contact information

Any questions or suggestions related to the meeting and field trips should be directed to:
Dr. FAN Junxuan (Nanjing Institute of Geology and Palaeontology):
fanjunxuan@gmail.com
Dr. ZHANG Yuandong (Nanjing Institute of Geology and Palaeontology):
ydzhang@nigpas.ac.cn

Detailed costs and registration information will be posted in the second circular distributed on April 1, 2017. Please register your interests by filling and tickling (√) the form below and send to IGCP653.China2017@nigpas.ac.cn

IGCP653 Annual Meeting 2017 (Oct. 8 to 13, 2017, Yichang, China)		
Name:		
Occupation:		
Institution:		
E-mail address:		
I will participate in the conference and the post-conference field excursion	surely	
	probably	
	possibly	
I will participate in the conference (scientific sessions and mid-conference field trip)	surely	
	probably	
	possibly	

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SILURIAN RESEARCH 2016: NEWS FROM THE MEMBERS

(*in alphabetical order*)

Anna ANTOSHKINA (Russia): Together with my young colleagues, I continue to work on the Lower Paleozoic deposits in the Urals, especially on the Paleozoic reefs. During 2016, with my aspirant Lyubov' Shmeleva, I finished the data processing for paleontology, lithology, and geochemistry to allocate the Hirnantian Stage in northern Urals, the Ilych River region sections.

The studies on concretions from those Uralian Paleozoic sections showed a great microbial activity in their origin (papers in press).

Anna Antoshkina
Institute of Geology, Komi Science Centre, Ural Branch, Russian Academy of Sciences, 54 Pervomayskaya St., 167982 Syktyvkar, Russia
Tel.: +7 (8212) 245416; Fax: +7(8212) 245346; Email: Antoshkina@geo.komisc.ru

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James BARRICK (USA): A summary paper on the Silurian and Devonian succession of southern North America, including a discussion of conodont faunas, is in press. In progress are the final parts of the research on the Mulde and Lau events in North America and a study on early Silurian conodonts from the subsurface Oklahoma.

James E. Barrick
Department of Geosciences, Texas Tech University, Lubbock TX 79409, USA
Tel.: +1 806 834 2717; Email: jim.barrick@ttu.edu

****

Gudveig BAARLI (USA): I am continuing the taxonomic description of the orders Atrypida and Atrypidina found in the lower Llandovery of the central Oslo Region, Norway. I am also studying the fauna across the Ordovician/Silurian boundary building on earlier work in lower Llandovery and a publication submitted last fall together with Markes Johnson and the late Fredrik Bockelie. We helped finish Fredrik's work on the Hirnantian of the central Oslo Region just in time for him to read and approve it.

B. Gudveig Baarli
Williams College, Geoscience Dept., 947 Main Street, Williamstown, MA 01267, USA
Tel.: +1 413 597 2329; Email: gbaarli@williams.edu

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Chris BARNES (Canada): I am continuing Silurian conodont paleontology/stratigraphy/ isotope geochemistry research. Currently the main projects include: a) Silurian paleotemperature record determined from SHRIMP oxygen isotope measurements from conodonts (with Julie Trotter (UWA), Ian Williams (ANU), Peep Männik (TUT) and Andrew Simpson (Macquarie Univ.)); and b) Ordovician and Silurian conodont biostratigraphy, bioevents, eustasy, and thermal maturation, Canadian Arctic Islands (with Zhang (GSC), Mirza (Consultant) and Jowett (Tallisman Exploration)).

Chris R. Barnes
University of Victoria, School of Earth and Ocean Sciences, University of Victoria, P.O. Box 1700, STN CSC, Victoria, BC V8W 2Y2, Canada
Tel.: +1 250 9208382; Fax: +1 250 7216200; Email: crbarnes@uvic.ca
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Richard BATCHELOR (UK): I have not published anything on Silurian matters for some years but I am interested in receiving the Silurian Times regularly.

Richard Batchelor (MSc, Honorary Research Fellow)
School of Earth & Environmental Sciences, University of St. Andrews, Irvine Building, North Street, St. Andrews KY16 9AL, U.K.
Tel.: +44 1334 463936; Email: rab@st-andrews.ac.uk
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Juan Luis BENEDETTO (Argentina): I am working on the taxonomy and phylogeny of the Silurian brachiopods from the Precordillera basin of west-central Argentina. A paper is currently in press on the ontogeny of *Clarkeia antisiensis* (d'Orbigny) based on material from the Tarabuco Formation of Bolivia. The fact that juvenile specimens of *C. antisiensis* are nearly indistinguishable from adult individuals of *Harringtonina australis* Boucot strongly suggests that *Clarkeia* evolved from *Harringtonina* by peramorphosis. This interpretation rises a systematic problem because the leptocoeliid *Harringtonina* is currently classified within the superfamily Uncinuloidea whereas *Clarkeia* is placed among the Rhynchotrematoidea. If the hypothesis is proven, these superfamilies would be polyphyletic groups. A research project dealing with the origin and evolution of the Afro-South American Realm after the end-Ordovician mass extinction is in progress in cooperation with Florencia Leone (doctoral student) and Marcelo Carrera.

Juan Luis Benedetto
Centro de Investigaciones en Ciencias de la Tierra, CICTERRA-CONICET and Universidad Nacional de Córdoba. Vélez Sarsfield 1611, X5016GCA Córdoba, Argentina
Tel.: +54 351 4333199; Email: juan.benedetto@uncor.edu.ar
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Stig BERGSTRÖM (USA): I worked relatively little on Silurian projects during 2016---my 9 articles and 2 out of 3 abstracts published in 2016 have dealt with Ordovician topics. Currently, I am involved with Per Ahlberg and Jörg Maletz in a study of Llandovery chemostratigraphy and biostratigraphy of a drill core with excellent graptolite biostratigraphy from the Röstånga area in Scania, southern Sweden. Another project, with Mark Kleffner, deals with the regionally complex Upper Ordovician-lower Silurian biostratigraphy and $\delta^{13}C$ chemostratigraphy in Ohio, Kentucky and Indiana.

Stig M. Bergström
Depart. of Geological Sciences, The Ohio State University, 155 S. Oval Mall, Columbus, Ohio 43210-1397, USA
Email: Bergstrom.1@osu.edu
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Alain BLIECK (France): Presently working on mostly Early Devonian vertebrates (heterostracan pteraspidomorphs and others). But still interested in Ordovician and

Silurian ones. The work on the Handbook of Palaeoichthyology (Verlag Dr. Friedrich Pfeil, Germany) has been reactivated by collaboration with Prof. David K. Elliott (NAU, Flagstaff, Arizona). Papers are in progress on a revised phylogeny of cyathaspid heterostracans (Silurian-Devonian), on new tesseraspid heterostracan material from Severnaya Zemlya (Russia), and a review of all known Ordovician to Devonian pteraspidomorphs.

Alain Blieck
CNRS emeritus senior scientist, UMR 8198 « Evo-Eco-Paléo" du CNRS, c/o Université de Lille, Campus de Villeneuve d'Ascq (Annappes) - Sciences et technologies, UFR Sciences de la Terre (SN5), F-59655 Villeneuve d'Ascq cedex, France
Tel.: +33 320434140; Fax: +33 320434910; Email: alain.blieck@univ-lille1.fr
http://univ-lille1.academia.edu/AlainBlieck
https://www.researchgate.net/profile/Alain_Blieck/
http://eep.univ-lille.fr/perso-Alain-Blieck
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Carlton BRETT (USA): In the past year, I continued working with several colleagues on Silurian sequence, chemo- and event stratigraphy and paleoecology of southern Laurentia and comparisons with other regions. Research is divided into about three project areas.

A) Research on Silurian Sequence and Chemostratigraphy: Ohio-Kentucky-Indiana-Tennessee, New York, Pennsylvania, and Ontario, Canada. Funding by NSF and US Geological Survey

This year my efforts were largely focused on shoring up aspects of Silurian stratigraphy in Ohio. I am working with the Ohio Geological Survey to measure and interpret remaining outcrops in southern Ohio and to extend these patterns into the subsurface. We have had workshops aimed at integrating gamma ray profiles with drill core data on unit boundaries and this appears to be successful, at quite fine scale. I have also been working to sample several somewhat controversial intervals for both C isotopes and conodonts to be studied by Dr. Mark Kleffner (Ohio State University Lima).

I am also working with Dr. Brad Cramer and PhD student Stephan Oborny (University of Iowa) on stratigraphy of the Upper Silurian (Ludlow-Pridoli) of the Appalachian Basin. In the next couple of years, we intend to produce a synthesis on sequence and chemostratigraphy of these highest Silurian beds in the subsurface of southern Ohio, and into spectacular new outcrops in West Virginia, Maryland and Pennsylvanian, and to tie sequences into those in the classic Salina Group of New York State. I have also continued to work with Dr. Matt Vrazo on depositional environments and taphonomy of Silurian eurypterids in these strata; Matt completed his PhD on this top in 2016.

Dr. James Thomka (former student, now at University of Akron, OH) and I have continued working on the detailed sequence and cycle stratigraphy, taphonomy, paleoecology (especially of echinoderms) and paleoenvironments of the early Wenlock interval in Indiana, Kentucky, and Tennessee.

B) Silurian Sequence and Event Stratigraphy and Biostratigraphy: South China

A collaboration, initiated in 2014, involves comparative sequence stratigraphy and facies in the early Silurian southern China. To this end, I collaborated with Professors Fan

Junxyuan, Chen Qing, and Zhan Renbin (NIGPAS, Nanjing) on examination and interpretation of potential stratotype section for the base Aeronian and reference sections in the Sichuan, and eastern Yunnan provinces.

A purpose of this project was to examine strata of similar biostratigraphic positions for common patterns of sequence stratigraphy and carbon isotopic signatures. This work includes studying outcrop and core, with sample collection of carbon isotope chemostratigraphy, and graptolite biostratigraphy, which are being placed in a sequence stratigraphic context. We are also pursuing the topic of time-specific facies, particularly the presence of similar Telychian red marine facies in South China as well as eastern North America.

C) Volatility in the Silurian-Devonian

At a broader scale, I have continued investigating the relative "volatility" (i.e., the degree of environmental and biotic change per unit time) of stage-level time slices in the Ordovician through Devonian. New absolute dates for the stages have led to surprising and counterintuitive results. This is leading to a more general predictive model that will help to shed light on critical processes in Earth and life history. I attended the excellent conference of the final meeting of IGCP 591 Middle Paleozoic Events and joint International Subcommission on Ordovician Stratigraphy (ISOS) in Ghent, Belgium and presented two talks and a poster. Dr. Pat McLaughlin (Indiana Geological Survey), Dr. Poul Emsbo (US Geological Survey Denver) and I presented a series of inter-linked talks relating regional stratigraphy, volatility, biotic events, and brine enrichment episodes in the mid Paleozoic at this meeting and also talks at the Geological Society of America.

Carlton E. Brett
Department of Geology, University of Cincinnati, Cincinnati, OH 45221-0013, USA
Tel.: +1 513 5564556; Fax: +1 513 5566931; Email: carlton.brett@uc.edu

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Petr Budil
Collections and Material Documentation Dept., Czech Geological Survey, Klarov 3, 11821, Praha 1, Czech Republic
Tel.: +420257089478; Email: petr.budil@geology.cz
Personal web page: http://www.geology.cz/portal/page/portal/shared/p/petr.budil
Private email: phacopidina@seznam.cz

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Carole BURROW (Australia): Several projects on late Silurian vertebrate microremains from Maine and the Welsh Borderlands with Sue Turner (QM) are still in progress. A paper concerning the gnathostome macroremains of the late Silurian to Early Devonian of the Welsh Borderlands for a special proceedings volume of the Geological Society centred on presentations given at the Brecon meeting in 2014 on the AngloWelsh Old Red Sandstone was recently published online (Newman *et al.*, 2017). A manuscript revising the Mid-Paleozoic vertebrate assemblage described by Priem (1911) from Laundos, Portugal, originally considered to be late Silurian, was recently submitted for publication.

Carole J. Burrow
Geosciences, Queensland Museum, 122 Gerler Rd, Hendra 4011, Qld, Australia

Tel.: +61 7 33916626; Email: carole.burrow@gmail.com

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Mikael Calner
Department of Geology, Lund University, Sölvegatan 12, SE-223 62 Lund, Sweden
Tel.: +46 46 2221424; Email: mikael.calner@geol.lu.se

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CHEN Xu (China): I have been working together with many young colleagues from the Key Laboratory of Economic Geology and Palaeogeography (NIGPAS), PetroChina, Sinopec, as wel as Geological Survey of China on the latest Ordovician (Wufeng Formation) to early Silurian (Lungmachi Formation) black shale and graptolites since 2014. Our graptolite biozonation of this time interval has been revised in great detail and published in 2015 that is being widly used by PetroChina, Sinopec and Geological Survey of China as a guide for their shale gas exploration. Seven graptolite biozone strata within this interval are the main source rocks of the shale gas in the Yangtze region.

Chen Xu
Key Laboratory of Economic Stratigraphy and Palaeogeography, Nanjing Institute of Geology and Palaeontology, Chinese Academy of Sciences, 39 East Beijing Road, Nanjing 210008, China
Tel:+86 25 83375157; Email: xuchen@nigpas.ac.cn

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Robin COCKS (UK): In 2016, I had a full year, starting with submission of the paleogeography book with Trond Torsvik (Oslo) at the end of January to Cambridge University Press, who published it (dated 2017) in December. Within it there are many new global and local Silurian maps and data. Apart from correcting the proofs and making the index for that book in June, most of the year has been spent on the near-final stages of my long-standing *Palaeontographical Society Monograph* on the early Silurian (Llandovery) brachiopods of England and Wales, which should be completed very soon. I also continued work with Leonid Popov and together we submitted a paper on the Katian paleogeography of the Kazakh terranes, including the distribution of brachiopods within them, which is undergoing editorial revision in *Acta Geologica Polonica*, as well as a paper just submitted on the first Dapingian brachiopod fauna known from Iran. I made a report at the IGCP 591 Closing Meeting at Ghent in July 2016, and also spent a week in August planning further work with Trond Torsvik, who is currently spending a sabbatical year in Berlin.

L. Robin M. Cocks
Department of Earth Sciences, The Natural History Museum, Cromwell Road, London SW7 5BD, UK
Tel.: +44 20 79425140; Email: r.cocks@nhm.ac.uk

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Paul Copper
Professor Emeritus, Department of Earth Sciences, Laurentian University, Sudbury, Canada P3E 2C6
Home address: Loupicoubas, 46220 Prayssac, France
Tel.: 011 33 565226581 (home outside Europe); 05 65 22 65 81 (home within France) [home

within Europe 0033 565226581]
Email: pcopper@laurentian.ca
http://earthsciences.laurentian.ca/Laurentian/Home/Departments/Earth+Sciences/People/Emeritus+Faculty
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Carlo CORRADINI (Italy): The work on Silurian conodonts and biostratigraphy continues. Last year most of the researches were devoted to the Carnic Alps, where I am investigating the Silurian and Lower Devonian *Orthoceras* limestones and calcareous levels within black shales sequences, both studying new sections and updating data from classical localities. In this respect a revision of a paper on Silurian/Devonian boundary beds the lower Lochkovian part of the section fampus Cellon section is published (with M.G. Corriga, M. Pondrelli and H.P. Schönlaub), as well as the revision of the stratigraphy (chrono-, litho- and bio-) of the Rauchkofel Boden section, another classical section exposing rocks from Katian to Pragian (with M.G. Corriga, A. Ferretti and H.P. Schönlaub); some peculiar microcrinoid hodfasts from the same section were published, too. The taxonomic and biostratigraphic study of the conodont fauna from several sections from Ludlow to Lochkovian is in progress (with M.G. Corriga). Researches in the Carnic Alps include also geological and palaeontological investigation (with L. Simonetto, M. Pondrelli, T.J. Suttner and others), and the preparation of the guidebook of the field trip connected with the ICOS4-ISSS-SDS congress.

In Sardinia I am studying calcareous sections (with M.G. Corriga) and black shales outcrops. Samples from localities in the Spanish Pyrenees, Montagne Noire and Bohemia are in progress; a conodont fauna from the San Juan Precordillera (Argentina) is being studied (with A. Mestre and S. Heredia)

Carlo Corradini
Dipartimento di Scienze Chimiche e Geologiche, Università di Cagliari, via Trentino 51 - I-09127 Cagliari, Italy
Tel.: +39 70 6757744; Email: corradin@unica.it
****

Maria Giovanna Corriga
Dipartimento di Scienze Chimiche e Geologiche, Università di Cagliari, via Trentino 51, -I-09127 Cagliari, Italy
Tel.: +39 70 6757744; Fax: +39 70 282236; Email: maria.corriga@unica.it
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André DESROCHERS (Canada): I am working on Upper Ordovician to lower Silurian strata from the Anticosti Basin in eastern Canada. My research program focuses on high-resolution stratigraphic studies integrating carbonate sedimentology, sequence stratigraphy, biostratigraphy, and chemostratigraphy. Three current MSc projects (Marili Vincent-Couture, Pascale Daoust, and Matthew Braun) are examining different segments of the Anticosti succession. A number of collaborative projects are also in progress including: 1) testing global anoxia an alternative cause for the Hirnantian mass extinction (with Julie De Weirdt and Thijs Vandenbroucke), 2) the use of Li and Ca isotopes to decipher drivers of the end-Ordovician glaciation (with Philip Pogge von Strandmann), 3) time-series analyses derived from high-resolution stable isotope data of the Upper Ordovician Anticosti succession (with Matthias Sinnesael and Thijs Vandenbroucke), and 4) various

biostratigraphic studies across the O/S boundary on Anticosti Island (chitinozoans with Aicha Achab, Esther Asselin, and Thijs Vandenbroucke; ostracods with Tõnu Meidla; scolecodonts with Olle Hints and Petra Tonarova).

André Desrochers
Department of Earth and Environmental Sciences, University of Ottawa – FSS 15022, Ottawa, ON, Canada K1N 6N5
Tel.: +1 613 5625800 X6852; Fax: +1 613 5625192; Email: andre.desrochers@uottawa.ca
****

Frank R. Ettensohn
Department of Earth & Environmental Sciences, 101 Slone Building, University of Kentucky, Lexington, KY 40506-0053, USA
Tel.: +1 859 2571401; Fax: +1 859 3231938; Email: fettens@uky.edu
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Annalisa FERRETTI (Italy): My Silurian research continues to be focused on the biosedimentology and paleoecology of the Austrian Carnic Alps. A cooperation project (with P. McLaughlin and P. Emsbo) on the study of Silurian ironstones in the US, centered on the comparison with coeval occurrences in the Carnic Alps, is going on.

A small collection of echinoderm holdfasts has been described (**Ferretti *et al.***) from the Ludlow Cardiola Formation of the Carnic Alps (Austria). It contains a wide range of morphologies with in general a globous and massive dome-like profile with several processes arranged in a sub-radial disposition, so to create a sort of 'star-like' outline (so the title "Stars in the Silurian sky"). The distinctive holdfasts are preserved in an iron-rich phase, documenting a substitution that has also affected other non-echinoderm calcareous material.

An assemblage of primitive agglutinated foraminifera was reported for the first time from Silurian limestones from the Dingle Peninsula, Ireland (**Kaminski *et al.***). The assemblage is dominated by tubothalamids, with less abundant monothalamids. At the species level, the agglutinated foraminiferal assemblage is identical to those described previously from the Silurian of North America but is of lower diversity.

A Thematic Issue exploring the significance of fossils in modern chronostratigraphy, 150 years after the death of Albert Oppel (**Balini, Ferretti, Finney & Monechi, eds, Lethaia**) is in press.

An updated conodont biostratigraphy of the Rauchkofel Boden Section, a classical reference section for the Carnic Alps, is presented (**Schönlaub *et al.***). Twenty-five conodont Zones are documented, spanning from the Katian (Upper Ordovician) to the Pragian (Lower Devonian), following latest developments in conodont taxonomy and biostratigraphy, as well as in chronostratigraphy, and the recent introduction of a new lithostratigraphic outline of the Carnic Alps.

The study of organism-substrate interactions has been applied to the Cellon Section, Austria (**Baucon *et al.***). Results show three distinct oxygen-related ichnofabrics. Ichnology received relatively little attention as a tool for searching life beyond Earth. A global review, exploring the potential of ichnology in astrobiology, has been recently submitted.

Annalisa Ferretti

Dipartimento di Scienze Chimiche e Geologiche, Università degli Studi di Modena e Reggio Emilia, via Campi 103, 41125 Modena, Italy
Email: ferretti@unimore.it

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Mansoureh GHOBADI POUR (Iran): Currently I continue my work on various aspects of the Silurian paleontology and stratigraphy of Iran. A review paper on the Silurian stratigraphy of central Iran written in cooperation with Vachik Hairapetian, Leonid E. Popov, Peep Männik and C. Giles Miller was completed and now is submitted for publication. During the incoming year I am also planning to complete the study on the Aeronian micromorphic trilobites from Derenjal Mountains in north-eastern central Iran. I am currently working on the Aeronian brachiopod collections from the Kopet-Dagh and Anarak regions, as well as on the late Silurian brachiopods from the Derenjal Mountains in cooperation with Leonid Popov.

Mansoureh Ghobadi Pour
Department of Geology, Faculty of Sciences, Golestan University, Shahid-Beheshti St., Gorgan 49138-15739, Iran
Tel.: +98 913 2654300; Email: mghobadipour@yahoo.co.uk or m.ghobadipour@gu.ac.ir

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William HARRISON (USA): Together with my colleagues, I continue to work with subsurface geology of the Silurian units in the Michigan Basin. We are using cores, wireline logs and drill cuttings samples to define the sequence stratigraphy and depositional environments of the entire 1000 meters (3300 feet) of Silurian sequence in the Michigan Basin.

My colleague Dr. Andrew Caruthers is currently compiling a detailed carbon isotope curve through the late Silurian evaporitic Salina Group. While another colleague Dr. Peter Voice and I have submitted two papers to a pending Geological Society of America volume on the Michigan Basin dealing with the Lower Silurian Burnt Bluff Group and the upper Silurian Salina group lithofacies as part of a survey paper on Evaporites of the Michigan Basin.

Dr. Stephen Kaczmarek and students Matthew Rine and John Garrett have prepared a paper for the GSA Michigan volume evaluating sequence stratigraphy and using XRF data to correlate the Salina A-1 Carbonate (Ruff Fm.), a restricted Wenlockian carbonate mudstone, across the Michigan Basin.

Matthew Rine, Jon Garrett and their faculty mentor Dr. Stephen Kaczmarek have published a new depositional and sequence stratigraphic model of the Wenlockian pinnacle reefs in the Michigan Basin in the proceeding of the 2016 SEPM Mountjoy Conference.

William B. Harrison, III
Professor Emeritus and Director,
Michigan Basin Core Research Laboratory, part of the Michigan Geological Repository for Research and Education, Michigan Geological Survey, Department of Geosciences, Western Michigan University, Kalamazoo, MI 49008, USA

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Luke Hauser

School of Earth and Environmental Sciences, University of Portsmouth, Burnaby Building, Burnaby Road Portsmouth PO1 3Q, UK
Tel.: +44 23 92842418; Email: luke.hauser@port.ac.uk
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Kathleen HISTON (Italy): I continue my studies on Silurian cephalopods, sea-level changes, oceanic cycles and biotic response in the Ordovician/Silurian of the Carnic Alps and other localities in relation to use of the migrational pathways of pelagic faunas as a tool for timing of open seaways and microterrane position along the North Gondwana margin. These studies are complemented by research regarding radiometric dating of Ordovician/Silurian K-bentonite levels from the Carnic Alps in order to constrain these events within precise timelines.

Kathleen Histon (Independent researcher)
Via Mazzini 4, 21039 Valganna, Varese, Italy (home address)
Email: hiscat@interfree.it (contact email only)
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David HOLLOWAY (Australia): I am currently working on updating a long-dormant manuscript on Silurian trilobites (Illaenina, Odontopleurida and Lichida) from the St Clair Limestone of northern Arkansas, and also on two genera (one new) of scutelluid trilobites from the upper Silurian and/or Lower Devonian of Victoria.

David J. Holloway
Museum Victoria, GPO Box 666, Melbourne, Victoria 3001, Australia
Tel + 61 3 92705041; Email: dhollow@museum.vic.gov.au
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HUANG Bing (China): In the first half year of 2016, as an editor of a special issue of <*Palaeoworld*> (The brachiopod World, for the 7th international brachiopods congress which was held in Nanjing, 2015), I have mainly worked on revising manuscripts. The special issue has been published at the end of the year. In the second half of the year, I worked on two things, 1) Vocabulary entries mainly about brachiopods and macro evolutionary concepts for the Encyclopedia of China; 2) Paleontological atlas of China (Silurian brachiopods). Besides, I also did some work about a book <Phanerozoic Brachiopod Genera of China> which was edited by Prof. Rong Jiayu and other colleagues, and will be published in 2017. I am also continuing my own research, and a new manuscript about ecology of brachiopods across Ordovician-Silurian boundary collaborated with Prof. David A.T. Harper, Zhan Renbin and Rong Jiayu has been submitted and under review now.

Huang Bing
State Key Laboratory of Palaeobiology and Stratigraphy, Nanjing Institute of Geology and Palaeontology, Chinese Academy of Sciences, Nanjing 210008, China
Tel.: +86 25 83282189; Email: bhuang@nigpas.ac.cn or dr_huang@163.com
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Emilia JAROCHOWSKA (Germany): I have completed an analysis of the controls of conodont distribution in the upper Wenlock of the Midland Platform, UK (with David C. Ray) and is finishing the documentation of the Gotland conodont collection of the late L.

Jeppsson. The global compilation of Late Ordovician-Silurian conodont occurrences in the Paleobiology Database is slowly progressing, hindered mostly by taxonomic problems. A new DFG-funded project on conodont community ecology in collaboration with Peep Männik has just started. Several Bachelors and Masters students are working on projects relating to conodont 3D GM and ultrastructure.

Emilia Jarochowska
GeoZentrum Nordbayern, Loewenichstr. 28, 91054 Erlangen, Germany
Tel.: +49 91318522967; Fax: +49 91318522690; Email: emilia.j@gmail.com
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Jisuo JIN (Canada): I am currently working on the origin and early diversification of Silurian-type pentameride fauna and other brachiopods during the Rhuddanian, and full-scale invasion of brachiopod communities into the reef environment in Laurentia during the later Telychian. I am collaborating with Lars Holmer to revise the pentamerids of Gotland, and with Paul Copper on the early athyridide evolution across the Ordovician-Silurian boundary.

Jisuo Jin
Department of Earth Sciences, Western University, London Ontario, N6A 5B7, Canada
Tel.: +1 519 6614061; Email: jjin@uwo.ca
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Markes JOHNSON (USA): Field studies continue in co-operation with Gudveig Baarli on the nature of the Ordovician-Silurian transition in the Oslo region, Norway. A major project regarding the development of paleovalleys preserved in the Upper Ordovician of islands in the Olso fjord was submitted for publication at the end of 2016 under senior authorship of Johan Fredrik Bockelie (deceased, November 2016). Ongoing fieldwork is scheduled for summer 2017. A renewed interest in this topic follows my earlier work on paleovalleys at the Ordovician-Silurian transition in the mid-continent areas of North America. Related research on paleovalleys and associated delta systems continues with respect to the "Pliocene Warm Period" and its effect on hurricane patterns worldwide. Ultimately, the goal is to evaluate the importance of Late Ordovician to Early Silurian hurricane tracks in the context of heavy rainfall in coastal areas (Baltica and Laurentia) and subsequent mass wasting of surface sediments washed seaward.

Markes E. Johnson
Department of Geosciences, Williams College, 947 Main Street, Williamstown, MA 01267, USA
Email: mjohnson@williams.edu
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Dimitri KALJO (Estonia): I continued studies on the Ordovician and Silurian bio- and chemostratigraphy of Baltica as a part time emeritus member at the institute and as the editor-in-chief of the Estonian Journal of Earth Sciences. A team of colleagues finished last year a complex study about the Puhmu core section (Upper Ordovician with a bit of the lowermost Silurian), its bio- and chemostratigraphy (results in press).

Dimitri Kaljo

Institute of Geology, Tallinn University of Technology, 5 Ehitajate tee, 19086 Tallinn, Estonia
Tel. (m): +372 56485523; Fax: +372 6203011; Email: dimitri.kaljo@ttu.ee;
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Steve KERSHAW (UK): I am working on a comprehensive study of British Silurian stromatoporoids, a study that has never been carried out in detail by anyone before. I have several sets of samples from the main Silurian reefal and non-reefal outcrops in the UK Silurian and am progressing with the study, which should be finished in 2018. The purpose is to update knowledge of these fossils for the UK, partly because this work has not been done before in such detail, but also the paleogeographic position of the UK at that time was sitting between eastern Laurentia and the Baltic region, where stromatoporoid faunas are better known for the Silurian. Thus a study of the UK Silurian stromatoporoids will help fill a gap. In the future I would also like to work more in eastern Laurentia, once the UK project is finished.

Stephen Kershaw
Department of Life Sciences, Halsbury Building, Brunel University London, Uxbridge, UB8 3PH, UK
Email: stephen.kershaw@brunel.ac.uk
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Tarmo KIIPLI (Estonia): This year we published two articles dealing with the Silurian, one of which appeared in paper form in January 2017.

Tarmo Kiipli
Institute of Geology, Tallinn University of Technology, 19086 Tallinn, Estonia
Email: tarmo.kiipli@ttu.ee
****

Jorge Colmenar Lallena
Dpto. Ciencias de la Tierra (Área Paleontología), Universidad de Zaragoza, Campus "Plaza San Francisco", C/Pedro Cerbuna, 12 CP: 50009 ZARAGOZA, Spain
Tel.: +34 976760000 X3160; Email: colmenar@unizar.es
****

Alain Le Hérissé
Université de Bretagne Occidentale, UMR 6538 CNRS «Domaines Océaniques» CS93837 – 6 Avenue Le Gorgeu, 29238 BREST Cedex – France
Tel.: +33 298016187; Fax: +33 298016620; Email: alain.le.herisse@univ-brest.fr
****

Philippe LEGRAND (FRANCE): I prepare the description of the Silurian graptolites from the Ougarta range (Algerian Sahara).

Philippe Legrand
Professor Emeritus
‘’Tauzia", 216, cours Général de Gaulle, 33170 Gradignan, France
Tél./Fax: (0)5 56 893324; Email: legrandblain@wanadoo.fr
****

LI Lixia (China): My research activities in 2016 were on various aspects of taxonomy,

paleoecology and taphonomy of sponges from Ordovician-Silurian boundary section in South China, which is also the topic of my postdoctoral program. Now, I am a research assistant at the Nanjing Institute of Geology and Palaeontology, Chinese Academy of Sciences. There is a good progress in the study of systematic paleontology of the sponges we have found last year. This work will be carried out in cooperation with Joachim Reitner and Dorte Janussen. The manuscript will be submitted in early 2017. Two other papers have been published about the Early-Middle Ordovician graptolites from the Ningkuo Formation of South China, focusing on the graptolite diversity changes during the Great Ordovician Biodiversification Event and the Middle Ordovician graptolitic biostratigraphy in the Jiangnan Slope of South China. I attended the symposium on Life and Earth Processes in Germany and whilst work with colleagues there on paleozoic sponges.

Li Lixia
Nanjing Institute of Geology and Palaeontology, Chinese Academy of Sciences, 39 East Beijing Road, Nanjing 210008, China
Tel.: +86 25 83282172; Email: lxli@nigpas.ac.cn
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LI Qijian (China): I am mainly working on Ordovician reefs and hypercalcified sponges (e.g. calathids, stromatoporoids and sphinctozoans). In 2016, I continued my systematic and paleoecological work on calathids. In collaboration with Prof. Axel Munnecke and Dr. Andrej Ernst, I am now working on some early Silurian reefs of South China. I also continue my collaborations focused on quantitative paleoecological analyses of reefs at the Ordovician-Silurian transition with several colleagues.

Li Qijian
Key Laboratory of Economic Stratigraphy and Palaeogeography, Nanjing Institute of Geology and Palaeontology, Chinese Academy of Sciences, 39 East Beijing Road, Nanjing 210008, China
Email: qijianli@hotmail.com or qjli@nigpas.ac.cn
****

Liang Yan
Nanjing Institute of Geology and Palaeontology, Chinese Academy of Sciences, 39 East Beijing Road, Nanjing 210008, China
Email: liangyan@nigpas.ac.cn
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Steve LODUCA (USA): Much of 2016 was devoted to assembling a large database and associated overview paper pertaining to Early Paleozoic (including Silurian) noncalcified macroalgae. I also completed a paper, with Denis Tetreault, on a new Silurian alga from the Eramosa Lagerstätte (Ontario), and we are currently preparing a manuscript describing other algae from that deposit.

Steve LoDuca
Department of Geography and Geology, Eastern Michigan University, USA
Email: sloduca@emich.edu
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David LOYDELL (UK): I am currently working a wide variety of projects, some purely graptolitic, others combining carbon isotopes and other geochemical data. Studies of graptolites from Myanmar with Kyi-Pyar Aung are ongoing, with one paper published. Study of the Silurian graptolites of the Sommerodde-1 core, Bornholm, housed in GEUS, Copenhagen, together with PhD student Natalia Walasek proved very interesting indeed, with graptolites identified from the lower Rhuddanian to upper Sheinwoodian. A summary biostratigraphy paper (jointly authored by Niels Schovsbo and Arne Nielsen) has been written and submitted. Teaching and marking, etc. continue to occupy much of my time.

David K. Loydell
School of Earth and Environmental Sciences, University of Portsmouth, Burnaby Road, Portsmouth, PO1 3QL, UK
Tel.: +44 23 92842698; Email: david.loydell@port.ac.uk
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Jörg Maletz
Freie Universität Berlin, Institut für Geologische Wissenschaften, Malteserstr. 74-100 Haus B, Raum 105, D-12249 Berlin, Germany
Tel.: +49 30 83870678; Email: yorge@zedat.fu-berlin.de
****

Štěpán Manda
Czech Geological Survey, Klárov 3, Praha 1, CZ 118 21, Czech Republic
Tel.: +420 257531532; Fax: +420 257531376; Email: stepan.manda@geology.cz
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Peep MÄNNIK (Estonia): I am actively working on evolution, taxonomy and paleoecology of conodonts, conodont-based high-resolution stratigraphy, bioevents and paleogeography. I am also interested in sequence stratigraphy, paleoclimatology and evolution of sedimentary basins. Joint studies together with colleagues from Estonia, Germany, Iran, Russia, Sweden, U.K. and USA on evolution and high-resolution stratigraphy of the Early Paleozoic faunas and sedimentary basins on different paleocontinents are going on. Conodont-based paleoclimatological studies (Upper Ordovician–Silurian) are in progress.

Peep Männik
Institute of Geology, Tallinn University of Technology, Ehitajate tee 5, 19086 Tallinn, Estonia
Tel.: +372 58845082; Email: peep.mannik@ttu.ee
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Tiiu Märss
Tel.: + 372 53332272; Emails: Tiiu.Marss@ttu.ee or Tiiu.Marss@ut.ee
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Alexander (Sandy) McCRACKEN (Canada): is concentrating on good Ordovician-Silurian collections from Hudson Bay and Moose River basins, Ontario and Manitoba. I am in pre-retirement phase, having moved with my wife from Calgary to Victoria, British Columbia. I work full-time, but expect to retire by mid-summer. I work at home (not in the GSC Sidney office), having moved my microscope and samples with me. I am in contact with the Calgary office daily, and continue to monitor lab processing and

budgeting. Sofie Gouwy, our post-doctoral fellow, continues her work in Calgary and has taken over most of the conodont reporting for the time intervals I used to work on.

Alexander (Sandy) D. McCracken
Office: Geological Survey of Canada, 3303-33rd St. NW, Calgary, Alberta T2L 2A7, Canada
Mailing: 816-160 Wilson St., Victoria, BC V9A 7P9, Canada
Tel.: +1 403 2927130; Email: sandy.mccracken@canada.ca
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Tõnu MEIDLA (Estonia): I am working on different aspects of stratigraphy, fauna and stable isotopes in the Silurian (including the lower boundary strata) of the Baltic States (together with L. Ainsaar, O. Tinn, L. Lang, K. Truuver, V. Perrier, S. Radzevičius) and the Ordovician-Silurian boundary on Anticosti (together with A. Desrochers, Z. Taha, V. Perrier, M. Williams, D. Siveter).

Tõnu Meidla
Institute of Ecology and Earth Sciences, University of Tartu, 14A Ravila Street, Tartu 50411, Estonia
Tel.: +372 7375895; Email: Tonu.Meidla@ut.ee
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Kristina Mehlqvist
Department of Geology, Lund University, Sölvegatan 12, SE-223 62 Lund, Sweden
Email: kristina.mehlqvist@geol.lu.se
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Michael MELCHIN (Canada): I am currently working on several projects related to graptolite biostratigraphy and biodiversity, as well as chemostratigraphy through the Late Ordovician and early Silurian, particularly in North America, Europe, and China. I am collaborating with Petr Štorch, Junxuan Fan, Xu Chen, Jan Zalasiewicz, Thijs Vandenbroucke and others on the study of potential GSSP candidate sections for the base of the Aeronian Stage in Bohemia, Wales and China, and with Junxuan Fan and Xu Chen on a GSSP candidate section for the base of the Telychian in China. I am also working on several projects related to quantitative biostratigraphy as well as morphologic and phylogenetic analyses of early Silurian graptolites.

Michael J. Melchin
Department of Earth Sciences, St. Francis Xavier University, Antigonish, Nova Scotia, Canada, B2G 2W5
Tel.: +1 902 8675177; Fax: +1 902 8672414; Email: mmelchin@stfx.ca
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Giles MILLER (UK): I have been working with Peep Männik and Vachik Hairapetian on conodonts from the Silurian of Iran. This year we submitted conodont data as part of a review paper on the Silurian of Iran and also worked up some material for publication from the Boghu Formation when Peep visited the NHM as part of the SYNTHESYS programme.

C. Giles Miller
Natural History Museum, Cromwell Road, London, SW7 5BD, UK

Tel.: +44 20 79425145; Fax: +44 20 79425546; Email: G.Miller@nhm.ac.uk

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Tatiana MODZALEVSKAYA (Russia): I continue to work on the Silurian-Lower Devonian brachiopods and stratigraphy in thematic projects connected with analysis of Regional scales of Eurasian Russian regions.

Together other colleagues, I have started the new projects of electronic reference book-determinant on guide forms of Silurian fossil faunas.

My colleagues and I submitted the paper on Lower Devonian brachiopods from eastern central Pamir for publication which will be soon published in East Asian Journal of Earth Sciences.

My manuscript on Upper Ordovician and Silurian brachiopods from Kotel'ny Island (Novosibirsk Islands, Arctic Russia) was completed and has been submitted for publication.

Tatiana L. Modzalevskaya
All-Russian Geological Research Institute (VSEGEI), Department of Stratigraphy and Palaeontology, Sredny pr. 74, St. Petersburg, 199106, Russia
Email: TModzalevskaya@vsegei.ru (office); modz@IB2567.spb.edu (home)

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Axel MUNNECKE (Germany): Together with several colleagues, I am continuing my work on the geochemistry of the Silurian events. In addition, in May this year a PhD student of mine (Lene Claußen) will start a new 3-years project in collaboration with Andrej Ernst (Hamburg). This project deals with the response of benthic organisms (bryozoans) to the environmental changes associated with the strong Silurian stable isotope excursions.

Axel Munnecke
Universität Erlangen-Nürnberg, GeoZentrum Nordbayern, FG Paläoumwelt, Loewenichstr 28, D - 91054 Erlangen, Germany
Tel.: +49 9131 8526957; Fax: +49 9131 8522690; Email: axel.munnecke@fau.de

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Keith NICHOLLS (UK): I am currently writing up my PhD thesis with the intention of submitting it at Easter and defending it (viva voce) in the early summer. I have submitted two posters for the forthcoming Lyell meeting in London and hope to catch up with a few people there.

Keith Nicholls
University of Chester, UK
Tel.: +44 74 42495534; Email: keithandkaren@tiscali.co.uk

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Arne Thorshøj Nielsen
Natural History Museum of Denmark, University of Copenhagen, DK-1350 Kbh K, Denmark
Tel.: +45 35322376; Email: arnet@snm.ku.dk

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Godfrey NOWLAN (Canada): I retired from active research in 2013, and now I am mainly involved with UNESCO Global Geoparks in Canada.

Godfrey Nowlan
Geological Survey of Canada, 3303 – 33rd Street NW, Calgary, Alberta, Canada T2L 2A7
Tel.: +1 403 2927079; Email: godfrey.nowlan@canada.ca; Godfrey.nowlan@gmail.com
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Ian PERCIVAL (Australia): I spent a fair bit of 2016 working with Des Strusz (Canberra) to finalize an extensive systematic study of middle Silurian (Wenlock) brachiopods from southeast New South Wales. This has been submitted to *Australasian Palaeontological Memoirs*. Another Silurian project, completed late last year in colloboration with Yongyi Zhen, my fellow paleontologist at the Geological Survey of NSW, involved description of early Silurian conodonts from the Goulburn region (manuscript in review). Reduced working hours this year will permit me to finish a multi-author paper (commenced a few years ago but delayed for various reasons) on the paleoecology of a late Llandovery deep-water fauna from the Cotton Formation in central NSW.

Ian G. Percival
Geological Survey of NSW, WB Clarke Geoscience Centre, 947-953 Londonderry Rd, Londonderry, NSW 2753, Australia
Tel.: 02 4777 0315; Fax: 02 4777 4397; Email: ian.percival@industry.nsw.gov.au
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Vincent Perrier
Université Lyon 1, UMR 5276 LGTPE, Bâtiment GEODE, 2, rue Raphaël Dubois, 69622 VILLEURBANNE, France
Tel.: +33 4 72448010; Fax: +33 4 72431526; Email: vincent.perrier@univ-lyon1.fr
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José Manuel PIÇARRA (Portugal): I am now working on the Lower Paleozoic stratigraphy of South Portugal (Ossa Morena Zone)

José Manuel Piçarra d'Almeida
LNEG - LGM (Laboratório Nacional de Energia e Geologia – Laboratório de Geologia e Minas). Unidade de Geologia, Hidrogeologia e Geologia Costeira, Ap. 104, 7801-902 Beja Codex, Portugal
Tel.: 351 210924672; Email: jose.picarra@lneg.pt
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Teresa PODHALAŃSKA (Poland): I am working on the Ordovician and Silurian deposits to locate the prospective areas and stratigraphic horizons of the unconventional hydrocarbon accumulations in Poland.

I am also studying the Silurian biostratigraphy based on graptolites and the Ordovician/Silurian boundary beds in Poland.

Teresa Podhalańska
Energy Security Program, Polish Geological Institute - National Research Institute, 4 Rakowiecka St., 00-975 Warszawa, Poland
Tel.: +48 22 4592258; Fax: +48 22 4592001; Email: podhalanska.teresa@pgi.gov.pl

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Leonid POPOV (UK): A comprehensive review of the Silurian stratigraphy of central Iran carried out together with Vachik Hairapetian, Mansoureh Ghobadi Pour, Peep Männik and C. Giles Miller is completed by the end of the last year and now awaiting for publication. My research this year will be focused on the Silurian brachiopods and stratigraphy of Nuratau and Turkestan ranges (in cooperation with Irina Kim) in Uzbekistan; Llandovery brachiopods of the Chingiz Range (in cooperation with Tatiana Modzalevskaya) in Kazakhstan. Work on the Aeronian brachiopod faunas of Kopet-Dagh and Wenlock to Ludlow brachiopod faunas of the Derenjal Mountains (central Iran) carried out together with Mansoureh Ghobadi Pour and Vachik Hairapetian is in a good progress.

A review paper on the Silurian stratigraphy of central Iran written in cooperation with several colleagues was completed and had been submitted for publication.

Leonid E. Popov
Department of Natural Sciences, National Museum of Wales, Cardiff CF10 3NP, UK
Tel.:+44 2920573158;
Email: lepbarry@yahoo.co.uk or Leonid.popov@museumwales.ac.uk

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Sigitas RADZEVIČIUS (Lithuania): I am working on Silurian graptolites from Lithuania. In addition, I am working on several projects: 1) Upper Homerian lundgreni extinction; 2) the Ludlow graptolite biostratigraphy and biodiversity.

Sigitas Radzevičius
Department of Geology and Mineralogy, Vilnius University, M.K. Čiurlionio 21/27, LT-03101 Vilnius, Lithuania
Email: Sigitas.radzevicius@gf.vu.lt

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David RAY (UK): My research activities over the past year have focused upon the Wenlock Series of the Midland Platform (England and Wales). In particular details of carbon isotope and facies variability throughout the majority of the Wenlock have been established by collaboration with Helen Hughes (Hughes and Ray, 2016), John Blain and James Wheeley (Blain, Ray and Wheeley, 2016). Ongoing collaboration with Charlotte Fry and James Wheeley has established the details of the Mulde carbon isotope excursion within graptolitic successions along Wenlock Edge and at Ludlow, while collaboration with Emilia Jarochowska and others has identified the same excursion, alongside details of sedimentology and conodonts, within the Malvern and Suckley hills. In addition ongoing collaboration with Helen Hughes and Alan Thomas is focused upon the trilobite record from the Lower Hill Farm Borehole (Wenlock Edge). All of these projects are currently being written-up and it is hoped, will result in publications during 2017. Finally projects focusing on sequence stratigraphy and carbon isotopes (Ireviken and Mulde) are underway at Dolyhir and Usk. These projects aim to further refine regional and global stratigraphy.

David C. Ray
65 Hill View Crescent, Banbury, Oxfordshire, OX16 1BW, UK.
Tel. +44 7792 638177 or +44 1235 438683; Email: daveray01@yahoo.com

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John Richardson
Email: jbr@nhm.ac.uk

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RONG Jiayu (China): During the past ten years, I have been working mainly on the monograph <Phanerozoic Brachiopod Genera on the Type Species of China>. It is in English, and edited by Rong Jiayu, Shen Shuzhong and Zhan Renbin, which will be published by Science Press in Beijing in late 2017. Altogether, 757 brachiopod genera with their type species and type localities from China have been compiled, amongst which 113 and 52 genera are of Ordovician and Silurian age respectively. A thorough survey on the occurrences of these fossil brachiopods has made it possible to deliver an overall view on these genera and related faunas of all ages in many regions of China. Each chapter (such as Cambrian, Ordovician, Silurian, Devonian, Carboniferous, Permian, Triassic, Jurassic, and Cretaceous) includes a review of geographical distribution, stratigraphic correlation, faunal succession, paleobiogeography, and systematic paleontology of brachiopods. A substantial amount of new/revised information about their diagnosed characters, their temporal and spatial distributions have been provided, and all the holotype and/or paratypes (if any) of the type species restudied and/or re-illustrated (if possible).

Rong Jiayu
State Key Laboratory of Palaeobilogy and Stratigraphy, Nanjing Institute of Geology and Palaeontology, Chinese Academy of Sciences, 39 East Beijing Road, Nanjing 210008, China
Tel./Fax: +86 25 83282169; Email: jyrong@nigpas.ac.cn

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Claudia Viviana Rubinstein
IANIGLA-CCT-CONICET-Mendoza. A. Ruiz Leal s/n, Parque General San Mart ń, 5500 Mendoza, C.C. 131, Argentina
Tel.: +54 261 5244217; Fax: +54 261 5244201;
Email: crubinstein@mendoza-conicet.gov.ar

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Valeri SACHANSKI (Bulgaria): I am working on Ordovician–Devonian stratigraphy of Bulgaria and Turkey and especially on Silurian–Lower Devonian graptolite biostratigraphy.

Valeri Sachanski
Geological Institute, Bulgarian Academy of Sciences, Acad. G. Bonchev St., Bl. 24, 1113 Sofia, Bulgaria; University of Mining and Geology, Department of Geology and Geo-Information, Sofia, Bulgaria.
Tel.: +359 2 9792225; Fax: +359 2 8724 638; Email: v_savhanski@geology.bas.bg

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Paul SELDEN (USA): I am actually not doing much in the Paleozoic these days, although a couple of relevant publications for 2016 are included below. Nevertheless, I hope meet up with Silurian colleagues at the trilobite meeting in Estonia in July, 2017.

Paul A. Selden
Director of the Paleontological Institute, Gulf-Hedberg Distinguished Professor of Invertebrate Paleontology, Department of Geology, University of Kansas, Lindley Hall, 1475 Jayhawk Boulevard, Lawrence, KS 66045, USA
Tel.: +1 785 8642751; Lab: +1 785 8649049; Email: selden@ku.edu
Paleontological Institute web site: http://paleo.ku.edu
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Lawrence SHERWIN (Australia): I remain affiliated with the Geological Survey as an Honorary Research Associate. Still in progress is taxonomic work on early Silurian graptolites from Goulburn and Bungonia that began with the late Tatiana Koren'. This will be followed by work on Silurian graptolites from the Central West of New South Wales to help complete the project started by Tony Wright and the late Barrie Rickards.

I provided the paleontological and stratigraphic component for a study of timing of mineralisation in central New South Wales. This included comparisons of paleontological and new radiometric dates, mostly Siluro–Devonian, described in the following paper.

Lawrence Sherwin
Geological Survey of New South Wales, Locked Bag 21, Orange, New South Wales 2800, Australia
Tel.: +61 2 63605349; Fax: +61 2 63605363;
Email: lawrence.sherwin@industry.nsw.gov.au
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Andrew SIMPSON (Australia): I am now semi retired from academic work and maintaining an honorary association with Macquarie University, ad I has recently rediscovered Silurian research interests particularly in conodont biostratigraphy and taxonomy. A major project on Silurian and Devonian faunas was recently published with colleagues David Mathieson, Ruth Mawson and John Talent from the former Macquarie University Centre for Ecostratigraphy and Palaeobiology (MUCEP), documenting conodont faunas from a vast area of western New South Wales. We are now working on documenting associated subsurface conodont faunas (Devonian only). CAI data from the same project has been contributed to a study on regional metamorphism and will be published in early 2017. A number of other projects on Silurian conodont faunas from New South Wales and Queensland are also being developed.

Andrew Simpson
Department of Ancient History, Macquarie University, NSW 2109, Australia
Tel.: +61 98509261; Email: andrew.simpson@mq.edu.au
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Constance M. Soja
Department of Geology, Colgate University, Hamilton, NY 13346, USA
Tel.: +1 315 2287201; Fax: +1 315 2287187; Email: csoja@colgate.edu
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Philippe STEEMANS (Belgium): I'm working on the Silurian from Saudi Arabia, Ethiopia and Argentina. (i) The material from Saudi Arabia has been collected in the Tawil Formation, from the JLMD-EW8 borehole. The composition of the palynological assemblage strongly indicates a middle Přídolí age. The assemblage encountered contains

abundant, miospores, chitinozoans, acritarchs, tasmanites, freshwater algae, scolecodonts, eurypterid cuticle and other organic remains. This research is done in collaboration with P. Breuer, Said Al-Hajri, A. Le Hérissé, F. Paris, J. Verniers and C. Wellman. (ii) The conducted study in Argentina concerned Middle-Upper Silurian to Lower Devonian layers, from the Precordillera. A rich material of acritarchs and spores is studied. This work is done with C. Rubinstein and V. Garcia Muro. New samples will be collected soon. (iii) In Ethiopia we are working with R. Brocke and R. Bussert on post glacial sediments of the Hirnantian. The layers are most probably earliest Silurian and are composed of sediments exclusively continental. Two new species of trilete spores have been determined.

My publications are accessible in my Library either in using the internet links associated to the references here bellow or in using the general link: http://orbi.ulg.ac.be/simple-search?query=Steemans

Philippe Steemans
Dépt. de Géologie, Unité de recherche PPP, Université de Liège, Campus du Sart Tilman, Quartier Agora, Allée du 6 Août, 14, Bât. B-18, B-4000 Liège 1, Belgique
Tél.: +32 4 3665333; Fax: +32 4 3665338; Email: p.steemans@ulg.ac.be

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Petr ŠTORCH (Czech Republic): I was mainly focusing on re-evaluation and presumed replacement of the Aeronian GSSP. Multidisciplinary study of the Hlásná Třebaň section – a candidate for GSSP of the Aeronian Stage – has been completed in collaboration with Š. Manda, J. Frýda, Z. Tasáryová, L. Chadimová, and M.J. Melchin. The manuscript is ready to be submitted early in 2017. I and Mike Melchin are working on systematic revision of zonal index graptolite *Demirastrites triangulatus* and related early Aeronian demirastritids. Together with PhD student Sun Zongyuan from NIGPAS, a detailed comparative study is performed on early Aeronian rastritids and petalolithids of Czechia (and Europe) and China with a view to test presumed cosmopolitan distribution of selected biostratigraphically important taxa. I am also continuing to work on graptolite fauna from Ordovician-Silurian boundary strata of Spanish Pyrenees in collaboration with J. Roqué-Bernal and J. C. Gutiérrez-Marco. Further progress was made in the multi-proxy study of a continuous Homerian succession exposed in Kosov Quarry with respect to ongoing revision of the Homerian GSSP. Systematic bed by bed study of the Homerian section revealed detailed anatomy of the mid-Homerian biotic crisis (*Lundgreni* or Mulde Event). Preliminary results were presented in Ghent (Manda et al. 2016: Mid-Homerian extinction event in a shale-dominated succession in the Prague Synform), a paper co-authored with Š. Manda, J. Frýda, L. Slavík and Z. Tasáryová is in preparation. High-resolution stratigraphy of the Wenlock-Ludlow boundary interval was published in *Canadian Journal of Earth Sciences* (Štorch, Manda, Slavík and Tasáryová). Since 2017, I am involved in a new project focused on potential chronostratigraphic subdivision of Pridolí Series. The project coordinated by L. Slavík is funded by Czech Science Foundation.

Petr Štorch
Institute of Geology CAS, Rozvojová 269, Praha 6, CZ 165 00, Czech Republic
Tel.: +420 233087261; Email: storch@gli.cas.cz

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Desmond STRUSZ (Australia): I have finally completed the study, with Ian Percival of the New South Wales Geological Survey, of a large Silurian brachiopod fauna from the Delegate River Mudstone at Quidong, southern New South Wales. A paper describing the fauna, a contribution to IGCP 591 'The Early to Middle Palaeozoic Revolution', has been submitted to the Memoir series of the Australasian Association of Palaeontologists. The next project is to work up for publication a fauna of similar age from the Cappanana Formation near Bredbo, south of Canberra, using material in the collections of Geoscience Australia and the Australian National University.

Desmond L. Strusz
97 Burnie Street, Lyons A.C.T., Australia 2606
Tel: +61 2 62814569; Email: desmond-strusz@homemail.com.au
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Stuart Sutherland
Department of Earth, Ocean and Atmospheric Sciences, the University of British Columbia, Room 2020, Earth Sciences Building, 2207 Main Mall, Vancouver, British Columbia, Canada, V6T 1Z4.
Tel.: +1 604 3280426; Email: ssutherland@eos.ubc.ca
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TANG Peng (China): I am working on chitinozoans of Late Ordovician and Silurian in China. During the past year, I have investigated several sections in western Yangtze Region, China, where the Upper Ordovician is assigned to the Daduhe Formation which contains high contents of carbonates, whereas the contemporary Wufeng Formation in the inner part of the Yangtze Region is composed of dark-gray to black siliceous shales and silicalites. At the same time, Silurian chitinozoans are still my major interests. More than 200 samples from the top Silurian and the lowermost Devonian have been collected to investigate the age of the "top" Silurian in South China.

Tang Peng
State Key Laboratory of Palaeobiology and Stratigraphy, Nanjing Institute of Geology and Palaeontology, Chinese Academy of Sciences, 39 East Beijing Road, Nanjing 210008, China
Tel.: +86 25 83282274; Email: pengtang@nigpas.ac.cn
****

Zuzana Tasáryová
Czech Geological Survey, Klárov 3, Praha 1, CZ 118 21, Czech Republic
Tel.: +420 257089546; Fax: +420 257531376; Email: zuzana.tasaryova@geology.cz
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Alain THOMAS (UK): I have nothing significant to report for the year of 2016, but things will be better in 2017 and I hope to be updated with various information of our Silurian community.

Alain T. Thomas
School of Earth Sciences (GEES), University of Birmingham, Birmingham, B15 2TT, UK
Email: a.t.thomas@bham.ac.uk
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Oive TINN (Estonia): I continue to work on the exceptionally well preserved fossils from the Kalana Lagerstätte in Estonia.

Oive Tinn
Email: oive.tinn@ut.ee

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Petra TONAROVÁ (Czech Republic): I am studying Lower Paleozoic microfossils. The main focus is payed to the distribution of scolecodonts around the Ordovician/Silurian boundary. Together with Olle Hints (Tallinn, Estonia) and M. E. Eriksson (Lund, Sweden), we compare data from Baltica and peri-Gondwana (represented by the Prague Basin).

Petra Tonarová
Czech Geological Survey, Geologická 6, 152 00 Prague 5, Czech Republic
Tel.: +420 251 085216; Email: petra.tonarova@geology.cz

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Susan TURNER (Australia): I am working on Silurian thelodonts and other microvertebrates from Australia, Canada, China, Norway, UK, USA (Maine, Nevada, Pennsylvania, Wisconsin) in co-operation for some projects with colleagues Carole Burrow (Australia), Tiiu Märss (Estonia) and Henning Blom (Sweden). A new look at geology and paleoenvironment of thelodont occurrences is underway (Ferron *et al.*, 2016).

Susan Turner
Honorary Research Fellow, Queensland Museum Geosciences
Tel.: +61734068350; Fax: +61734068355; Email: sue.turner@qm.qld.gov.au
http://www.paleodeadfish.com

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Thijs VANDENBROUCKE (Belgium): I remain interested in reconstructing the Silurian paleoclimate and paleoenvironment. In October 2015, I have changed jobs and moved back to Ghent University in Belgium for a lecturer position in stratigraphy and paleontology.

I am currently supervising PhD student Julie De Weirdt - her research project focuses on Upper Ordovician – lower Silurian event stratigraphy in N. America. I also continue to co-supervise Matthias Sinnesael, who works on a PhD project with Philippe Claeys at the VUB (Belgium) on astronomical forcing during the Late Ordovician, but who is also interested in the Silurian. My MSc student Steven De Decker is co-supervised with André Desrochers (UOttawa) and is working on the biostratigraphy of the lower Silurian Becscie Formation on Anticosti Island, as part a group effort to produce an integrated stratigraphy of the sections.

Other ongoing projects in the Silurian include an all-but-written-up chitinozoan biostratigraphy of the Rheidol Gorge section in Wales, similar work on other sections in the Welsh Basin (e.g., the type Llandovery, with Jeremy Davies, BGS, and co-workers), and integrated stratigraphic work in the midcontinent and eastern USA (with Patrick McLaughlin, Indiana Geological Survey, Poul Emsbo, USGS and Brad Cramer, Iowa University). With an international team coordinated by Mark Williams (University of Leicester, UK) and funded by the Leverhulme Trust, we are currently re-investigating the Early Paleozoic strata of Japan.

Thijs R. A. Vandenbroucke
Dept. of Geology (WE13), Ghent University, Krijgslaan 281 / S8, 9000 Ghent, Belgium
Tel.: +32 9 2644515; Email: Thijs.Vandenbroucke@UGent.be
http://www.earthweb.UGent.be
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Jacques VERNIERS (Belgium): In July 2016, Thomas Steeman, Thijs Vandenbroucke and I presented a poster at the Closing Meeting of the International Geoscience Programme Project IGCP 591 organized by Thijs Vandenbroucke in Ghent Belgium. It is about the Chitinozoan biostratigraphy through the Silurian Wenlock–Ludlow boundary succession of the Long Mountain (Powys, Wales). Relevant publication also came out in 2016.

Jacques Verniers
Ghent University, Ghent, Belgium
Email: Jacques.Verniers@UGent.be
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Viive Viira
Institute of Geology, Tallinn University of Technology, Ehitajate tee 5, 19086 Tallinn Estonia
Tel: +372 58846899; Email: viive.viira@ttu.ee
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Olev VINN (Estonia): I am working on the paleontology of problematic calcareous tubeworms from the Paleozoic (e.g. cornulitids, tentaculitids, microconchids etc.) and evolution of tubeworm biomineralization. I am also working on the evolution of symbiosis, predation, bioerosion and biofouling in the Silurian of Baltica and beyond. My current research interests include trace fossils of the Silurian of Estonia.

Olev Vinn
Department of Geology, University of Tartu, Ravila 14A, 50411 Tartu, Estonia
Tel.: +372 7375891; Fax: +372 7375896; Email: olev.vinn@ut.ee
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WANG Guangxu (China): I continue working on carbonates and corals across the Ordovician-Silurian transition in South China, where a complete coral sequence has been recognized in recent years. Some of these results have already been published (in print or online).

Wang Guangxu
State Key Laboratory of Palaeobiology and Stratigraphy, Nanjing Institute of Geology and Palaeontology (NIGP), Chinese Academy of Sciences, 39 East Beijing Road, Nanjing 210008, China
Tel.: +86 25 83282129; Email: gxwang@nigpas.ac.cn
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WANG Jian (China): I am now working in Xi'an Centre of Geological Survey, China Geological Survey, and studying the Silurian paleontology and stratigraphy. For several years，I have been focusing on Llandorvery and Wenlock sections in Shaanxi Province,

central China, and the evolution of *Cyrtograptus* in China. Currently I have a research project "Study of typical Silurian sections of Shaanxi Province, China" supported by China Geological Survey.

Wang Jian
Xi'an Centre of Geological Survey, China Geological Survey, 438 Youyidonglu Road, Xi'an, Shaanxi, China 710054
Tel.: +86 29 87888070; Fax: +86 29 87803890; Email: wangjian_7610@163.com

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WANG Wenhui (China): In 2016, I had finished the job in Nanjing University and started a new career as an associate professor in School of Geosciences and Info-Physics, Central South University, China. Most of my research activities in 2016 had been involved in seeking the biological affinity of chitinozoans. Abnormal individuals (teratological specimens, well preserved specimens in chain or cocoon and specimens preserve internal structures) were restudied and they provided important clues for the elucidation of chitinozoan biology. Anatomy, morphology and chemical composition studies on "contemporaneity" fossils, such as graptolites and acritarchs and modern organisms like copepod eggs were carried out in cooperation with modern marine biological scientists. I gave a talk about this work at the opening meeting of IGCP 653 held in Durham, UK. My research interest also includes studies of Ordovician and Silurian graptolites. One paper was recently published about the stratigraphical distribution of early Silurian black shales from the Lower Yangtze Platform in South China with Prof. Chen Xu. I am also interested in the studies of Ordovician palynology. I am trying to use Quantative methods in the classification of certain Ordovician acritarch taxa.

Wang Wenhui
School of Geosciences and Info-Physics, Central South University, Changsha, China
Tel: +86 13951830656; Email: wwhever@126.com

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WANG Xiaofeng (China): In the summer of 2016, most of my time was spent on the re-study of the Dayangcha Cambrian-Ordovician boundary section, China and its correlation with other relevant sections, together with Svend Stouge (Denmark), Jörg Maletz (Germany) and Wang Chuanshang (graptolites), Yan Chuanpo (conodont) and Tang Zhihua (stratigraphy) from my institute. A International Workshop on the Dayangcha Cambrian-Ordovician boundary is going to be organized by our research group in Changchun NE China in September 20-25, 2017. Besides, I also did some work on the graptolitic black shales from the Upper Ordovician Wufeng Formation to the lower Silurian Lungmachi Formation in Songbai area, Shennongjia, northwestern Hubei Province with Jörg Maletz (Germany) and Wang Chuanshang, Wei Kai from my institute and collected numerous graptolites from the *Paraorthograptus pacificus* Zone to the *Spirograptus minor* Zone, but the beds with the *Hirnantia* Fauna seem to be absent there.

Wang Xiaofeng
Wuhan Institute of Geology and Mineral Resources, Guanggu Road 69, Donghu High and New Development Zone, Wuhan 430205, China
Email: ycwangxiaofeng@163.com

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WANG Yi (China): In 2016, I focused on one project from the National Natural Science Foundation of China dealing with some key Silurian and Devonian stratigraphic problems in South China. We are now paying attention to the subdivision and correlation of the rocks around the boundary between Silurian and its overlying strata in South China, because such boundary implies some very important information on the Kwangshi Orogeny, a typical regional tectonic movement corresponding to the Caladonian or the Taconian orogenies. Together with several of my colleagues, I am now also studying the origin and early evolution of land plants based on some well-preserved material found in the Silurian of South China.

Wang Yi
State Key Laboratory of Paleobiology and Stratigraphy, Nanjing Institute of Geology and Palaeontology, Chinese Academy of Sciences, 39 East Beijing Road, Nanjing 210008, China
Tel./Fax: +86 25 83282146; Email: yiwang@nigpas.ac.cn

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Anthony Wright
School of Earth and Environmental Sciences, University of Wollongong, Wollongong NSW 2522, Australia
Tel.: 61242297129 (home); Email: tony.wright@optusnet.com.au

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ZHAN Renbin (China): Although my major research interest is on the Ordovician, I continue to work on Silurian stratigraphy and brachiopods together with my colleagues like Huang Bing and Wang Guangxu. Collaborating with Gudveig Baarli from the States, we had made a comparative study on some early Silurian (middle Rhuddanian to Aeronian) atrypids from both South China and southern Norway, and named a new genus, *Thulatrypa*. Some detailed discussion on its paleobiogeographic implications has been made, and a possible connection between South China and Baltica has been suggested.

Some new progress has also achieved in the study of survival and recovery of corals after the end-Ordovician mass extinction in South China. We found a complete sequence of coral faunas across the Ordovician-Silurian boundary, and more importantly some very well preserved coral faunas at those lowermost Silurian horizons in South China. The famous Edgewood fauna is chanllenged by its age, and it might be not a corresponding fauna of the famous *Hirnantia* Fauna, but much younger in the survival interval after the mass extinction. Relevant work is still going on using the material from both South China and North America.

Zhan Renbin
State Key Laboratory of Palaeobiology and Stratigraphy, Nanjing Institute of Geology and Palaeontology (NIGP), Chinese Academy of Sciences, 39 East Beijing Road, Nanjing 210008, China
Tel./Fax:+86 25 83282132, 83282196; Email: rbzhan@nigpas.ac.cn

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Zhang Yuandong
Nanjing Institute of Geology and Palaeontology, Chinese Academy of Sciences, 39 East Beijing Road, Nanjing 210008, China
Tel.: +86 25 83282145; Fax: +86 25 83357026; Email: ydzhang@nigpas.ac.cn
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ZHAO Wenjin (China): In 2016, I focused on the Siluro-Devonian vertebrate paleontology, and relative stratigraphy, paleogeography, and paleoenvironmental changes. The main achievements can be represented by the new understanding about the Silurian fish-bearing strata around the Shanmen Reservoir in Lixian of Hunan, the further study of the new skull material of sarcopterygian *Qingmenodus yui*, and the discovery of the Silurian maxillate placoderm *Qilinyu rostrate*, a 423-million-year-old fish from the Kuanti Formation (upper Ludlow, Silurian) of Qüjing, northeastern Yunnan Province, SW China.

In addition, I conducted the field work both in Yunnan and Guangxi of South China during July 14 and November 30 in 2016, supported by the Special Grant for Fossil Excavation and Preparation of the Chinese Academy of Sciences and the National Natural Science Foundation of China. Some new important and interesting fish fossils have been found and collected from the upper Ludlow and Lower Devonian during the excursions. We also made some new progress on the Siluro-Devonian stratigraphic subdivision and correlation in South China.

Zhao Wenjin
Institute of Vertebrate Paleontology and Paleoanthropology, Chinese Academy of Sciences, 142 Xi-Zhi-Men-Wai Street, Beijing 100044, China
Tel.: +86 10 88369290; Fax: +86 10 68337001; Email: zhaowenjin@ivpp.ac.cn
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RECENT PUBLICATIONS ON THE SILURIAN RESEARCH

[Note that a few publications are of 2015 or even before that were not included in previous Silurian Times, and some papers are dealing with Ordovician topics by members of ISSS. There are also a few papers in the list that are in press or in review.]

Adomat, F., Munnecke, A. and Kido, E. 2016. Mass occurrence of the large solitary rugose coral Phaulactis angusta at the boundary Lower/Upper Visby Formation, Silurian, Gotland: Palaeoecology and depositional implications. *GFF*, 138(3), 393–409.

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MEMBERSHIP NEWS

1. List of all Silurian workers and interested colleagues (*updated March 2017*)

Guilermo ACENOLAZA	<insugeo@csnat.unt.edu.ar>
Aicha ACHAB	<achabai@ete.inrs.ca>
Leho AINSAAR	<Leho.ainsaar@ut.ee>
Guillermo ALBANESI	<galbanesi@arnet.com.ar>
Fernando ALVAREZ	<fernando@geol.uniovi.es>
Anna ANTOSHKINA	<Antoshkina@geo.komisc.ru>
Howard A. ARMSTRONG	<h.a.armstrong@durham.ac.uk>
Esther ASSELIN	<EAsselin@nrcan.gc.ca>
Gudveig BAARLI	<Gudveig.Baarli@williams.edu>
Loren BABCOCK	<lbabcock@ccad.edu>
Alyssa M. BANCROFT	<ambancroft@gmail.com>
Christopher R. BARNES	<crbarnes@uvic.ca>
J.E. BARRICK	<ghjeb@ttacs.ttu.edu>
Michael BASSETT	<mike.bassett@nmgw.ac.uk>
Richard BATCHELOR	<rab@st-andrews.ac.uk>
Denis BATES	<deb@aber.ac.uk>
Dorjsuren BYAMBADASH	<b_dorjsuren56@yahoo.com>
Juan Louis BENEDETTO	<jbenedetto@efn.uncor.edu>
Stig BERGSTRÖM	<Bergtrom.1@osu.edu>
Alain BLIECK	<Alain.Blieck@univ-lille1.fr>
Bujinlkham BOIJIR	<bujinlkham_b@yahoo.com>
Joe BOTTING	<joe@asoldasthehills.org>
Art J. BOUCOT	<boucota@science.oregonstate.edu>
Margaret BRADSHAW	<Margaret.Bradshaw@canterbury.ac.nz>
Carlton BRETT	<Carlton.Brett@uc.edu>
Thomas BROADHEAD	<twbroadhead@utk.edu>
Frank BRUNTON	<frank.brunton@ndm.gov.on.ca>
Petr BUDIL	<Petr.Budil@geology.cz>
Carole BURROW	<Carole.burrow@gmail.com>
Anthony BUTCHER	<Anthony.butcher@port.ac.uk>
Mikael CALNER	<Mikael.calner@geol.lu.se>
M.V. CAPUTO	<caputo@interconect.com.br>
CHAI Yucheng	<chaiyc@nsfc.gov.cn>
Tom CHALLANDS	<Tomchallands@googlemail.com>
CHEN Qing	<qchen@nigpas.ac.cn>
CHEN Xiaohong	<yccxiaohong@163.com>
CHEN Xu	<xuchen@nigpas.ac.cn>
Lesley CHERNS	<cherns@cardiff.ac.uk>
Robin COCKS	<r.cocks @nhm.ac.uk>
Paul COPPER	<pcopper@laurentian.ca>
Carlo CORRADINI	<Corradin@unica.it>

Maria CORRIGA <maria.corriga@unica.it> or <corrigamaria@hotmail.it>
Brad CRAMER <cramerbd@gmail.com>
Peter CROWTHER <peter.crowther.um@nics.gov.uk>
Suzana DE LA PUENTE <sudelapuente@gmail.com> or <graciela.delapuente@fain.uncoma.edu.ar>
André DESROCHERS <andre.desrochers@uottawa.ca>
Richard DIECCHIO <rdiecchi@gmu.edu>
Andrey DRONOV <dronov@ginras.ru> or <dronov@GG2686.spb.edu>
DUAN Yun <yun.duan@asu.edu>
Diane EDWARDS <edwardsd2@cardiff.ac.uk>
Rein EINASTO <reine@tktk.ee>
Robert ELIAS <eliasrj@ms.umanitoba.ca>
Mats E. ERIKSSON <mats.eriksson@geol.lu.se>
Frank ETTENSOHN <fettens@pop.uky.edu>
FAN Juanxuan <fanjunxuan@gmail.com>
Olda FATKA <fatka@natur.cuni.cz>
Annalisa FERRETTI <Annalisa.Ferretti@unimore.it>
Stan FINNEY <scfinney@csulb.edu>
Richard FORTEY <r.fortey@nhm.ac.uk>
Jiri FRYDA <Jiri.Fryda@geology.cz>
Mansoureh GHOBADI POUR <mghobadipour@yahoo.co.uk>
Daniel GOLDMAN <Dan.Goldman@notes.udayton.edu>
Cemal GONCUOGLU <mcgoncu@metu.edu.tr>
GUO Jinyi <guojy@nsfc.gov.cn>
Juan Carlos GUTIÉRREZ-MARCO <jcgrapto@geo.ucm.es>
Vachik HAIRAPETIAN <vh_hai@yahoo.com>
David A.T. HARPER <david.harper@durham.ac.uk>
William HARRISON <william.harrison_iii@wmich.edu>
Luke HAUSER <Luke.Hauser@port.ac.uk>
Olle HINTS <olle.hints@ttu.ee> or <olle.hints@gmail.com>
Catherine (Kathleen) HISTON <hiscat@interfree.it>
Charles HOLLAND <hepwholl@tcd.ie>
David HOLLOWAY <dhollow@museum.vic.gov.au>
HOU Xudong <houcudonggis@gmail.com>
Mike HOWE <mhowe@bgs.ac.uk>
HUANG Bing <bhuang@nigpas.ac.cn>
Hellen HUGHES <helen.hughes@plymouth.ac.uk>
Aaron HUNTER <ahunter@eps.s.u-tokyo.ac.jp>
Emilia JAROCHOWSKA <emilia.j@gmail.com>
Lennart JEPPSSON <Lennart.Jeppsson@gmail.com>
Jisuo JIN <jjin@uwo.ca>
Markes E. JOHNSON <markes.e.johnson@williams.edu>
Dimitri KALJO <kaljo@gi.ee>
Donatas KAMINSKAS <Donatas.Kaminskas@gf.vu.lt>
Stephen KERSHAW <Stephen.kershaw@brunel.ac.uk>

Erika KIDO	<Erika.Kido@uni-graz.at>
Tarmo KIIPLI	<tarmo.kiipli@gi.ee>
Joanne KLUESSENDORF	<jkluesse@uwc.edu>
Anna KOZŁOWSKA	<akd@twarda.pan.pl>
Petr KRAFT	<kraft@natur.cuni.cz>
Jiri KRIZ	<jiri.kriz@geology.cz>
Björn KRÖGER	<bjoekroe@gmx.de>
Jeff KUGLITSCH	<kug@globaldialog.com>
Veronica B. KUSHLINA	<vkush@paleo.ru>
Jorge Colmenar LALLENA	<colmenar@unizar.es>
Phil LANE	<phil@telychian.co.uk>
Philippe LEGRAND	<legrandblain@wanadoo.fr>
Alain LE HERISSE	<alain.le.herisse@univ-brest.fr>
Oliver LEHNERT	<lehnert@geol.uni-erlangen.de>
Alf LENZ	<aclenz@uwo.ca>
LI Jun	<junli@nigpas.ac.cn>
LI Lixia	<lxli@nigpas.ac.cn>
LI Qijian	<qijianli@hotmail.com>
LIANG Yan	<liangyan@nigpas.ac.cn>
LIU Jianbo	<jbliu@pku.edu.cn>
LIU Yu	<liuyu@nsfc.gov.cn>
Rhian LLEWELLYN	<Rhian.Llewellyn@port.ac.uk>
Steven LODUCA	<sloduca@emich.edu>
Darrel LONG	<dlong@laurentian.ca>
David LOYDELL	<david.loydell@port.ac.uk>
Stefan LUBESEDER	<stefan_lubeseder@web.de>
Robert LUNDIN	<robert.lundin@asu.edu>
Gil MACHADO	<Machadogil@gmail.com>
Eugene MACDONALD	<eugenewm@rocketmail.com>
Jörg MALETZ	<yorge@zedat.fu-berlin.de>
Andy MALLETT	<Andy.Kaz@btinternet.com>
Štěpán MANDA	<stepan.manda@geology.cz>
Peep MÄNNIK	<mannik@gi.ee>
Tiiu MARSS	<marss@gi.ee>
Ruth MAWSON	<rmawson37@gmail.com>
Sandy MCCRACKEN	<samccrac@NRCan.gc.ca>
Tõnu MEIDLA	<tonu.meidla@ut.ee>
Kristina MEHLQVIST	<kristina.mehlqvist@geol.lu.se>
Mike MELCHIN	<mmelchin@stfx.ca>
Carl MENDELSOHN	<mendelsn@beloit.edu>
Donald MIKULIC	<mikulic@isgs.uiuc.edu>
Giles MILLER	<G.Miller@nhm.ac.uk>
Chuck MITCHELL	<cem@nsm.buffalo.edu>
Tatiana MODZALEVSKAYA	<TModzalevskaya@vsegei.ru> or <Modz@ib2567.spb.edu>
Lucy A. MUIR	<lucy@asoldasthehills.org>

Axel MUNNECKE <axel.munnecke@gzn.uni-erlangen.de>
Mike MURPHY <Mamurphy85@gmail.com> or <mamurphy@ucr.edu>
Heldur NESTOR <hnestor@gi.ee>
Viiu NESTOR <vnestor@gi.ee>
Keith NICHOLLS <keithandkaren@tiscali.co.uk> or
<keithhnicholls@gmail.com>
Arne Thorshøj NIELSEN <arnet@snm.ku.dk>
Paula NOBLE <noblepj@unr.edu>
Jaak NÕLVAK <nolvak@gi.ee>
Brian NORFORD <bnorford@nrcan.gc.ca>
Godfrey NOWLAN <gnowlan@nrcan.gc.ca>
Olga T. OBUT <Obutot@ipgg.nsc.ru>
OLARU <olaru@yahoo.com>
Gladys ORTEGA <gcortega@arnet.com.ar>
Jeffrey OVER <over@geneseo.edu>
Florentin PARIS <Florentin.Paris@orange.fr>
Helje PÄRNASTE <helje@gi.ee>
John PEEL <John.Peel@pal.uu.se>
PENG Shanchi <scpeng@nigpas.ac.cn>
Silvio PERALTA <speralta@unsj-cuim.edu.ar>
Ian PERCIVAL <ian.percival@industry.nsw.gov.au>
Vincent PERRIER <vp110@leicester.ac.uk>
José Manuel PICARRA <jose.picarra@lneg.pt>
Teresa PODHALANSKA <teresa.podhalanska@pgi.gov.pl>
Anne PÕLDVERE <anai@ut.ee>
Leonid POPOV <leonid.popov@museumwales.ac.uk> or
<lepbarry@yahoo.co.uk>
Helga PRIEWALDER <helga.priewalder@geologie.ac.at>
Grzegorz RACKI <grzegorz.racki@us.edu.pl>
Sigitas RADZEVICIUS <Sigitas.radzevicius@gf.vu.lt>
Christian RASMUSSEN <christian@snm.ku.dk>
Jan RASMUSSEN <Audun janr@snm.ku.dk>
David RAY <daveray01@yahoo.com> or <david.ray@neftex.com>
John RICHARDSON <jbr@nhm.ac.uk>
Susan RIGBY <Sue.Rigby@ed.ac.uk>
RONG Jiayu <jyrong@nigpas.ac.cn>
Mike ROSENBAUM <msr@waitrose.com>
Charles ROSS <Charlesalexross@gmail.com>or<ross@biol.wwu.edu>
Sergej ROZHNOV <rozhnov@paleo.ru>
Claudia RUBINSTEIN <crubinstein@mendoza-conicet.gov.ar>
Artur SA <asa@utad.pt>
Valeri SACHANSKI <v_sachanski@geology.bas.bg>
Ivan SANSOM <I.J.Sansom@bham.ac.uk>
Hans Peter SCHÖNLAUB <hp.schoenlaub@aon.at> or
<hp.schoenlaub@geologie.ac.at>
Paul SELDEN <Selden@ku.edu>

Nikolay V. SENNIKOV	<SennikovNV@ipgg.nsc.ru>
Thomas SERVAIS	<Thomas.Servais@univ-lille1.fr>
Peter SHEEHAN	<sheehan@uwm.edu>
Lawrence SHERWIN	<lawrence.sherwin@industry.nsw.gov.au>
Andrew SIMPSON	<asimpson@els.mq.edu.au>
David SIVETER	<DJS@leicester.ac.uk>
Ken SOEHN	<ksoehn@hotmail.com>
Constance SOJA	<csoja@mail.colgate.edu>
Rob STALLARD	<rob@silurian.com>
Philippe STEEMANS	<P.Steemans@ulg.ac.be>
Ronald STIEGLITZ	<stieglir@uwgb.edu>
Petr ŠTORCH	<storch@gli.cas.cz>
Svend STOUGE	<Svends@Snm.Ku.Dk>
Sven STRIDSBERG	<Sven.Stridsberg@Geol.lu.se>
Paul STROTHER	<strother@bc.edu>
Des STRUSZ	<desmond-strusz@homemail.com.au>
Owen E. SUTCLIFFE	<Owen.Sutcliffe@Neftex.Com>
Stuart SUTHERLAND	<ssutherland@eos.ubc.ca>
Thomas J. SUTTNER	<Thomas.Suttner@uni-graz.at>
John TALENT	<jatalent32@gmail.com>
TANG Lan	<tlan1990@126.com>
TANG Peng	<pengtang@nigpas.ac.cn>
Zuzana TASARYOVA	<zuyana.tasaryova@geology.cz>
Alan T. THOMAS	<A.T.Thomas@bham.ac.uk>
Oive TINN	<oive.tinn@ut.ee>
Petra TONAROVÁ	<petra.tonarova@ttu.ee>
Blanca Azucena TORO	<btorogr@mendoza-conicet.gov.ar>
Wieslaw TRELA	<wieslaw.trela@pgi.gov.pl>
Julie TROTTER	<Julie.trotter@uwa.edu.au>
Susan TURNER	<paleodeadfish@yahoo.com>
Fons VANDENBERG	<avandenberg@museum.vic.gov.au>
Thijs VANDENBROUCKE	<Thijs.Vandenbroucke@UGent.be>
Jan VANMEIRHAEGHE	<Jan.Vanmeirhaeghe@wienerberger.be>
Jacques VERNIERS	<jacques.verniers@UGent.be>
Viive VIIRA	<viira@gi.ee>
Enrique VILLAS	<Villas@Posta.Unizar.Es>
Olev VINN	<olev.vinn@ut.ee>
Christopher WAID	<cbw3@geneseo.edu>
WANG Chuanshang	<wangchuanshang@163.com>
WANG Guangxu	<gxwang@nigpas.ac.cn>
WANG Haifeng	<hfwang@nigpas.ac.cn>
WANG Jian	<wangjian_7610@163.com>
WANG Wenhui	<wwhever@126.com>
WANG Xiaofeng	<ycwangxiaofeng@163.com>
WANG Yi	<yiwang@nigpas.ac.cn>
Brian WHITE	<bwhite@science.smith.edu>

Rosie WIDDISON	<rewiddison@hotmail.com>
Henry S. WILLIAMS	<henrywilliams@shaw.ca>
Mark WILLIAMS	<mri@leicester.ac.uk>
Mark WILSON	<mark.wilson@ualberta.ca>
Tony WRIGHT	<tony.wright@optusnet.com.au>
Ryszard WRONA	<wrona@twarda.pan.pl>
YANG Qun	<qunyang@nigpas.ac.cn>
YAO Yupeng	<yaoyp@nsfc.gov.cn>
Graham YOUNG	<gyoung@cc.umanitoba.ca>
YUAN Wenwei	<wwyuan@nigpas.ac.cn>
Jan ZALASIEWICZ	<jaz1@leicester.ac.uk>
ZHAO Wenjin	<zhaowenjin@ ivpp.ac.cn>
ZHAN Renbin	<rbzhan@nigpas.ac.cn>
ZHANG Linna	<zhanglinna88@gmail.com>
ZHANG Xinglang	<xzhang69@nwu.edu.cn>
ZHANG Yuandong	<ydzhang@nigpas.ac.cn>
ZHANG Yuanyuan	<yuanyuanzh85@163.com>
ZHEN Yongyi	<yongyi.zhen@austmus.gov.au>
ZHOU Zhiqiang	<zsy1940@163.com>
ZHOU Zhiyi	<zyizhou@nigpas.ac.cn>
ZHU Min	<zhumin@ivpp.ac.cn>
ZHU Xuejian	<xjzhu@nigpas.ac.cn>
Živilė ŽIGAITĖ	<Zivile.Zigaite@gmail.com> or <zivile.zigaite@ebc.uu.se>

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2. Brief introduction of new Silurian workers

LI Lixia

Date of Birth: 15 October, 1982

Affiliation: Nanjing Institute of Geology and Palaeontology, Chinese Academy of Sciences (NIGPAS)

Education: Doctoral degree (June 2008-August 2013) in Paleontology and Stratigraphy at Nanjing University. PhD thesis: Early Ordovician graptolites from northwestern Hunan, South China paleoplate. Supervisor: Prof. Feng Hongzhen. Between November 2011 and October 2012, I was studying at the Department of Geosciences of Göttingen University as a visiting PhD student. I was also doing a post-doc at NIGPAS between September 2013 and October 2016.

Present position: Research assistant at NIGPAS

Research interests: I am working on the Paleozoic sponges from South China. My research is mainly focused on taxonomy, paleoecology and taphonomy

of sponges. I cooperate with Prof. Joachim Reitner from Göttingen University to figure out the macroevolutionary pattern of the Paleozoic sponges in South China. We also make some comparison between fossils and living sponges.

Sigitas RADZEVICIUS

Date of birth: 18 December 1975

Affiliation: Department of Geology and Mineralogy, Vilnius University

Education: PhD in Geology at University of Tartu (Estonia). PhD thesis: The genus *Pristiograptus* in Wenlock of East Baltic and the Holy Cross Mountains.

Present position: Associate professor at Vilnius University

Research interests: Silurian graptolites, taxonomy, phylogeny, biostratigraphy

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NEW BOOK INTRODUCTION

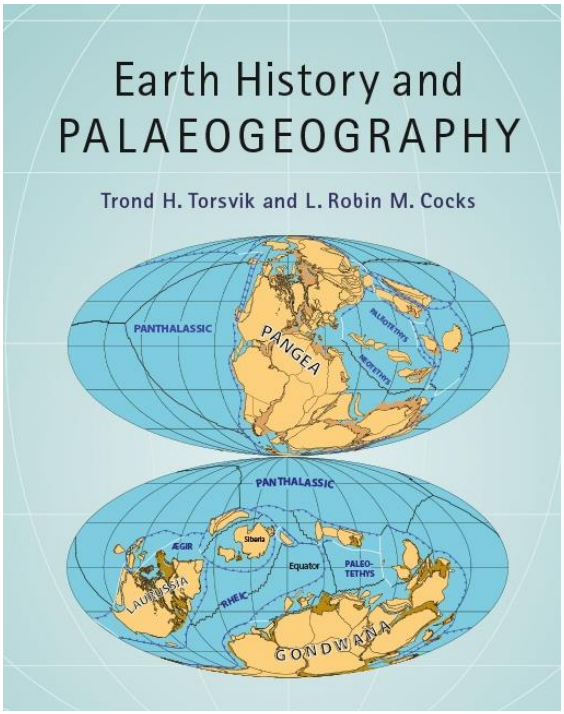
<<Earth History and Palaeogeography>>

Palaeogeography is the challenging yet fascinating study of changing geography and geomorphology through deep time, in response to tectonic plate movements. This fullcolour volume presents our latest knowledge of the Earth's dynamic evolution over the last 540 million years, making it an invaluable reference for researchers, graduate students, professional geoscientists, and anyone interested in the geological history of the Earth.

Using full-colour palaeogeographical maps from the Cambrian to the present, this interdisciplinary volume explains how plate motions and surface volcanism are linked to processes in the Earth's mantle, and to climate change and the evolution of the Earth's biota. These new and very detailed maps provide a complete and integrated Phanerozoic story of palaeogeography. They illustrate the development of all the major mountainbuilding orogenies, both those that have ended (such as the Caledonide and Variscan) and those continuing (such as the Andean and Himalayan). Old lands, seas, ice caps, volcanic regions, reefs, and coal beds are highlighted on the maps, as well as faunal and floral provinces. Many other original diagrams show sections from the Earth's core, through the mantle, and up to the lithosphere, and how large igneous provinces (LIPs) are generated, helping to understand how plates have appeared, moved, and vanished through time.

Supplementary resources are available online, including software, data files, operating

instructions, and extended descriptions of continental plates and terranes, enabling readers to make their own reconstructions at any given time over the past 540 million years.



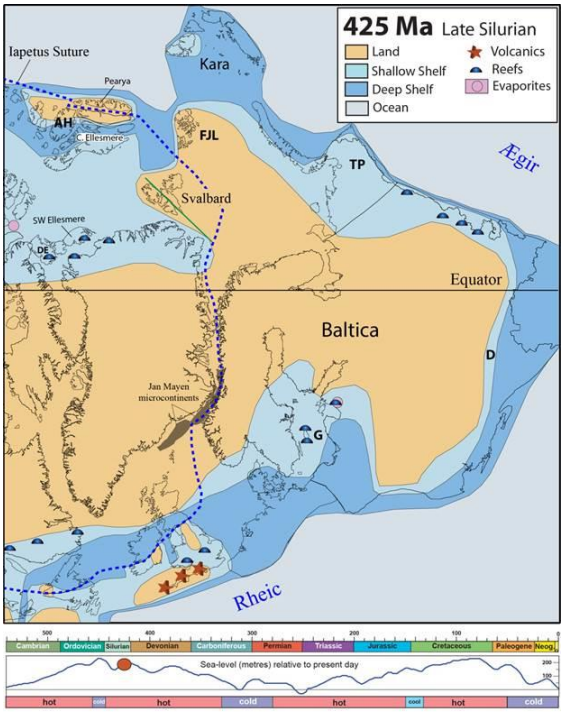


Fig. 7.3

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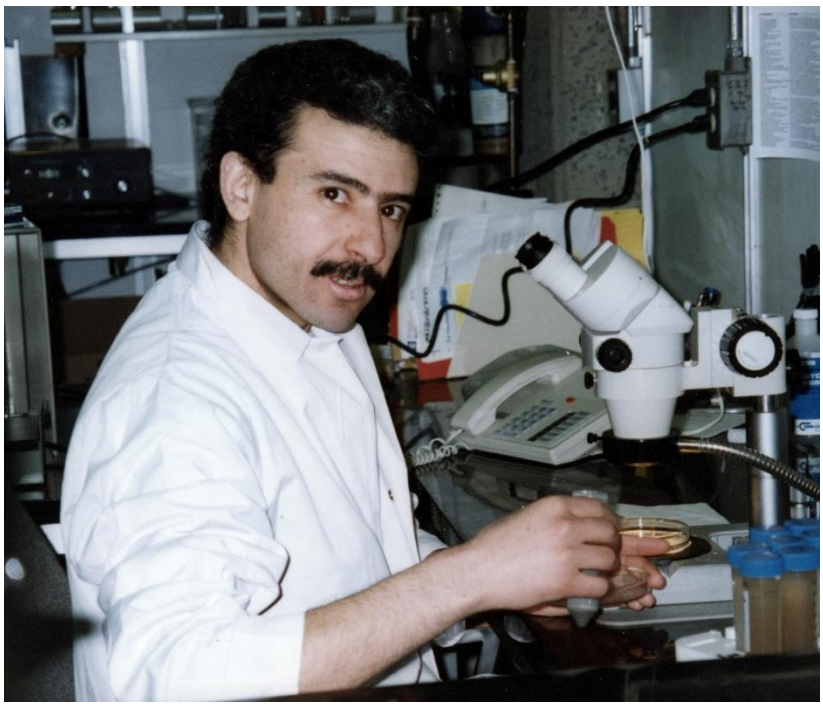
IN MEMORIAM

by Aicha Achab, Esther Asselin and John Riva

Azzedine Soufiane (1959–2017)



Azzedine Soufiane died on January 29, 2017 while trying to disarm the shooter at the Ste-Foy mosque massacre. He was 57 years old, having been born on October 10, 1959, at Khouribga, south-east of Casablanca, Morocco.

Azzedine came to Canada in 1998 thanks to an International Development Research Centre (IDRC) scholarship and the support of the *Office National de Recherches et d'Exploitation Pétrolières (ONAREP)* to attend the *Université du Québec à Montréal*. In 1991 he received a M.Sc. degree in geology on the basis on his work on Ordovician and Silurian chitinozoans from the Tadla basin in Morocco.

In 1992 he joined the *Institut national de la recherche scientifique (INRS)* in Quebec as a research assistant, and in the following ten years he undertook a number of projects on the Ordovician and Silurian chitinozoans of Anticosti Island, Arctic Canada, Nevada and Nova Scotia. This work produced more than fifteen papers and oral communications. In 1999 he enrolled at the INRS for a Ph.D. degree to better integrate the knowledge he had acquired in palynostratigraphy.

In 2004, because of family obligations and an unfavorable labor market, he left a promising scientific career to open a Mediterranean grocery and an halal butcher shop attuned to the needs of the local Moslem community.

Azzedine was appreciated by his colleagues. He was a rigorous and meticulous scientist, unpretentious and always helpful. The Quebec community unanimously acknowledged his generosity, open-mindedness and other human qualities.

Azzedine is survived by his wife and three children, 6, 13 and 15 years old.

Aicha Achab, Esther Asselin and John Riva