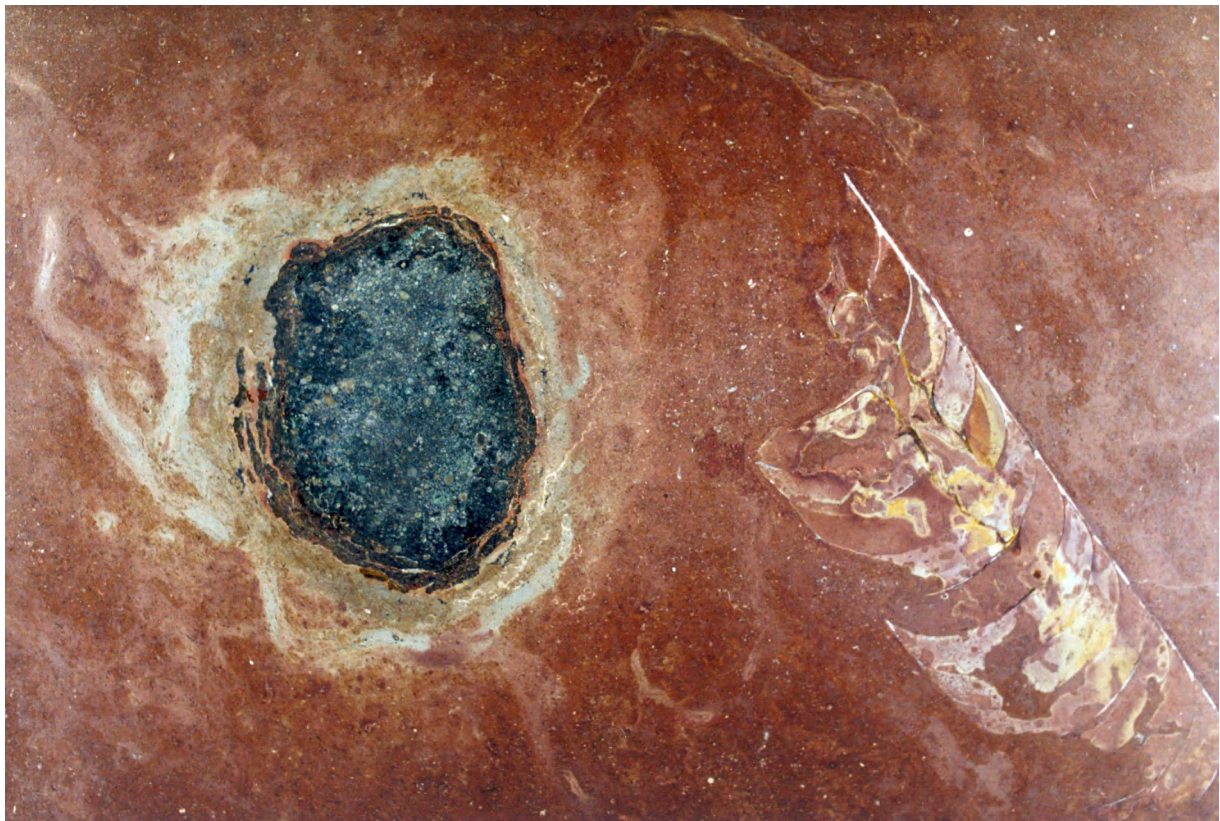
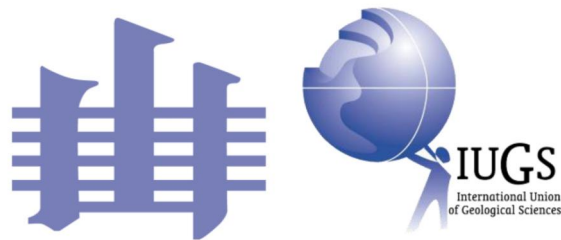


# ORDOVICIAN NEWS

SUBCOMMISSION ON ORDOVICIAN STRATIGRAPHY  
INTERNATIONAL COMMISSION ON STRATIGRAPHY



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**volume 42 (for 2024)**

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**Cover photo:** Österplana 035 fossil meteorite from the Darriwilian beds at Kinnekulle, Sweden. The meteorite (with preserved chondrule structures) is about 8 cm in cross section. It is associated with a worm track and a fossil nautiloid (courtesy of Birger Schmitz).

*Ordovician News*, volume **42** for 2024 (distributed March 2025)

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## CONTENTS

<b>CHAIRMAN'S MESSAGE</b>	3
<b>ANNUAL REPORT OF THE ORDOVICIAN SUBCOMMISSION FOR 2024</b>	5
<b>NEWS AND VIEWS</b>	16
<ul style="list-style-type: none"> <li>• The Xiaoyangqiao SABS protective and sign monument erected in Jiangyuan, Jilin, North China</li> <li>• New publications of interest to Ordovician specialists</li> <li>• Recolnat.fr, an online website to access French palaeontological collections</li> </ul>	
<b>REPORTS OF RECENT CONFERENCES</b>	20
<ul style="list-style-type: none"> <li>• 6<sup>th</sup> International Conference of Palaeogeography, Nanjing (China), May 2024</li> <li>• Fossils and Palaeozoic Palaeogeography &amp; Biogeography, Oslo (Norway), June 2024</li> <li>• 9<sup>th</sup> International Brachiopod Congress, St. Catharines (Canada), June 2024</li> <li>• 11<sup>th</sup> Baltic Stratigraphic Conference, Tartu (Estonia), August 2024</li> <li>• 37<sup>th</sup> International Geological Congress, Busan (Korea), August 2024</li> <li>• 4<sup>th</sup> annual meeting of IGCP 735, Córdoba (Argentina), October 2024</li> <li>• 3<sup>rd</sup> virtual meeting of IGCP 735, Prague (Czech Republic), November 2024</li> </ul>	
<b>CONFERENCE ANNOUNCEMENTS</b>	40
<ul style="list-style-type: none"> <li>• IGCP 735 regional meeting and field excursion, Llandrindod Wells (UK), July 2025</li> <li>• IGCP 735 regional meeting and field excursion, Crozon (France), September 2025</li> <li>• 5<sup>th</sup> annual meeting of IGCP 735, Changsha (China), October 2025</li> <li>• 5<sup>th</sup> International Congress on Stratigraphy, Suzhou (China), June–July 2026</li> <li>• IGCP 735 regional meeting and field excursion, Kitab (Uzbekistan), August 2026</li> <li>• IPC7 and 6<sup>th</sup> annual meeting of IGCP 735, Cape Town (South Africa), Nov. – Dec. 2026</li> <li>• 15<sup>th</sup> International Symposium on the Ordovician System, Xi'an (China), August 2027</li> </ul>	
<b>IN MEMORIAM</b>	88
<ul style="list-style-type: none"> <li>• Rimma SOBOLEVSKAYA (1929–2023)</li> <li>• Alfred LENZ (1929–2024)</li> <li>• John A. TALENT (1932–2024)</li> <li>• Viive VIIRA (1933–2025)</li> <li>• David SKEVINGTON (1935–2024)</li> <li>• Euan N.K. CLARKSON (1937–2024)</li> <li>• Bruce M. BELL (1941–2024)</li> <li>• Jiří KŘÍŽ (1943–2024)</li> <li>• Fons VANDENBERG (1945–2024)</li> <li>• last minute information</li> </ul>	
<b>ORDOVICIAN RESEARCH REPORTS &amp; CONTACTS</b>	112
<b>RECENT ORDOVICIAN RESEARCH PUBLICATIONS</b>	153



**International Union of Geological Sciences (IUGS) statement on the Russian Federation's invasion of Ukraine.**

**The IUGS works with many Russian and Ukrainian geoscientists and has made some fundamental contributions to establishing global geological standards with Russia.**

**The IUGS executive is appalled by the invasion of Ukraine by the Russian Federation and, alongside the initiative of other government and scientific organisations, IUGS will freeze all activity with the Russian Federation until future notice.**





### CHAIRMAN'S MESSAGE

You are holding another issue of *Ordovician News* in your hands, or most probably, you look at it on screen. But maybe you look at it on a cellphone, so, you hold it in your hand, again.

This version is already issue 42, a number of years passed since No.1 was published in 1983. At that time, in the early 1980s, everything was on paper only. Now, we use less and less paper. This reminds us that we have a generation gap, that is also present in the Ordovician community.

At the meeting at the Norwegian Academy of Science in June 2024 in Oslo (see report in this newsletter), where we celebrated the career of Robin Cocks (1938–2023), we discussed our age differences. Robin Cocks, one of the most visible Ordovician ‘giants,’ was born before World War II. Only members from younger generations celebrated his life at Oslo. Among them, there were a number of ‘Baby Boomers’ (born 1946–1964), who are mostly retired now. These ‘baby boomers’ wrote their thesis with a typewriter (for the younger generations who read this: a typewriter was a mechanical machine for typing characters :-). Ordovician workers from ‘Generation X’ (born 1965–1976) started to write their thesis on computers. The ‘Millennials’ (born 1977–1995) have still seen typewriters from their parents, but never touched them... The ‘Generation Z’ those born 1996 or later) only look at computer screens (or this is what the older generations believe).

It is sometimes difficult to imagine how the older generations worked. Without internet? How was this possible? Can you imagine that there was a time before the ‘copy/paste’ writing period?

While some of us have still their office space (and/or a place at home) full of reprints, books and ... fossils, many of the younger colleagues have an empty space in their office. Today, everything is in the hard disc of the computer or on the ... cloud. What generation of Ordovician workers do you belong to? Question: who has the entire collection of Ordovician News printed in the office? Who has the collection on the hard disk? Hopefully everybody knows that it can be found online (<https://ordovician.stratigraphy.org>).

This new issue is again full of information. Thanks for your contributions, and welcome to those who see our Ordovician ‘newsletter’ for the first time!

What happened in 2024? Well, after the exceptional *cuvée* of 2023 (with the organization of the 14<sup>th</sup> International Symposium on the Ordovician System (ISOS) in Tallinn, Estonia; and the publication of the two volumes of the *Geol. Soc. Sp. Publ.* concerning ‘A Global Synthesis of the Ordovician System’), 2024 was surely a little bit calmer. Nevertheless, the last year was again full of activities, as you can see from the reports included here.

In August, at the International Geological Congress at Busan, South Korea, the titular membership and executive of all subcommissions of the International Commission on Stratigraphy (ICS) changed. After many years of Ordovician stratigraphers being chairs of the ICS (Stan Finney, David Harper), we have now a first female scientist as Chair of the ICS, Elisabetta Erba (Milan, Italy).

## CHAIRMAN'S MESSAGE

The Subcommittee on Ordovician Stratigraphy (SOS) also changed. Here, we also have a generation change! It is surprising to see that all voting members of the subcommittee were male until the year 2012 (!) when the two first female titular members started their job. Between 2016 and 2020 three female titular members served. We increased the number to seven from 2020 to 2024, and now we have ten female and ten male titular members. We are happy to have a first female Vice-Chair (Alycia Stigall). Never, in the history of the subcommittee, we had a female scientist in the Executive (...). You will find in this Newsletter the list of all current voting (titular) members of the Ordovician Subcommittee. We are very happy to present a perfect gender balance, in the executive, and in the titular membership. Yes, times, and generations, change!

As every year, you will also find the annual report of the Subcommittee (as presented to the International Commission on Stratigraphy, ICS).

We report in this issue a number of conferences that took place in 2024. Some of these were directly dedicated to the Ordovician, others had specific sessions dedicated.

We also have a number of conference announcements. 2025 will be a rich year again, with many activities, many of those will be organized by IGCP 735.

In this issue 42 of *Ordovician News*, we sadly report again the memory of Ordovician workers, who passed away in the last year. Most of them were even born before the 'Baby Boomers'.

While compiling this newsletter, we have been informed about another departure of an Ordovician 'giant.' Richard Fortey, who was a titular member of the Subcommittee for almost 20 years, also left us. In the next Newsletter, we will be able to present an obituary, as we do here for nine other colleagues who were active in the Ordovician.

Please continue to send your news and articles to our *Newsletter Editor*, Bertrand Lefebvre. My warmest congratulations to Bertrand for editing another outstanding issue, and to Ian Percival (former secretary and newsletter editor), who checks and corrects the newsletter before it goes to the printer, i.e., on internet!

With best regards,

Thomas Servais



## International Commission on Stratigraphy

ANNUAL REPORT OF THE ORDOVICIAN  
SUBCOMMISSION FOR 2024

## TITLE OF CONSTITUENT BODY

## Subcommission on Ordovician Stratigraphy (SOS)

*Submitted by:*

T. Servais &amp; A. Ferretti

## OVERALL OBJECTIVES AND FIT WITHIN IUGS SCIENCE POLICY

The Subcommission on Ordovician Stratigraphy promotes international cooperation on all aspects of Ordovician geology, specifically stratigraphy. The goal of the Subcommission is to provide a **high-resolution geological time scale** that will be a sound base for interdisciplinary research on the global Earth system during the Ordovician Period. The work is broadly based and must include specialists in palaeontology, all subdisciplines of stratigraphy (bio-, litho-, chemo-, and magneto-stratigraphy), sedimentology, geochemistry, and tectonics. With a large network including active participants from more than 25 countries, the Subcommission thus involves much of the global geological community. Its global network involves a large set of Corresponding Members (about 600) from Academia, government institutions and industry.

Specific objectives of the Subcommission are:

- a.** To delimit and subdivide the Ordovician System (and Period) as a part of the overall ICS mission to **establish and publish a standard global stratigraphic scale**. This work aims to establish/verify boundaries (GSSPs and ASSPs), correlation of major subdivisions (Stages and Series) globally and regionally, and to periodically review the effectiveness and utility of these decisions.
- b.** To promote **regular international meetings** on all aspects of Ordovician stratigraphy, especially those devoted to clarifying stratigraphic procedures, nomenclature and methods for use in establishing a unified global time scale and to prepare correlation charts with explanatory notes.
- c.** To **encourage, promote, and support interdisciplinary research on all aspects of Ordovician stratigraphy**, also through the proposal of **joint international research projects**, addressing topics that require high-resolution, global correlation and promoting new stratigraphic methods and their integration into a multidisciplinary stratigraphic approach.

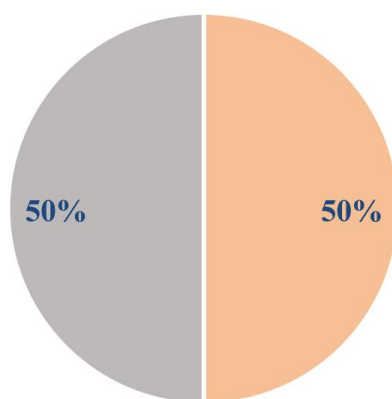


d. To promote **education in stratigraphic methods**, and the **dissemination of stratigraphic knowledge**, by the publication of Thematic Issues strictly focused on diverse aspects of Ordovician stratigraphy, through the release of an annual newsletter (*Ordovician News*) and by a web page for promoting discussions and reporting results of this research.

## ORGANIZATION – Interfaces with other international projects/groups

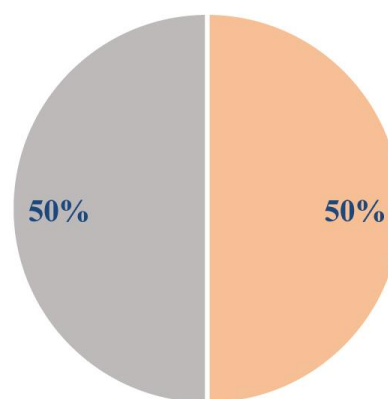
The Subcommittee on Ordovician Stratigraphy (SOS) comprises an Executive (Chair, two Vice-Chairs, a Secretary, an Internet Officer and a Newsletter Editor), plus 14 other Voting Members and 550 Corresponding Members (in the SOS, all scientists receiving, and contributing to, *Ordovician News* are considered as Corresponding Members). Since August 2024 (International Geological Congress at Busan), the Subcommittee includes, for the first time, an equal number of female and male representatives, both in the Executive (3:3) and for the other Voting Members (7:7). To our knowledge, the SOS is the first and only Subcommittee of the ICS to achieve a perfect gender parity.

**Gender Diversity  
Executive Members**



■ woman ■ man

**Gender Diversity  
Titular Members**



■ woman ■ man

The Subcommittee includes a broad national representation and coverage of key fossil groups as well as specialists in interdisciplinary fields such as geochemistry, sequence stratigraphy and sedimentology.

The Subcommittee on Ordovician Stratigraphy closely cooperates with the **IGCP 735** project “*Rocks ‘n’ ROL (Filling knowledge gaps in the Early Palaeozoic Biodiversification)*” (2021–2026). The co-leaders of IGCP 735 include four Voting Members of the SOS. The fourth Annual Meeting of IGCP 735 was held in Córdoba, Argentina, in coordination and collaboration with the Ordovician Subcommittee.

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

Other than time allowed by employers of the Executive and Voting Members to carry out their duties and attend conferences, the Subcommission receives no support from sources other than IUGS.

## CHIEF ACCOMPLISHMENTS AND PRODUCTS IN 2024

### 1. REPLACEMENT OF EXECUTIVE AND TITULAR MEMBERS OF THE SUBCOMMISSION 2024–2028

In accordance with ICS Rules, the SOS Executive started in late 2023 to prepare the replacement of the Voting Members. The objective to reach a perfect gender balance (initiated in 2020) and a best possible global coverage for the period 2024–2028 is now achieved. The number of Voting Members remained at 20. The Executive has been enlarged with an additional Vice-Chair.

### 2. INTERNATIONAL STRATIGRAPHIC ACHIEVEMENTS

The second Auxiliary Boundary Stratigraphic Section and Point (ASSP) for the base of the Ordovician System at Xiaoyangqiao (Northern China), has been accepted to be an official Standard Auxiliary Boundary Stratotype (SABS) by the Subcommission in 2023. The official inauguration of the stratotype took place on June 22–25, 2024, with about 60 scientists present.

### 3. INTERNATIONAL MEETINGS & PROJECTS

**3.1. August 2024.** The SOS was represented during the ICS business meeting at the IGC at Busan by the Vice-Chair, Zhan Renbin.

**3.2. October 2024.** The 4<sup>th</sup> Annual Meeting of the International Geoscience Programme (IGCP) 735 “*Rocks n’ ROL (Filling knowledge gaps in the Early Palaeozoic Biodiversification)*”, took place in Córdoba, Argentina, co-organised by the SOS. The international meeting will give rise to a thematic volume in the journal *Lethaia*. The new Vice-Chair Alycia Stigall chaired an official business meeting of the SOS.

**3.3. November 2024.** The 4<sup>th</sup> Virtual IGCP 735 took place in Prague, Czech Republic. Contributions to this international meeting will be presented in a special issue of the journal *Bulletin of Geosciences*.

### 4. SOS BUSINESS MEETINGS

**4.1.** Since the covid pandemic, online meetings of the titular members have been regularly organized. In 2023, two online business meetings of the titular membership (2020–2024) took place, including a video conference on December 18<sup>th</sup> 2023, with the major objective to prepare the election of the new voting membership. A first meeting of the new Subcommission voting membership (2024–2028) took place on December 5<sup>th</sup>, 2024.



4.2. The Chair and Secretary (2020–2024) met during two days at Lyon, France, in July 2024, for regular SOS business.

4.3. The new Executive (2024–2028) met during three days at Lyon, France, in September 2024 (two members being present online during part of the meeting).

4.4. The next ISOS (International Symposium on the Ordovician System) will take place in Xi'an, China, in 2027, following the decision of the SOS voting membership in early 2024.

## 5. NEWSLETTER & WEB-PAGE

The official Newsletter *Ordovician News* 41 (for 2023) was published in April 2024 and is available from the SOS webpage (<http://ordovician.stratigraphy.org/>).

## 6. PREPARATION OF GSL SPECIAL PUBLICATIONS VOLUME III

A major accomplishment of the SOS during the term 2020–2024 was the publication of two special volumes (532 and 533) of the *Geological Society Special Publication* series, covering over 1100 printed pages dedicated to a global Ordovician synthesis. After the publication on the synthesis of Ordovician rocks from Europe (volume 532) and all other parts of the world (volume 533), the major objective of the SOS for the term 2024–2028 is to publish a third volume of the *Geological Society Special Publication* series, dedicated to international correlation, including chapters on all major biostratigraphical groups, all boundary stratotypes and their correlation, etc. This third volume, strictly focused on Ordovician stratigraphy, will be co-guest-edited by Annalisa Ferretti (Secretary), David Harper (former Chair), Thomas Servais (Chair) and Wenhui Wang (Internet Officer). A first meeting of the editors took place in September 2024 in Lyon during the meeting of the Executive of the SOS.

## SUMMARY OF EXPENDITURES IN 2024

Receiver	Date	Motivation	Costs (US \$)
Thomas Servais (Chair)	July 2024	Lyon (France): business meeting Chair & Secretary ( <i>transport, accommodation, food</i> )	750
Thomas Servais (Chair)	September 2024	Lyon (France): business meeting new SOS Executive + Editors meeting <i>Geol. Soc. Special Publication</i> ( <i>transport, accommodation, food</i> )	1000
Annalisa Ferretti (Secretary)	September 2024	Lyon (France): business meeting new SOS Executive + Editors meeting <i>Geol. Soc. Special Publication</i> ( <i>transport, accommodation, food</i> )	1000
Wenhui Wang (Internet Officer)	September 2024	Lyon (France): business meeting new SOS Executive + Editors meeting <i>Geol. Soc. Special Publication</i> ( <i>transport, accommodation, food</i> )	2250
Alycia Stigall (Vice Chair)	October 2024	Córdoba (Argentina): business meeting at IGCP Annual Meeting ( <i>transport, accommodation, food</i> )	1200
Bertrand Lefebvre (Newsletter Editor)	October 2024	Córdoba (Argentina): business meeting at IGCP Annual Meeting ( <i>transport, accommodation, food</i> )	1800
<b>TOTAL</b>			<b>8000</b>

## SUMMARY OF INCOME IN 2024

**8000 (US \$).**

## BUDGET REQUESTED FROM ICS FOR 2025

**9000 (US \$)** detailed as follows:

Receiver	Date	Motivation	Costs (US \$)
Thomas Servais (Chair)	March 2025	Lyon (France): business meeting Chair & Newsletter Editor ( <i>transport, accommodation, food</i> )	1000
Annalisa Ferretti (Secretary)	June 2025	Lille (France): business meeting SOS Executive + Editors meeting <i>Geol. Soc. Special Publication</i> ( <i>transport, accommodation, food</i> )	1000
Wenhui Wang (Internet Officer)	June 2025	Lille (France): business meeting SOS Executive + Editors meeting <i>Geol. Soc. Special Publication</i> ( <i>transport, accommodation, food</i> )	2000
Bertrand Lefebvre (Newsletter Editor)	June 2025	Lille (France): business meeting SOS Executive + Editors meeting <i>Geol. Soc. Special Publication</i> ( <i>transport, accommodation, food</i> )	1000
Thomas Servais (Chair)	October 2025	Changsha (China): business meeting at IGCP Annual Meeting ( <i>transport, accommodation, food</i> )	2000
Alycia Stigall (Vice Chair)	October 2025	Changsha (China): business meeting at IGCP Annual Meeting ( <i>transport, accommodation, food</i> )	2000
<b>TOTAL</b>			<b>9000</b>

**Potential funding sources external to IUGS:** None. Subcommittee officers are mainly supported by their research projects for most of their activities.

## WORK PLAN, CRITICAL MILESTONES, ANTICIPATED RESULTS AND COMMUNICATIONS TO BE ACHIEVED IN 2025

## 1. THIRD GSL SPECIAL PUBLICATION

Following the successful publication of two volumes (532 and 533) of the *Geological Society Special Publication* series, published as a main achievement of the SOS (2020–2024) and presented at STRATI2023 and at the International Symposium on the Ordovician System (ISOS) at Tallinn, Estonia, in July 2023, a third volume is planned by the SOS (2024–2028) to be published for the next ISOS in 2027. The “trilogy” aims to fully cover the knowledge on the Ordovician Period in a *continuum* between the SOS 2020–2024 and the SOS 2024–2028. While the first two GSL publications were focusing on the regional occurrences of the Ordovician (respectively 520 + 618 pp., 18 + 20 chapters, 99 + 105 authors), the third publication will be strictly related to Ordovician stratigraphy, so to revise all stratigraphic proxies and the validity of current stratigraphic boundaries. All major Ordovician specialists will be involved. After an initial meeting of the co-guest-editors in September 2024, the proposal will be launched by the Ordovician Subcommittee in early 2025 in order to get the volume released in late 2026 (online) and in mid-2027 (print). The official presentation of the third GSL Ordovician Special Publication is scheduled at the 5<sup>th</sup> International Congress on

Stratigraphy STRATI2027. An editorial meeting is scheduled at Lille (France) in June 2025 (including a possible business meeting at the Geological Society, London (UK)).

## 2. INTERNATIONAL MEETINGS & PROJECTS

**2.1.** April 2025. 5<sup>th</sup> Annual regional IGCP 735 (“*Rocks and the Rise of Ordovician Life - Filling Knowledge Gaps in the Early Paleozoic Biodiversification*”) meeting and field excursion in Kitab Natural Reserve. Shakhrisabz, Uzbekistan: Advances in studies of the Ordovician paleontology of Central Asia and the Middle East: faunal turnovers, biodiversity spots, migration pathways.

**2.2.** October 2025. Closing meeting of the IGCP 735 organized by Central South University, Changsha (China); field excursions to the Ordovician of Hunan Province. Under the auspices of the SOS.

**2.3.** Date to be confirmed. 4<sup>th</sup> Virtual Annual IGCP 735 meeting in Bogotá (Columbia).

**2.4.** Laying the groundwork for the design of a new International Geoscience Programme (IGCP) proposal. To be discussed among the titular membership of the SOS during 2025.

## 3. SOS MEETINGS & NEWSLETTER & WEB-PAGE

Online meetings of the Titular Members and the Executive officers will be regularly organized. In 2025, a business meeting of the Executive officers is planned in Lille (June 2025) to schedule the state of advancement of main goals of the Subcommission. Data will be collected among all SOS Members in order to release the Newsletter *Ordovician News* 42 (for 2024) in March 2025 at the SOS webpage (<http://ordovician.stratigraphy.org/>). A sound reorganization of the SOS webpage to better illustrate current activities, promote active participation of all SOS Members, and create public outreach to non-Ordovician people (especially young people) is planned with the introduction of a new Internet Officer.

## OBJECTIVES AND WORK PLAN FOR THE PERIOD 2024–2028

As indicated above, a major achievement of the previous period (2020–2024) was the publication of the two first volumes of the *A Global Synthesis of the Ordovician System*, with a third volume being planned for the period 2024–2028.

All Ordovician GSSPs have been ratified during one decade, from 1997 to 2006, i.e., about 20 years ago. However, now is the time to think about the creation of possible Substages, but more importantly, about the correlation of the GSSPs at a global level. For further advancement and increased precision in correlation we need to focus on regional stratigraphy, regional scales and regional chronostratigraphic schemes. We recognize that many biotic, chemical and physical changes are not always synchronous, and that local and regional signals may vary from trends evident in global compilations. This is especially true for the Ordovician, where strong provincialism can mask biostratigraphic-based correlation. **Ordovician regional stratigraphy and geology** will therefore be the main goal for the period 2024–2028. This huge work task can be partly achieved by bringing together the community with the project of the special publication related to the topic.



To compile and publish an updated summary on Ordovician regional stratigraphy and geology, we therefore launch the third volume of *A Global Synthesis of the Ordovician System*. Special attention is paid to precise correlation of the Ordovician depositional sequences and sea-level curves as well as stable isotope and regional biodiversity curves. Chapters will include a review of biozonation schemes of all major fossil groups, as well as review papers on all GSSPs and their global correlation.

**APPENDIX – Current Executive Officers and Voting Members (2024–2028)  
& contact details**

**CURRENT EXECUTIVE OFFICERS**

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**GEOGRAPHIC PROVENANCE OF THE TITULAR MEMBERS**



## NEWS AND VIEWS

### The Xiaoyangqiao SABS protective and sign monument erected in Jiangyuan, Jilin, North China



On June 23, 2024 more than 60 experts, scholars from home and abroad and leaders from China Geological Survey, Chinese Commission on Stratigraphy, Jilin Department of Natural Resources and Baishan City and Jiangyuan Region gathered at Xiaoyangqiao section to unveil the protective and sign monument for the global standard auxiliary boundary stratotype (SABS) of the base boundary of the Ordovician System. The Xiaoyangqiao SABS section ratified by the SOS represents facies of shelf-slope transition, and thus provides a critical connection and correlation between successions of the shallow-water carbonate platform (e.g., Lawson Cove

ASSP, USA) and deep lower slope facies (e.g., Green Point GSSP, Canada). This new SABS equivalent to GSSP has been highly valued by local governments and farmers, not only because it is a link connecting the global Cambrian and Ordovician boundaries to precise subdivision and correlation, but also because it is a landmark for developing rural geoscience culture and rural tourism. Residents from the local area and the surrounding area came to take a group photo in front of this monument, hoping to leave an eternal love. “One day of Xiaoyangqiao for 486 million years of Earth” as local farmer said.

*Xiaofeng WANG*



## New publications of interest to Ordovician specialists

Australasian Palaeontologists has recently published two *Australasian Palaeontological Memoirs* that will be of interest to readers of *Ordovician News*. Details are as follows:

**APM 56** contains two related papers documenting Early Ordovician conodont systematics and biostratigraphy, firstly of the Horn Valley Siltstone in the Amadeus Basin of central Australia, and secondly of the contemporaneous Nambeet and lower Willara formations of the Canning Basin in Western Australia. The latter paper also includes descriptions of the microbrachiopod linguliformean fauna of these Canning Basin units, revising a previous publication on these.

**APM 57** is the latest Memoir in the popular Cambro–Ordovician Studies series (no. VII) and includes 20 separate papers on a variety of topics, written by many international specialists.

**Cambrian**-focussed papers include:

1. A new integrated lower Cambrian chronostratigraphy for the Normanville Group, eastern Stansbury Basin, with definition of the oldest small shelly fossil zones in South Australia;
2. Identification of the Cambrian Series 2 – Miaolingian boundary, western Stansbury Basin, South Australia using multiproxy chronostratigraphy;
3. Cambrian agnostids, trilobites and bradoriids from Pacific Oil & Gas Hunt No. 1 well, southern Georgina Basin, Northern Territory;
4. A new mickwitziid-like brachiopod from the early Cambrian (Series 2, Stage 4) of the Bothnian Sea;
5. Miaolingian (Cambrian) agnostids and trilobites from the Cobb Valley area, South Island, New Zealand;
6. Trilobites from the Ehmaniella Zone (Cambrian, upper Wuliuan) of Mendoza, western Argentina;
7. The Cambrian (Drumian; Marjuman) trilobite *Onchonotopsis* Rasetti, 1946 and related genera from the Cow Head Group of western Newfoundland;
8. The Furongian (upper Cambrian) Alum Shale Formation in Dagbrottet, Mt Kinnekulle, Västergötland, Sweden: Trilobite biostratigraphy and biofacies;
9. Late Furongian (Cambrian) agnostids and trilobites from the Rocky Boat Inlet-Surprise Bay Area, southern Tasmania;
10. Biostratigraphy, morphology, and taxonomy of the Late Cambrian conodonts *Cordylodus andresi* Viira and Sergeyeva in Kaljo et al., 1986, *Cordylodus proavus* Müller, 1959, and associated taxa;

Topics spanning the **Cambrian – Ordovician boundary** include:

11. A review of the Cambro-Ordovician trilobite biostratigraphy of the Warburton Basin, South Australia;
12. Conodont, graptolite and  $C_{carb}$  isotope based graphic correlation of the late Cambrian – Early Ordovician formations of Canada, China, Norway and USA;
13. Late Furongian arthropod and conodont faunas, and a basal Ibexian (uppermost Cambrian Stage 10) negative isotopic excursion, in the Jones Ridge Limestone of Alaska;

Papers concentrating on **Ordovician faunas** are:

14. Trilobite biostratigraphy of the Skullrockian, western US;
15. A review of Early Ordovician (Tremadocian) trilobites from Gerd-Kuh, vicinity of Damghan, northern Iran;
16. Revision of two *Prioniodus* species (Conodonta) from the Early Ordovician Emanuel Formation of the Canning Basin, Western Australia;
17. *Pseudopholidops* – the earliest craniopside (Brachiopoda, Craniiformea): an extinction survivor;
18. Reassessment of the Late Ordovician brachiopods from the Zeravshan Range, Uzbekistan;
19. Upper Ordovician (Sandbian–Katian) species of the trilobite *Calyptaulax* Cooper, 1930 (Pterygomtopidae) from the central United States and Canada;
20. Systematics and evolution of agetolitid tabulate corals.

Printed copies of these volumes will be available for sale from the Geological Society of Australia in Sydney, Australia. As the Society has recently moved offices and is in the process of updating and securing its electronic sales procedures, please direct initial enquiries about ordering these and earlier *Australasian Palaeontological Memoirs* to the Chief Editor (Ian Percival) at [ianpercival1952@gmail.com](mailto:ianpercival1952@gmail.com)

*Ian Percival*





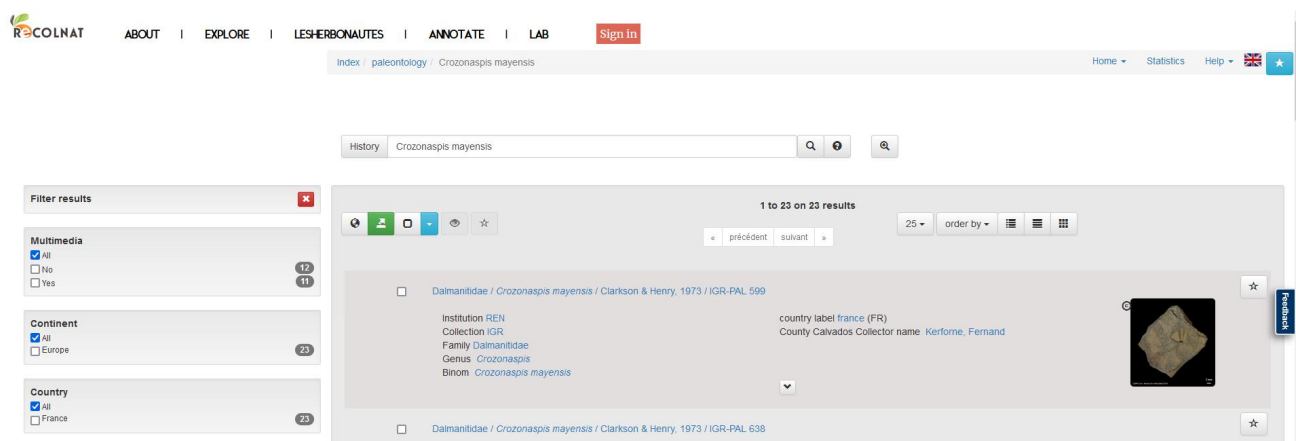
## Recolnat.fr, an online website to access French palaeontological collections

Trans'Tyfpal was a program deployed in the 1990s to digitize types and figured palaeontological specimens in France. The project evolved toward the digitization of all natural history collections with the emergence of “e-Recolnat” in 2013. Since 2020, the Recolnat program constitutes the national network of natural history collections, identified as a “Groupement d’Intérêt Scientifique” (GIS) (literally: “Network of Scientific Interest”). Recolnat is also the French hub of the European infrastructure DISSCo (“Distributed Systems of Scientific Collections”), which aims to make all European natural history collections accessible online.

French collections of natural history contain nearly 120 million specimens, i.e. ~5% of the estimated global collections. The database currently comprises nearly 11 million objects from 92 different institutions. In France, geological collections are estimated at around 15 million items. The digitized collections are available at: <https://explore.recolnat.org>

All researchers are invited to explore this dataset. It provides all useful information about specimens: species name, stratigraphic and geographic data, registration number, collection, deposit institution and photographs of the specimens. In 2025, the database will evolve to include mineralogical and geological specimens.

*Damien Gendry*



*Result of the database for Crozonaspis mayensis Clarkson & Henry, 1973*





## REPORTS OF RECENT CONFERENCES

6<sup>th</sup> International Conference of Palaeogeography  
Nanjing (China), May 17–20, 2024



The 6<sup>th</sup> International Conference of Palaeogeography was organized in Nanjing (China). ICPs are the official meetings of the International Commission on Palaeogeography, and the major event for stratigraphers from different countries, disciplines, and generations. The 6<sup>th</sup> edition included three days of indoor sessions in Nanjing and several field excursions in neighbouring provinces.

The conference drew 796 participants from 22 countries in Asia, Europe, North and South America, Africa, and Oceania, including China, Thailand, India, Korea, Iran, Pakistan, Malaysia, Bangladesh, UK, Russia, France, Germany, Netherlands, Italy, Ireland, Romania, USA, Canada, Argentina, South Africa, Senegal, and Australia. The participants were from over 200 academic and industrial institutions, including colleges or universities, research institutes, energy companies, equipment and device companies, and publishing houses.

The four day conference encompassed all areas and branches of palaeogeography and its related disciplines, and focused on the theme “Life Evolution, Palaeogeography, and Resources”. Topics including biogeography, lithofacies, palaeogeography, tectonic palaeogeography, global palaeogeographic reconstruction, resource palaeogeography, and Quaternary palaeogeography were addressed in 42 scientific sessions and two workshops. The conference aimed to promote collaborations and exchanges of ideas across different research directions within the international palaeogeographic community.



*Group photo of the 6<sup>th</sup> International Conference on Palaeogeography (© Fang 2024)*

Six invited plenary keynote speakers presented their latest research. In addition to the plenary talks, a total of 794 presentations were delivered, including 566 oral communications (91 of which were keynotes) and 228 posters. Notably, over 50% of the presentations were made by graduate students, including 295 oral communications and 117 posters, highlighting the enthusiasm, energy and innovative studies of young generations in palaeogeography and reflecting the vitality of the discipline.



*The six invited plenary speakers. A, Long-De Sun, National Key Laboratory of Continental Shale Oil (PetroChina), China. B, David Harper, Durham University, UK, and ICS. C, Carlos Zavala, Universidad Nacional del Sur, Argentina. D, Markus Aretz, Université Toulouse III – Paul Sabatier, France. E, Jun Wang, Nanjing Institute of Geology and Palaeontology, Chinese Academy of Sciences, China. F, Santanu Baerjee Indian Institute of Technology Bombay, India (© Fang 2024)*



The **IGCP 735** organized the thematic session T2-2 "**Carbonate platforms in Asia**" (in conjunction with IGCP project 700). This session included eight oral presentations with one keynote talk by the IGCP 735 co-leader Wenhui Wang.

The ICP6 five-day post-conference field trip (F2) was focusing on Neoproterozoic–Palaeozoic successions and fossil records in the Middle–Upper Yangtze Region, South China (21–25 June) (see figure below).

Wenhui WANG



*Post-conference field trip (F2): Neoproterozoic–Palaeozoic successions and fossil records in the Middle–Upper Yangtze Region, South China. A, at the Wangjiawan North section (GSSP for the base of the Hirnantian Stage of Ordovician, and the Ordovician–Silurian boundary), Yichang, Hubei Province. B, participants investigating Shibantan Biota (Ediacaran), Yichang, Hubei Province. C, at the Luoyixi section (GSSP for the base of the Guzhangian Stage, Cambrian), Guzhang, Hunan Province. D, participants examining Liexi Fauna (Ordovician), Yongshun, Hunan Province (© Fang 2024).*

Photographs courtesy of Xiang FANG, extracted from:

FANG X. 2024. The 6<sup>th</sup> International Conference of Palaeogeography held in Nanjing, China. *Mesozoic*, 1(2), 117–120. doi: [10.11646/mesozoic.1.2.2](https://doi.org/10.11646/mesozoic.1.2.2).

### Fossils and Palaeozoic Palaeogeography & Biogeography Celebrating the Career of Robin Cocks Oslo (Norway), June 20, 2024

A day dedicated to Robin Cocks was organized June 20<sup>th</sup> at the Academy of Sciences of Norway. We warmly thank the organiser of the meeting, Prof. Trond Torsvik (University of Oslo) to have welcomed, and sponsored, the group of speakers and guests.

As stated during the meeting and on the website related to it (<https://www.mn.uio.no/phab/english/news-and-events/events/conferences-and-seminars/fossils-and-palaeozoic.html>) some of his closest collaborators (Richard Fortey, Lars Holmer & Leonid Popov) mentioned that « Robin Cocks was arguably the world's most distinguished student of brachiopods, and his death on February 5, 2023, deprives the scientific world of a lifetime of expertise and scholarship. During his many years at the Natural History Museum, he rose to become Keeper of Palaeontology (1986–1998), but never lost his enthusiasm for science – indeed, he was still working on new papers a few weeks before he died. It seems unlikely that his equal will be seen again ».

The celebration dedicated to Robin Cocks was organized June 20<sup>th</sup> at the Academy of Sciences of Norway. The meeting started with a welcome reception on the evening of June 19<sup>th</sup>, followed by a full day of scientific talks, dedicated to Robin Cocks, with the following programme :

08:30–09:00 Doors open and coffee

09:00–09:15 **Trond Torsvik**: Welcome

09:15–09:45 **Richard Fortey**: EARLY DAYS

09:45–10:15 **David Harper**: A brief history of studies on Early Paleozoic brachiopod biogeography

10:15–10:45 **Lars Holmer**: Phylogeny of Cambrian Brachiopods

*10:45–11:15 Coffee break*

11:15–11:45 **Leonid Popov**: Ordovician and Silurian brachiopods of Iran: A "wonderful" life between China and Mediterranean

11:45–12:15 **Morten Smelror**: Cryophilic polychaetes at the subtropical margin of the Iapetus Ocean: Evidence for equatorial cold-water upwelling and its significance to Ordovician oceanic circulation model

12:15–12:45 **Hans Arne Nakrem**: Biogeography and distribution of Silurian bryozoans

*13:00–14:00 Lunch*

14:00–14:30 **Trond Torsvik**: LATE CAREER

14:30–15:00 **Thomas Servais**: From "faunal evidence for oceanic separations in the Palaeozoic of Britain" to the modelling of macroecological patterns in the Cambrian and Ordovician

15:00–15:30 **Jan Ove Ebbestad**: 20 years in the making (but who counts!): The Late Ordovician biota of the Taimyr Peninsula, Arctic Russia

15:30–16:00 **Elizabeth Dowding**: The fossil: data for Earth-life evolution

*16:00–16:30 Coffee break*





*welcome address by Trond Torsvik*

16:30–17:00 **Mathew Domeier**: Palaeozoic Paleogeography: From Continental Drift to Plate Tectonics

17:00–17:30 **Chloé Marcilly**: Mapping exposed land: Climate and Global Sea-level Applications

17:30–18:00 **Annique van der Boon**: The Earth's magnetic field and Planetary Habitability

The scientific sessions were followed by a drinks reception and a dinner at the Academy, where a few close colleagues and friends, including Richard Fortey, one of Robin's closest collaborators, presented short speeches. A few members of the family of Robin Cocks were present, and in the name of the family, Robin's daughter Zoe Cocks, thanked the organizers and the participants of the event.

*Thomas Servais*



*Robin's daughter, Zoe Cocks, thanking the organizers and the participants at the dinner*



### 9<sup>th</sup> International Brachiopod Congress St. Catharines (Canada), June 24–27, 2024

This conference brought together biologists and geologists focused on understanding the biology, geochemistry, and geologic utility of brachiopods. Since brachiopods dominate many Palaeozoic benthic communities, numerous talks were about Palaeozoic brachiopods and several on Carboniferous and Permian brachiopods. Another focus of the meeting was on using brachiopod shell material for geochemical proxies, which is highly relevant for the IGCP 735. Previous editions of the International Brachiopod Congress were held in France (1985), New Zealand (1990), Canada (1995), UK (2000), Denmark (2005), Australia (2010), China (2015), and Italy (2018); this 9<sup>th</sup> IBC should have been held in 2021 but pandemic and post-pandemic problems postponed the congress.

Over 50 participants from 13 nations (Canada, China, Denmark, Estonia, France, Germany, Hungary, Italy, Japan, Poland, Sweden, UK, USA) gathered on the Main Campus of Brock University in St. Catharines and Niagara Falls, Canada. The conference included three days of scientific presentations including two workshops, three keynote talks, and 46 additional presentations.

The congress was followed by a fantastic field trip to Friday Harbor, San Juan Island, Washington, U.S.A. (June 28–July 2, 2024) to sample living brachiopods, as well as other benthic invertebrates. This was an unparalleled experience that allowed delegates to sample in-situ biotic archives and eventually test their fidelity as tools for palaeoclimatic and palaeoenvironmental reconstructions in the geological past. This is particularly important for Ordovician studies, as brachiopods are one of the best and most abundant archive of proxies in this time interval. We still have so much to learn from the Present to understand the geologic Past.

An edited special volume of *Palaeogeography, Palaeoclimatology, Palaeoecology* will be published in 2025 with papers based on talks in this meeting.

*Alycia Stigall*



### 11<sup>th</sup> Baltic Stratigraphic Conference Tartu (Estonia), August 19–25, 2024



A regional IGCP 735 meeting, the 11<sup>th</sup> Baltic Stratigraphical Conference, took place in Estonia on August 19-25, 2024. The number of participants reached 40, from 10 countries: Estonia, Latvia, Lithuania, Poland, Czechia, Sweden, Denmark, Germany, UK, and USA. The meeting started with scientific sessions in Tartu, followed by a field trip to Ordovician and Silurian outcrops and then further talks and a drill core workshop in the Arbavere core study facility of the Geological Survey of Estonia. The programme included also a business meeting of the Baltic Stratigraphical Association. A longer post-conference excursion focused this time mainly on the Silurian of western and central Estonia.

The scientific part of the meeting was focused on the Palaeozoic of the Baltic region and a third of the talks and posters were devoted to the Ordovician, from regional stratigraphy to geochemistry, palaeontology and biotic turnovers. The conference volume with abstracts and field guide is available for download at <https://stratigraafia.info/11bsc>

The next Baltic regional geological-stratigraphical meeting will be held in Riga, Latvia, 2027.

*Olle Hints & Tõnu Meidla*



*Participants to the 11<sup>th</sup> Baltic Stratigraphical Conference in Tartu.  
(courtesy of R. Männik, 19.08.2024)*





*Participants to the 11<sup>th</sup> Baltic Stratigraphical Conference Mid-Conference Field Excursion in NW Estonia. (courtesy of O. Hints, 20.08.2024)*



*Participants to the 11<sup>th</sup> Baltic Stratigraphical Conference studying Baltic Ordovician succession in the Arbavere core facility. (courtesy of O. Hints, 21.08.2024)*

## 37<sup>th</sup> International Geological Congress Busan (Korea), August 25–31, 2024



IGC  
2024  
The 37<sup>th</sup> International Geological  
Congress 2024



IUGS  
International Union of Geological Sciences

Since 1878 and the very first International Geological Congress (IGC) in Paris (France), IGCs are the major event for geologists from different countries, disciplines, and generations. Since the early 1960s, IGCs are also the official meetings of the International Union of Geological Sciences (IUGS). The 37<sup>th</sup> International Geological Congress (IGC), held in Busan from August 25<sup>th</sup> to 31<sup>st</sup>, 2024, prominently featured Topic 11 ("Palaeontology and Palaeoanthropology") with a strong focus on current trends, discoveries, and challenges in the field. IGC37 included six days of indoor sessions in Busan and several field excursions in Korea. The meeting brought together over 6,000 scientists from all over the world.

The sessions covered diverse palaeontological themes, from evolutionary biology to mass extinction events, and highlighted significant fossil records contributing to our understanding of Earth's ancient life. Talks on the Cambrian Explosion and co-evolution of environment and functional morphology and biomechanics in invertebrates were notable for shedding light on biodiversity fluctuations over millions of years. Key discussions also revolved around recent technological advancements, including digitization techniques and molecular palaeobiology, which have enhanced the analysis of fossils and ancient DNA. Through these studies, palaeontology continues to provide essential data to understand contemporary environmental challenges. Collaborative projects between institutions were also highlighted, with researchers showcasing global efforts to preserve palaeontological heritage and digitize collections for future generations.



IGCP 735 organized the two thematic sessions entitled "Functional morphology and biomechanics in invertebrates: new ecological and evolutionary perspectives" (T11-S5) and "Early Palaeozoic faunas and palaeobiogeography of NE peri-Gondwana" (T11-S6). Moreover, in session T35, Wenhui WANG, one of the co-leaders of IGCP 735, gave an oral presentation on the aims and achievements of this project. Five participants received a financial support from IGCP 735 and gave oral presentations: Zhongyang CHEN (China), Xiang FANG (China), Shijia GAO (China), Ahmed RADWAN (Egypt), and Jiaqi SONG (China). The post-conference excursion Po-K-05 of IGC37 in the Taebaeksan Basin of Korea (September 1–4, 2024) was also a regular field meeting of IGCP735.

*Wenhui WANG*



### 4<sup>th</sup> annual meeting of IGCP 735 Córdoba (Argentina), October 14–21, 2024



The 4<sup>th</sup> Annual Meeting of IGCP 735 took place in South America, where the Argentine colleagues and friends organized a fantastic conference with scientific sessions at the CONICET conference room and on the campus from the 14<sup>th</sup> through 16<sup>th</sup> and a fabulous post-conference field trip from 17<sup>th</sup> through 21<sup>st</sup> of October to famous sections in the Argentine Precordillera southwest of Córdoba (Locations and geological highlights are summarized after the conference report by Pat Dickerson, who enthusiastically attended this trip).

The conference was well-organised by our dear friends and colleagues Beatriz Waisfeld, María José Salas, Marcelo Carrera, Fernanda Serra, N. Emilio Vaccari, Gustavo Voldman, Ninon Allaire, Damián Aquino, Diego Balseiro, Neal Handkamer, Nexxys Herrera Sánchez, Fernando Lavié, Gerardo Lo Valvo, Jesús María Dorado, and Enrique Randolfe from the Centro de Investigaciones en Ciencias de la Tierra (CICTERRA) representing part of the [Consejo de Investigaciones Científicas y Técnicas \(CONICET\)](#) at the Facultad de Ciencias Exactas, Físicas y Naturales (FCEyN) of the Universidad Nacional de Córdoba.



*Group photograph in front of the Conference Building.  
(courtesy of Gustavo Voldman)*

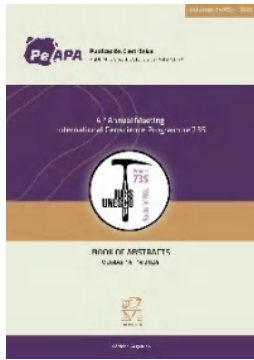


## REPORTS OF RECENT CONFERENCES

The conference brought together 48 participants and specialists involved in Ordovician studies from different countries (Argentina, Bolivia, Brazil, Canada, France, Germany, India, South Korea, Portugal, Russia, Spain, and USA).

Full information is available on the Cordoba annual meeting website:  
<https://sites.google.com/unc.edu.ar/igcp735annualmeeting/home?authuser=0>:  
and on the IGCP 736 calendar of meeting: <https://rocksnrol.wordpress.com/meetings>





Very interesting Ordovician research results from different palaeocontinents were presented in 18 oral presentations and 18 posters. We got a nice provisional abstract volume at the meeting, but the corresponding texts have also officially been published in a volume of PEAPA (*Publicación Electrónica de la Asociación Palaeontológica Argentina*, Vol. 24, Núm. 5 (R), doi: 10.5710/PEAPA.03.12.2024.517:

<https://peapaleontologica.org.ar/index.php/peapa/article/view/524/873>

A special issue of *Lethaia* - “*The Rise of Ordovician Life: Insights into Ecosystem Changes*” will be published as a proceedings volume of the Córdoba Meeting. The deadline for manuscripts is in early summer 2025, guest editors are Fernanda Serra (CICTERRA, Córdoba, Argentina), Fernando Lavié (CICTERRA, Córdoba, Argentina), Luis Buatois (University of Saskatchewan, Canada), and Beatriz Waisfeld (CICTERRA, Córdoba, Argentina).

The Scientific sessions in the auditorium of the CONICET on the UNC campus included 18 interesting talks plus 18 poster presentations on various Ordovician topics (see the PEAPA abstract volume), and four key notes given by:

- (1) **Claudia Rubinstein** (IANIGLA, Mendoza, Argentina) on "Organic-walled phytoplankton and spores: Helping to fill knowledge gaps in the Ordovician Life Evolution";
- (2) **Jeong-Hyung Lee** (Chungnam National University, Daejeon, South Korea) about the "Microbial to metazoan-dominated reef transition in the Early Palaeozoic";
- (3) **Oliver Lehnert** (Geozentrum Nordbayern, FAU Erlangen-Nürnberg, Germany) presenting an expanded version of the talk announced with his co-authors on "A Baltoscandian view of the GOBE radiations delayed by a local short-term extinction during the Darriwilian shift into the Ordovician Icehouse";
- (4) **Alycia L. Stigall** (University of Tennessee, Knoxville, USA) "Linking Earth-System Change with speciation and dispersal processes during the Great Ordovician Biodiversification Event (GOBE) and Richmondian Invasion".

Three very interesting workshops were organized by:

- (1) "Morphological databases as powerful tools for exploring diversification dynamics in the fossil record" by **Fernanda Serra** and **Diego Balseiro** ;
- (2) "Early Paleozoic evolution of marine faunas, fossil preservation, and new trends in high resolution stratigraphy" by **Blanca A. Toro**, **Jörg Maletz** and **Nexxys Herrera Sánchez**;
- (3) "From individuals to ecosystems: Animal-substrate interactions in the Early Paleozoic" by **Gabriela Mángano** and **Luis Buatois**.



## REPORTS OF RECENT CONFERENCES

During the fabulous meeting we enjoyed wonderful social events in the evenings. Lunch breaks were organized in one place, so that discussions after morning sessions could go on. We were spoiled with nice food and beverages at coffee breaks and during the poster session and with all the hospitality of the large Argentine team everybody could feel like being part of a big and nice family.

The first evening of the meeting was celebrated with great asado (choripan & grilled meats, chimichurri, fresh salsas). The excellent chorizos and the matambre were delivered from the family butchery of Emilio Vaccari, prepared by his cousins and young UNC colleagues, and served with fine red wines (some fantastic Malbec) from the province of Mendoza.





## REPORTS OF RECENT CONFERENCES

On the 15<sup>th</sup> of October in the late evening, we had an excellent Gala Dinner in the Bar of the oldest Theater of Argentina in the Patio Olmos (1891, Teatro Libertador Gral. San Martín, Av. Velez Sarsfield 365). Delicious food and good company, the best way to celebrate this wonderful, family-type Ordovician Meeting.



The afternoon before the post-meeting field trip Gabriela Mangano and Luis Buatois (UNC, Argentina & University of Saskatchewan, Canada) organized a guided tour to the treasures of the old Jesuitan library of the Universidad Nacional de Córdoba and led it together with a lady from the University library. By the way, Gabriela was responsible that the Córdoba Meeting finally took place because she advertised this annual IGCP meeting very well in summer 2024 at the ISOS in Tallinn (Estonia) that there was immediately interest from international colleagues to come to Argentina. Founded by the Fathers of the Society of Jesus, the Main Library of the Colegio Máximo de Córdoba 17<sup>th</sup> and 18<sup>th</sup> centuries became the most important bibliographical center in the area of present-day Argentina. The collection is an extraordinary treasure of the oldest university in the country and since 2000 the library is part of the UNESCO World Heritage Site "Manzana Jesuítica". After the interesting visit of this historic part of the University in the afternoon, we had a very interesting wine tasting party in the evening at the Centro Cultural der Universidad Nacional de Córdoba.



**Queridos amigos argentinos, a todos nos gustaría  
agradecerles mucho por el maravilloso tiempo en Córdoba,  
la conferencia fantástica y su amorosa hospitalidad !!  
Un monton de abrazos !!!**





## REPORTS OF RECENT CONFERENCES



*Oliver Lehnert &  
Patricia Wood Dickerson*







## The Ordovician of the Argentine Precordillera - From Tropical Carbonates to Glacio-Marine Diamictites

4<sup>th</sup> IGCP 735 Fourth Annual Meeting  
Field Trip, October 17-21, 2024

Leaders: Marcello Carrera (Universidad Nacional de Córdoba),  
Fernando Cañas (Universidad Nacional de Río Cuarto, Córdoba),  
Susana Heredia (Universidad Nacional de San Juan), and Juan  
Jose Rustan (Universidad Nacional de Córdoba)

Principal focus of this excellent excursion was on the biostratigraphy and lithostratigraphy of the upper Cambrian through mid-Ordovician platform carbonate strata, which are well preserved and exposed in the Argentine Precordillera. Completing the Ordovician succession were Upper Ordovician (Hirnantian) glaciomarine and postglacial deposits. Trip localities are discussed here in order of decreasing age, culminating with noteworthy post-Ordovician features observed en route: Triassic rift basin strata, and the fault responsible for the devastating 1944 San Juan earthquake.

We had quite an international group of 17 participants on the field excursion to the Argentine Precordillera:

Mariana Vilela de Andrade (Brazil), Galina Anekeeva (Russia), Luis Alberto Buatois (Canada; nationality Argentina), Marcela Cichowolski (Argentina), Patricia Wood Dickerson (USA), David Howard Evans (Great Britain, UK), Noel Hernández Gómez (Venezuela; nat. USA), Sara Romero Gómez (Spain), Neal Handkamer (Argentina, nat. Canada), Jeong-Hyun Lee (South Korea), Maria Gabriela Mangano (Canada; nationality Argentina), Andres Muñoz Navia (Bolivia), Michael Kurth (Germany), Corinne Soucy (Canada), Alycia L. Stigall (USA), Gerardo Andres Lo Valvo (Argentina), and Carolina Zabini (Brazil).

### *Upper Cambrian – Mid-Ordovician*



**Cerro La Silla**, platform carbonate rocks: La Flecha, La Silla, lower San Juan Fms. Important fossil horizons A-E. (photo source, Fernando Cañas)

Biota: Trilobites, stromatolites, gastropods, nautiloids, Calathium reefs, conodonts, brachiopods, sponges, microbialites



**Los Túneles locality**, carbonate mega-olistolith (mid-Cambrian) within Middle Ordovician Los Sombreros Fm (Darriwilian).

Biota: Trilobites, graptolites in olistolith.

**Rio Jachal section**, Los Sombreros: quartzose turbidites and conglomerates, shales, hemipelagites. Los Sombreros contains lower Cambrian through L. Ordovician clasts.

Biota: Conodonts.

### *Middle - Upper Ordovician*

**Sierra de la Invernada**. Siliciclastics to mixed carbonate-clastic sediments: sandy turbidites and shales of Sierra de la Invernada Fm (Katian-Sandbian).

Biota: Rich graptolite fauna.



**Cuesta del Viento area**, Alcaparosa Fm

Grey and black shales (middle ground of photo).

Biota: Graptolites in black shales.

Formation includes columnar-jointed basalt, mafic and ultramafic lavas, intrusions; interpreted as part of an ophiolite complex. Andean Cordillera Frontal reflected in lake.



### *Upper Ordovician*

Crowning the Ordovician section are the Hirnantian diamictites of the Don Braulio Fm in the Villicum Range, products of Gondwanan glaciation.



**Sierra Villicum.** Don Braulio Fm glaciomarine diamictite. Angular dropstones and reworked rounded clasts in a dark marine shale matrix containing brachiopods, pelecypods and bryozoa. Overlying the dark gray diamictite are postglacial ochre/orange mudstones and ferriferous continental sandstones of the upper Don Braulio Fm.

### *Triassic*

En route from Córdoba to the upper Cambrian through mid-Ordovician carbonate platform strata at Cerro La Silla, the route traversed the varicolored siliciclastics and pyroclastics of the Upper Triassic Ischigualasto Fm.



The thick sequence (to >1,000 m) was deposited in the Ischigualasto continental rift basin. The well-preserved vertebrate fauna includes some of the earliest undisputed dinosaur remains, as well as early crocodiles and primitive mammals.



### *1944 San Juan Earthquake Fault*



**La Laja fault.** Outcrop view of the La Laja thrust fault, which was responsible for the 1944 San Juan earthquake:  $M=7$ , focal depth  $<12$  km. Mass to left of fault plane was thrust to right; note bedding discordance.

**La Laja scarp.** Along-strike view of the 6- to 8-km-long scarp produced by the quake. Maximum east-side-up vertical displacement of Quaternary colluvium was 30 cm.

### *Summary*

The thoroughly knowledgeable leaders conveyed deep expertise in the bio- and lithostratigraphy, as well as the tectonics of the Precordillera, supplemented by the highly useful guidebook. The pace of the trip was appropriate, and logistical aspects were well considered. Stops were at excellent and accessible exposures and productive fossil sites; importantly, attention was paid to not depleting the faunal remains. Lively discussions on the rocks and in transit were encouraged.

Participants concurred that it was an exceptionally informative and enjoyable excursion - to Marcello, Fernando, Susana and Juan Jose, our sincerest appreciation!

*Patricia Wood Dickerson*



*Group photograph in the Cuesta del Viento area (courtesy of Gustavo Voldman).*

3<sup>rd</sup> virtual meeting of IGCP 735  
Prague (Czech Republic), November 18 – 20, 2024



The third virtual meeting of the IGCP 735 Rocks and the Rise of Ordovician Life, from November 18<sup>th</sup> – 20<sup>th</sup>, was successfully organized by Martina Nohejlová, Marika Polechová from the Czech Geological Survey, and Lukáš Laibl from the Czech Academy of Sciences, Institute of Geology.

The scientific program was exciting and very diverse, covering the Ordovician Life and its environment, as well as offering fascinating insights into the Cambrian and Silurian periods. The first keynote, presented by Michal Mergl, provided the latest information on the Ordovician biodiversity of the Barrandian area. In the second keynote, Sofia Pereira used her amazing sense of humor and provocative arguments to demonstrate why ‘badly preserved fossils’ are interesting (and why we should be proud of studying them). The third keynote, delivered by Allison Daley, focused on the evolution of arthropods, the most abundant group of organisms on Earth, using data from the Fezouata Biota. The 20 regular talks and 11 lightning talks offered a broad overview of biodiversity, disparity, and evolution across many taxonomic groups from around the world. They also presented intriguing results on ichnology, taphonomy, and various aspects of stratigraphy. A special volume is planned in the *Bulletin of Geosciences*.

The 3<sup>rd</sup> virtual meeting was attended by 74 participants from 21 countries, spanning Europe, North America, South America, Africa, Australia, China, and Turkey, with a high proportion of female researchers and students. Around 40 participants were present simultaneously each day.

The organizers were particularly creative in producing a marvelous virtual field trip of the Barrandian area, which provided an energetic journey through the Czech Ordovician (available on the IGCP 735 [Youtube Channel](#)), as well as an Ordovician-themed song! They managed to create such a warm and friendly atmosphere that participating in this remote meeting felt as if we were all there in person!

All participants heartily enjoyed the friendly environment, the fruitful scientific discussions, and the lively energy brought by the organizers, scientific committee, and session chairs.

*Elise Nardin*





## CONFERENCE ANNOUNCEMENTS

IGCP 735 regional meeting and field excursion  
Llandrindod Wells (UK), July 4–11, 2025



We are delighted to formally invite you to a mixed-format symposium and field meeting based in the beautiful town of Llandrindod Wells (central Wales, UK), on the edge of the famous Builth–Llandrindod Inlier.

Registration is now open. Please download the registration form from our website (<https://igcp735.wales>) and return the completed form by email to [igcp735wales2025@gmail.com](mailto:igcp735wales2025@gmail.com) (deadline 16 March). Bank details for payment will be provided after receipt of the registration form. Payments must be made in British pounds by bank transfer (deadline 31 March). After registering, please download the sample abstract form from the website, and submit your abstract(s) by email to [igcp735wales2025@gmail.com](mailto:igcp735wales2025@gmail.com) (deadline 31 March).

Please note that because the venue has limited capacity, we may need to close registration before the deadline.

### Key dates

Sunday 16 March	registration closes
Monday 31 March	payment deadline and abstract submission deadline
Friday 4 July	arrive, icebreaker reception (evening)
Saturday 5 July	talks
Sunday 6 July	field trip
Monday 7 July	talks
Tuesday 8 July	field trip
Wednesday 9 July	talks, conference dinner
Thursday 10 July	workshops
Friday 11 July	depart

\*Please note that all deadlines are 11:59 p.m. coordinated universal time (UTC) on the given date.



### Registration fee

The registration fee is £195. The fee includes refreshments at morning coffee and afternoon tea breaks, a copy of the abstract volume, the field trips, and the workshops. The registration fee is the same for all participants, and we have kept it as low as possible. We recognise that non-student participants (e.g., researchers based in developing countries, or those with no formal academic position), do not necessarily have more money for conference attendance than PhD students (who may belong to well-funded research groups in developed countries).

Because of the relatively small size of the meeting, we will not be running a program for accompanying persons. Information on things to do in the area can be found on <https://www.visitmidwales.co.uk/>.

If a participant is unable to attend, the deadline for requesting a refund of the conference fee is Friday 30 May. We will return the conference fee minus a handling fee of £16 (to cover our bank charges). If a refund is requested between 31 May and Friday 27 June, we will refund 50% of the conference fee. After Friday 27 June, no refund will be possible.

### Financial support

The conference organisers hope to have some money available to support people giving one or more presentation(s) (oral or poster) at the meeting, and who have no or very limited research funding. We particularly wish to encourage (in no particular order) members of historically under-represented groups, researchers with disabilities, participants based in developing countries, women, early career researchers, and independent researchers; however, any participant may apply. Please note that any financial support provided will not be sufficient to cover the full costs of attending the meeting. Money will be disbursed to attendees at or after the meeting: it will not be possible to provide any financial support before the meeting.

### Venue and Accommodation



**Conference Venue.** — The Metropole Hotel and Spa, Llandrindod (<https://www.metropole.co.uk/>): a historic hotel that is hosting all our conference activities, and also has a substantial amount of half-board accommodation currently set aside for delegates at a reduced rate (see below). The conference dinner is included in the cost for those staying at the Metropole, but will be extra for those staying elsewhere.

Delegates are encouraged to stay in the Metropole Hotel if they would like to be on site. A special rate is being offered for Bed, Breakfast and Dinner, and a number of rooms are being held for the conference at the special rate until the middle of March. After that, the rooms will be made available to other visitors, so please book accommodation as soon as possible. There is a range of room prices available, but only ten single rooms in the hotel.

### *Metropole Hotel room prices*

Shared occupancy rates @ £85.00 per person per night for Classic Double or Twin  
(Above rates based on a minimum 5 night stay and based on 2 occupants in room)

Shared occupancy upgrades per room per night:

ClassicPlus Double or Twin @ £10.00 supplement

Superior Double or Twin @ £25.00 supplement

Luxury Tower Double or Twin @ £45.00 supplement

Single occupancy supplement per room per night:

Single bed @ £15.00 supplement on top of the above sharer rates – please note we only have 10 single bedded rooms available and any further double for sole rooms will be charged the following supplements

Classic Double bed @ £40.00 supplement on top of the above sharer rates

ClassicPlus Double bed @ £50.00 supplement on top of the above sharer rates

Superior Double bed @ £65.00 supplement on top of the above sharer rates

Rates include

Accommodation and breakfast

3 course choice evening menu with tea/coffee (private dinner on the final night)

Access to spa facilities

Value added tax (VAT)

**Booking.** — If you wish to stay at the Metropole, please contact the hotel directly (telephone: +44 (0)1597 823700; email: [info@metropole.co.uk](mailto:info@metropole.co.uk)) and confirm that you are attending the IGCP735 conference. Please provide the following information:

- **Group Reference:** 1456 [to ensure that you are charged the conference rate]
- Room Type Requested:
- Date(s) Requested:
- Rate:
- Full name:
- Address:
- Email:
- Telephone Number:
- **Payment Instructions:** The Metropole will need a £20.00 per person deposit at the time of booking, and full payment settled 31 days before arrival.

Individual reservations cancelled within 4 to 7 days prior to arrival are charged at 60%. Thereafter any cancellations received within 72 hours prior (4 pm 3 days prior) to arrival are charged at 100%.

### *Other accommodation*

Although this is a small town, there is a range of other accommodation in Llandrindod and the surrounding area, and you are of course welcome to stay at any of the other hotels, bed & breakfasts, inns, or self-catering venues.

If you do not have your own transport, then *please check the location carefully before booking!* This is a rural area, and accommodation in surrounding villages may be advertised as being in Llandrindod. Public transport is limited, but taxis are available.

There is also a wide variety of Airbnb accommodation available within Llandrindod and the surrounding area, and if you do have your own car then it is possible to stay in beautiful rural locations close to the town; feel free to be creative!

### Conference Dinner

The conference dinner will be held at the Metropole, and is included in the room/breakfast/dinner price for those staying at the hotel. For anyone staying elsewhere, it will be £35.00 per person, and should be booked directly with the hotel before the conference (email: [info@metropole.co.uk](mailto:info@metropole.co.uk)). Accompanying persons are welcome to attend the conference dinner as well, at the same price.

### Lunches

Lunch is not included in the registration fee, but can be bought either from the Metropole Hotel, or from many other locations such as cafes and shops within easy walking distance. We'll provide a map with suggestions, but if in doubt, just ask anyone local! Lunch breaks will allow time for socialising and seeing the town.

### Getting here

Llandrindod is in the centre of Wales, far from the major cities. However, it is reachable by train or bus from the major UK airports, including Birmingham, Manchester and London. It might take you a while, but whichever way you come, it's a beautiful journey! Please see the conference website for travel details.

### Conference format and focus

The format will be mixed, involving alternating days of presentations and local field visits, with a day of workshops. We would like to particularly emphasise presentations on the subject of total communities within the early Palaeozoic: exceptional preservation, ecological studies and neglected or poorly-known groups. Other subjects within the IGCP735 remit are very welcome also, of course!

We recognise that participation in conferences can be challenging for some individuals, particularly those with health conditions/disabilities. Thus, each day of talks will include an extended lunch break (1.5 or 2 hours), to allow people to (for example) return to their accommodation to rest before the afternoon session.

**Keynote presentation.** — The keynote speaker will be Dr. Karma Nanglu, who will be talking about Deuterostome origins viewed through the lens of exceptional preservation. Deuterostomia is one of the major divisions of animal life, and the one that includes ourselves. As a result, the ecological and morphological origins of this group are a major outstanding question in metazoan evolution. In his talk, Dr. Nanglu will present and synthesize recent research into deuterostome origins, with a focus on exceptionally well-preserved fossils with soft-tissues. These species demonstrate how many of the characteristics which define modern deuterostomes were already established in the Cambrian, and diversified in the Ordovician. Dr. Nanglu is currently a post-doctoral fellow at Harvard University and the Museum of Comparative Zoology. He will be starting as an assistant professor at the University of California Riverside in September 2025. He was previously a Peter Buck Deep



Time Postdoctoral fellow at the Smithsonian National Museum of Natural History, and received his PhD from the University of Toronto and Royal Ontario Museum in 2018.

**Presentations.** — Presentations can be in the form of traditional talks or posters. Abstracts for oral presentations and posters should be submitted **after** registration. The deadline for abstract submission is 31 March. There is a maximum of one oral presentation per speaker, but presenters may submit more than one poster. Standard oral presentations will be limited to 20 minutes (15 minutes plus 5 minutes for questions). We will be selecting some talks for longer slots based on their fit to the programme and potential for wide interest. Because of time limitations, it may not be possible to give an oral presentation slot to everyone who wants one: in this case, presenters will be invited to provide a poster instead. If you would like to present a different style or format of talk to the normal types (for example, a field report of interesting discoveries, even if you are unfamiliar with formal scientific presentations), please just ask: we would be delighted to receive such suggestions and advise! Posters will be displayed for the whole meeting. The maximum poster size is A0; posters may be in landscape or portrait orientation. We aim to have extended lunch breaks with dedicated poster sessions.

**Field trips.** — The field visits will be to a range of local sites within the Ordovician (Darriwilian to early Sandbian) Builth–Llandrindod Inlier and the surrounding area. The inlier preserves the history of a volcanic island complex, and is the focus of the nascent Heart of Wales Geopark (<https://heartofwalesgeopark.org.uk/>). The area is home to many sites with a degree of exceptional preservation, and some major Konservat-Lagerstätten such as Llanfawr and the newly-discovered Castle Bank (which will be included in the itinerary). The landscape, culture and history of the area are also remarkable, and these will not be neglected! Some of these sites are within walking distance of the conference venue, and transport will be provided for slightly more distant ones, or for those with more limited mobility; the costs of this are included in the conference fee. Some of the field trips will require walking for extended periods and/or over rough ground. If this would be difficult for you, please contact the conference organisers ([IGCP735wales2025@gmail.com](mailto:IGCP735wales2025@gmail.com)) to discuss access arrangements.



**Workshops.** — Workshops will be on sponges, bivalved arthropods, and exceptional preservation in the Ordovician Builth Inlier of mid-Wales. Sponges and bivalved arthropods are relatively common as fossils in lower Palaeozoic rocks, but there are few specialists on these groups; thus, these fossils are not well studied. Our aim in putting on these workshops, which will be largely specimen-based, is to provide the necessary knowledge to identify these groups and a basic idea of their evolution and ecology.

*W1–Recognition and interpretation of fossil sponges* (led by Joseph P. Botting)

[Note: this focuses mainly on sponges in siliciclastic sediments, rather than carbonates]

Sponges are one of the most abundant and diverse groups of fossils in Burgess Shale-type faunas, and can also be very important in later Palaeozoic Konservat-Lagerstätten. However, they can be challenging fossils to interpret, and in many cases, even to identify. Much of the historical palaeontological literature suffers from over-simplification of the morphology, assumptions about original skeletal mineralogy, and lack of detailed comparisons to modern groups that is capable of highlighting either useful similarities or genuine differences. This has led, amongst other things, to numerous Precambrian objects being described as sponges on very flimsy or misleading evidence. It has also led to a radical overhaul of how to interpret many of the Cambrian and Ordovician sponge groups in terms of their relationships to modern groups.

This workshop will include a general introduction, and then allow attendees an opportunity to examine both modern sponges and a wide range of fossil examples. You will be able to assess how well particular fossils can be interpreted, and how closely they can be compared to extant lineages, with a particular focus on problematic groups like the "Reticulosa" and Ascospongiae ("protomonaxonids"). The importance of understanding taphonomy will be highlighted, together with morphological aspects like assessing the complexity of the skeleton. We will also look at how to identify whether an object is actually a fossil sponge at all, so please bring potential sponges with you to act as test subjects!

*W2–Bivalved arthropods* (led by Steve Pates)

Identification and ecology of Cambrian and Ordovician macro- and micro-forms. Numerous iconic early arthropods are described as 'bivalved arthropods', a polyphyletic grouping of stem-group arthropods, stem-group mandibulates, stem-group crustaceans, and crown-group crustaceans. These animals were among the first microscopic and macroscopic arthropods to enter the pelagic realm in the Cambrian, and played a variety of ecological roles in ancient oceans including as suspension feeders, predators and scavengers. Macroscopic bivalved arthropods include some of the most charismatic and well-known Cambrian animals from Burgess Shale-type deposits, including *Isoxys*, *Canadaspis* and *Ercaicunia* and more recently described animals like *Fibulacaris*.

In the Ordovician, archaeostracans dominate. Cambrian microscopic bivalved forms like phosphatocopines and bradoriids contributed hugely to the microbenthos, with the latter group including some pelagic forms. In the Ordovician the first ostracods diversified, with the first pelagic taxa originating in the Silurian.

In this workshop we will explore the diversity and interrelationships of Cambrian and Ordovician bivalved arthropods, and cover some key morphological features used to distinguish major groups. We will also discuss approaches to inferring the ecological roles of these extinct animals, and their contribution to Cambrian and Ordovician ecosystems. The workshop will combine specimen study with seminar/discussion sessions.

*W3–Builth Inlier exceptional preservation* (led by Joseph P. Botting and Lucy A. Muir)

The Builth-Llandrindod Inlier includes a wide range of unusual and exceptional preservation from a variety of palaeoenvironments in the context of a volcanic island system. This ranges from the shallow-water siliciclastics of Llandegley Rocks, to pyritised fossils in offshore black mudstone such as Llanfawr Lagerstätte, and the Burgess Shale-type preservation of Castle Bank. There are numerous more minor deposits as well, such as the

Holothurian Bed and Little Wern. It is extremely unusual to have such a range of exceptional preservation in such a small area, and this generates great potential for understanding the Ordovician palaeoecology beyond the patterns seen among 'normal', biomineralised fossils.

This workshop will allow you to examine examples of fossils from a good number of these localities, together with their sedimentary and stratigraphic contexts. Certain groups of exceptionally preserved fossils are relatively common in a wide range of palaeoenvironments of the inlier, including some (e.g. articulated echinoderms) with a few, widely-distributed species, but many others (e.g. sponges, palaeoscolecidans and non-biomineralised arthropods) in which almost no species are known from more than one site. In addition to highlighting the diversity of ecological patterns between different groups, this will allow direct comparisons of the styles of preservation and likely taphonomic biases between sites. This in turn leads to interpretations as to which groups are likely to be ecologically restricted, and which were probably widespread but limited purely by preservation, allowing us to build a better understanding of temperate Ordovician palaeoecology.

### Conference ethos

We, the organisers, greatly enjoy the atmosphere of these small meetings, where the aim is to come together, share exciting news, and have time for discussions—both formal and informal. This is where collaborations start and enthusiasm is kindled for new directions. It's not so much a chance to show off the prestige of your research group, but rather to get involved, and we value the insights and contributions of all. To this end, we are encouraging amateur palaeontologists, early-career researchers, and everyone from any nation to join us and become part of this scientific community.

We have also chosen to integrate the various aspects of the meeting into one whole, including the field visits and workshops, as we believe all are equally important. These are included within the registration fee, which we have kept as low as possible. The workshops will also provide opportunities for open discussion. We may not have all the resources of a university, but we can provide a warm welcome, and a positive atmosphere!

In contrast to most conference locations in big cities, Llandrindod is a small, friendly town, and this conference is a major event for us and other residents. We encourage delegates to relax, enjoy the culture, and spend time outside the conference venue; there are many cafes for lunch, shops to buy a picnic, and pubs for ongoing scientific discussions into the night. Locals will probably be interested in where you've come from, and what you're doing, but they probably won't know anything much about fossils—consider it a chance to be ambassadors for palaeontology! The Metropole Hotel is offering its facilities at low cost, in order to encourage the meeting.

### Other considerations

**Weather.** — It's Wales. Expect temperatures between 5°C and 35°C, probably rain and (hopefully) some sunshine. We should be safe from snow. It might be windy, or it might not. Some of the locations can get surprisingly hot in sunny weather, so bring sun-block and a hat. Basically, be prepared for anything!

**Language.** — English. Welsh is not widely spoken in Llandrindod, but for those who want to immerse themselves a little more, we recommend that you learn at least how to properly pronounce Welsh words and place names! With practice, you can work up to Llanfawrpwllgwyngyllgogerychwyrndrobwlantisliliogogoch.



## CONFERENCE ANNOUNCEMENTS

**Microscopes and specimens.** — We will have some microscopes available for examination and discussion of specimens, but more (and other interesting bits of equipment) are welcome!

**Collecting specimens.** — Hammering and collecting will be possible at some sites, but restricted at others. If you'd like to take something away with you, especially to deposit in your own local museum, then please ask!

*We're looking forward to seeing you!*

### Organising committee

Lucy Muir  
Joe Botting  
Michelle Thomas  
Berwyn Powell

### Scientific committee

Lucy Muir  
Joe Botting  
Steve Pates  
Mansoureh Ghobadi-Pour  
Caroline Buttler  
Lucy McCobb

### Contact

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Website: <https://igcp735.wales>



## IGCP 735 regional meeting and field excursion in tribute to Claude Babin (1934–2022) Camaret-sur-Mer (France), September 21–23, 2025



### Foreword

The workshop is held on the site of the first international congress dedicated to the Ordovician (and Silurian) organised in 1971 by Claude Babin. This workshop is dedicated to him and will take place in the Crozon Peninsula, above the type section for the Ordovician in the Armorican Massif (median domain). Under the sponsorship of the IGCP735 and the Université de Bretagne Occidentale (UBO; University of Western Brittany), the workshop is aimed at the international scientific community working on this geological period, regardless of their speciality (stratigraphy, palaeontology, sedimentology, geochemistry, palaeogeography, modelling) with the intention of setting multidisciplinary exchanges and reinforcing the continuum data-models, alternating scientific presentations and fieldwork.

### Brest and the Crozon Peninsula

Brest is a rebuilt city, destroyed during the Second World War. Its history is linked to territorial defence, with remains of fortifications (the first dating from the Middle Ages) and presence of the French Navy. The town is crossed by the Penfeld river, which can be crossed by cable car, offering a remarkable view of the military port and Brest harbour.

The University of Brest, also known as UBO (Université de Bretagne Occidentale), welcomes 24,000 students each year. It brings together several research laboratories, including Geo-Ocean, which employs almost 200 people from three different institutions: University of Brest, CNRS and IFREMER, grouped within the joint research unit UMR 6538.





### Conference venue

We will meet you at Brest airport or at Brest train station and drive you to the workshop site located at 70 km away by road. Three time slots are available for transfer on Sunday 21 September: at 11 a.m. for those willing to have a first field session, before the opening session; at 1.30/2.00 p.m.; at 5.00 p.m.

To be as close as possible to the field, the conference will take place on the Crozon Peninsula, immediately above the Veryac'h section, which outcrops in the coastal cliffs. This will enable us to alternate visits to outcrops and oral/poster presentations.

Conference (talks and posters), accommodation and meals will take place at APAS-BTP Villages-Vacances APAS-BTP de Pen Hir, Camaret-sur-Mer:

<https://www.apas.asso.fr/vacances/camaret-sur-mer-ete>

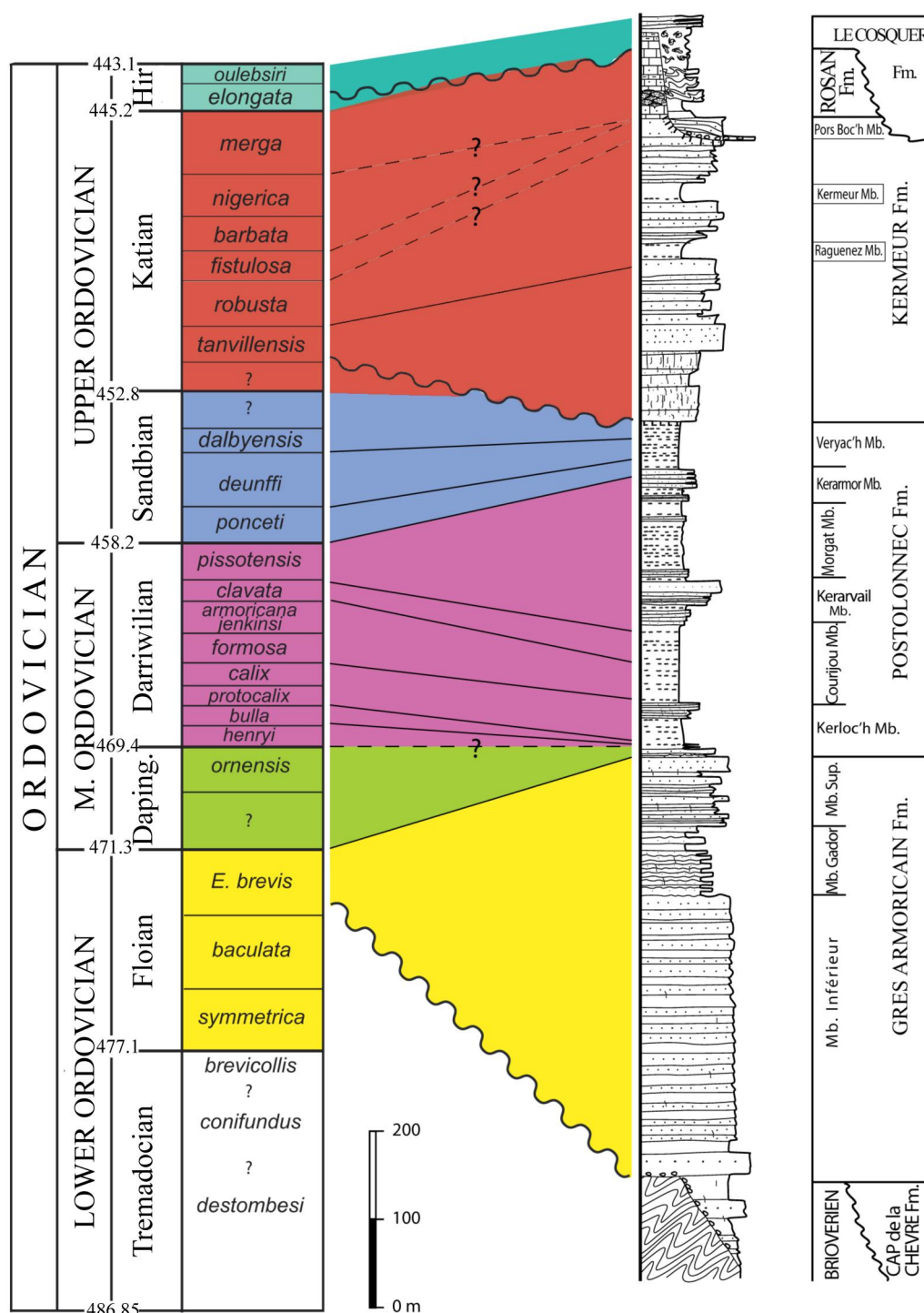


### Geology and field excursions

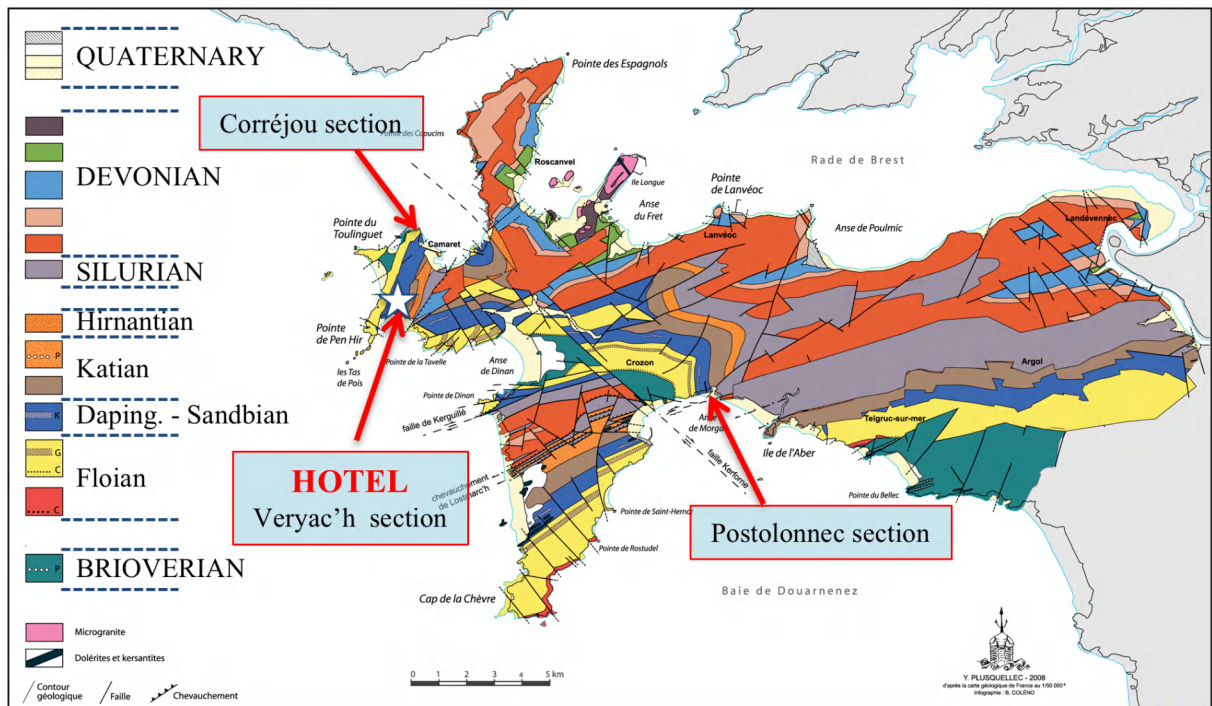
The locality of Camaret-sur-Mer, in the Crozon Peninsula, is located at 15 km from Brest as the crow flies and 70 km by road. The Crozon Peninsula is located at the western end of the Armorican Massif, south of Brest. It is one of the best places to explore the Palaeozoic sedimentary succession of western France and, more specifically, the Ordovician, as the outcrops on the cliffs and foreshore are cleaned daily by the tide. Extensive work has been carried out on these sites for macro- (bivalves, brachiopods, echinoderms, trilobites) and



micro-palaeontology (acritarchs, chitinozoans), sedimentology, and ichnology. During the workshop, we will visit the Veryac'h section (see map), where Darriwilian, Sandbian and Katian successions are well exposed and also the Correjou section (see map), showing nice exposures of the Floian Armorican Sandstones. Depending on your arrival time in Brest on the 21<sup>th</sup> of September, a visit to the Postolonnec section (Darriwilian; see map) or the La Source section (Katian) will be planned.

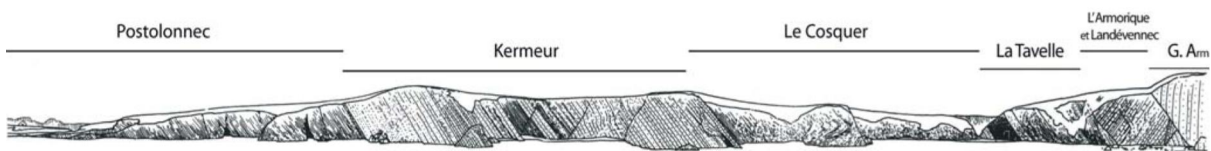
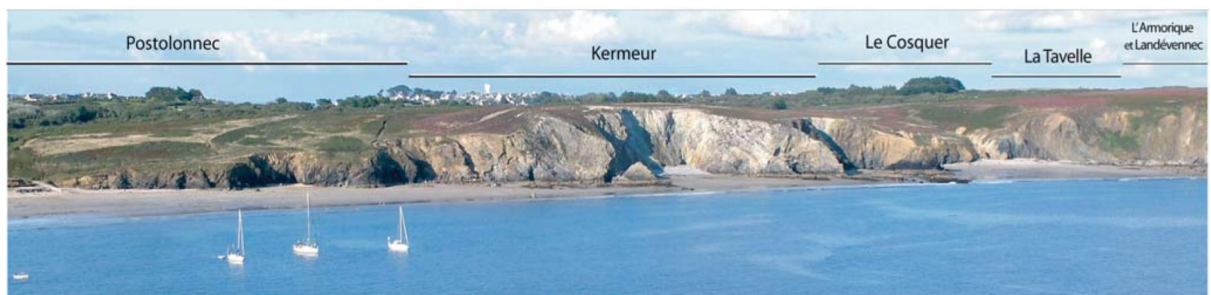


*Synthetic stratigraphic log of the Crozon Peninsula (modified from Dabard et al. 2009)*



*Location of the hotel hosting the workshop at Camaret-sur-Mer, and of visited localities during the field excursion (map modified from Plusquellec et al. 2010).*

All sections visited are protected areas of the Crozon Peninsula Heritage Site, the Réserve géologique régionale (RNR), which is part of the UNESCO Geopark Armorique. We will request special authorization for sampling at all planned sites. If you wish to sample a specific level or fossil group, please inform us in advance by email at: [crozon2025@gmail.com](mailto:crozon2025@gmail.com) (for organization and authorization).



Darriwilian	Sandbian	Katian	Hirnantian	Lland.-Ludl.	Lochkov.
M. ORDOVICIAN	UPPER ORDOVICIAN			SILUR.	DEV.

*Veryac'h section and diagrammatic sketch (modified from Plusquellec 1999, Paris 2003,)*

### Provisional program

#### **Sunday, September 21, 2025 :**

For participants arriving at 11.00 a.m. in Brest: visit to the fossiliferous Postolonnec section (Darriwilian), and transfer to the Camaret-sur-Mer workshop site.

For participants arriving in Brest in the afternoon: transfer to the Camaret-sur-Mer workshop site.

Opening reception in honour of Claude Babin.

#### **Monday, September 22, 2025:**

Oral and poster presentations and visit of the Veryac'h section at low tide.

#### **Tuesday, September 24, 2025:**

Oral and poster presentations in the morning and visit to the Correjou section during the low tide. Return to Brest at around 5:00 p.m. (train station or airport, to accommodate the last flight to Paris).

#### **Post-conference field-Trip** (September, 24–25):

For those willing to extend their stay, arrangements can be made upon request (e-mail: [crozon2025@gmail.com](mailto:crozon2025@gmail.com)).

Accommodation and meals are not included.

### Registration Fees

#### **Registration:**

students: 250 €

regular participants: 300 € (before May 1st, 2025) / 350 € (from May 1st to June 15, 2025).

Registration comprises everything from departure from Brest on Sunday, September 21 (three possible times for transfers: 11:00 a.m., 1:30/2:00 p.m., and 5:00 p.m.) to return to Brest on Tuesday, September 23 around 5 p.m. (train station or airport).

Registration includes accommodation (2 people per room\*), dinners (September 21 and 22), breakfasts, and lunches (September 22 and 23) consisting in a picnic or cold buffet, as well as return transfers between the Crozon Peninsula and Brest.

\*single room opportunity (400 € before May 1st / 450 € from May 1st to June 15, 2025)

### Travel and accommodation in Brest

The city of Brest is accessible by train from Paris (4h30) or any other city in France via Rennes (2h45), or by plane.

<https://www.sncf-connect.com>

<https://www.brest.aeroport.bzh/accueil>

Many hotels are available around the train station or in the centre of Brest.



### Deadlines

Pre-Reservation is required as early as possible at [crozon2025@gmail.com](mailto:crozon2025@gmail.com), as the number of accomodations must to be booked before mid-April

**Deadline for early registration and abstract submission:** May 1, 2025.

**Deadline for late registration:** June 15, 2025.

The maximum number of participants is 40.

### Organising committee

Muriel Vidal, Nathalie Babonneau, Germain Bayon, Yves Candela, Sophie Coat, Damien Gendry, Romain Gougeon, Bertrand Lefebvre, Mathilde Levacher, Alfredo Loi

### Scientific committee

Germain Bayon, Yves Candela, Bertrand Lefebvre, Alfredo Loi, Muriel Vidal



5<sup>th</sup> annual meeting of IGCP 735  
Changsha (China), October 17–21, 2025



## Venue

Central South University (CSU), located in the historical and cultural city of Changsha, Hunan Province, China. Graced by the majestic Yuelu Mountain and overlooking the meandering Xiangjiang River, CSU has been ranked as one of the top 39 universities in China. The University comprises 31 colleges, more than 80,000 staff and students, boasting 3 large Class A tertiary comprehensive hospitals. CSU was formed in April 2000 through the amalgamation of three institutions—Hunan Medical University (HMU), Changsha Railway University (CRU), and Central South University of Technology (CSUT). The predecessor of CSUT was the Central South Institute of Mining and Metallurgy founded in 1952 and that of CRU was the Central South College of Civil Engineering and Architecture formed in 1953. The predecessor of HMU was Xiangya Medical University founded in 1914, one of the earliest colleges offering western medicine courses in China.

CSU is graced by the majestic Yuelu Mountain which has outcrops of the Devonian strata. Historically, the universities within Hunan Province have strong research interests in Ore deposition, Palaeozoic palaeontology and sedimentary geology, often with a particular emphasis on the Ordovician planktons.

The 5<sup>th</sup> annual meeting of the IGCP 735, entitled **“Filling Knowledge Gaps in the Early Palaeozoic Biodiversification”** will bring together international experts on all aspects of the early Palaeozoic earth system. The meeting in Changsha will include three days of scientific sessions, a full day mid-conference field trip and five days of post-conference field trip to explore the stratigraphy and palaeontology of Palaeozoic outcrops.

We look forward to receiving you in Changsha!



*Central South University, Changsha, Hunan Province, China*





*School of Geosciences and Info-physics, CSU, location of scientific sessions*

## Provisional program

- **October 17 (Friday), 2025:** Arrival, registration, opening reception.
- **October 18 (Saturday), 2025:** Opening ceremony, Oral and poster presentations.
- **October 19 (Sunday), 2025:** Oral and poster presentations.
- **October 20 (Monday), 2025:** Mid-conference field trip. Conference dinner.
- **October 21 (Tuesday), 2025:** Oral and poster presentations. Closing ceremony.
- **October 22–26 (Wednesday to Sunday), 2025:** Post-conference field trip to see the Lower Palaeozoic in Hunan and surrounding provinces.
- **October 27 (Sunday), 2025:** Departure.

## Mid-conference Field Trip

A one-day mid-conference field trip will be organized to visit a roadcut Ordovician-Silurian section near the famous Tanheli Shang Dynasty city site near Changsha. This roadcut is vertically extensive and exposes mostly the O-S transition of Wufeng and Lungmachi formations (sampling allowed). After the field trip, a short city tour to Orange Isle, a must-visit place in Changsha, is arranged. Surrounded by vast stretches of water, the Orange Isle is located in the center of Changsha. It is the place where Chairman MAO Zedong carried out revolutionary activities in his youth. The Mao Zedong's Statue on the isle is one of the most spectacular and influential scenic spots in China.



*O-S boundary section near Tanheli Shang Dynasty city site (left); the Orange Isle in Changsha (right)*



## Post-conference Field Trip

A five-day post-conference field trip will be organized to visit classic Cambrian-Ordovician-early Silurian sections in the Upper Yangtze Region. This field trip will provide an overview of late Cambrian (pre-GOBE) strata including the Guzhangian GSSP, the Lower Ordovician that encompass new exceptionally preserved fossil groups associated with the early diversification of GOBE, the shale-hosted biota across the Ordovician-Silurian boundary, and the quick recovery of shelly faunas and the flourishing of vertebrates (fish) in the early Silurian. The field trip will start at CSU and end at the Changsha Huanghua International Airport and Changshanan Railway Station. Registration fee will include all transportation, meals, and lodging during the field trip.

**Day 1 (Oct. 22, Wednesday).** — Departure from CSU, Changsha and drive to Waergang Village, Cili County, Hunan Province. Visit the Waergang section (candidate GSSP of Stage 10 of the Cambrian System) and have a primary understanding of the early Palaeozoic history of the Upper Yangtze Region. Accommodation in Zhangjiajie City, Hunan Province.

**Day 2 (Oct. 23, Thursday).** — We will have a quick visit to the Cambrian exposures near Zhangjiajie region in the Morning. We will focus on the classical Ordovician and lower Silurian section near the Wentang Twon. Accommodation in Zhangjiajie City, Hunan Province.

**Day 3 (Oct. 24, Friday).** — We will visit the Early Ordovician (Floian) Liexi Fauna preserved in limestones and shales (Madaoyu Formation). We will also visit the GSSP for the Guzhangian Stage, Cambrian. Accommodation in historic Furong Town, Hunan Province.

**Day 4 (Oct. 25, Saturday).** — We will drive to lower Silurian exposures in the Xiushan regions, Chongqing Municipality, and check the palaeontological features indicating the quick recovery of early Silurian Xiushan Fauna and visit the research station of the early Silurian vertebrates (fishes). Stay overnight in Huayuan County, Hunan Province.

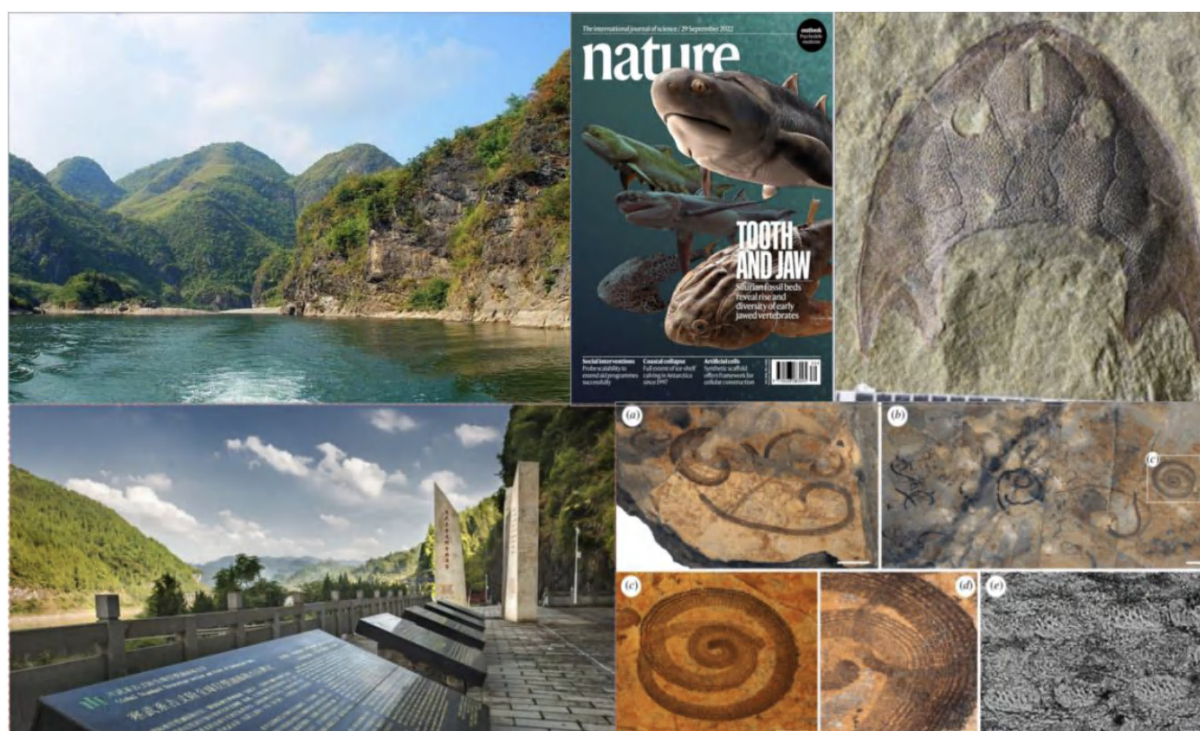
**Day 5 (Oct. 26, Sunday).** — Visit the historical Biancheng historical town on the way back to Changsha and end at the Changsha Huanghua International Airport and Changshanan Railway Station.

## Estimated Registration Fees

**\*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 May 15, 2025.

**Conference registration.** — The registration fee for the scientific sessions (covering conference dinner, mid-conference field trip, coffee/tea breaks, scientific program and abstract volume, etc.) is estimated to be 3000 RMB (400 USD) for professionals and 1500 RMB (200 USD) for students.

**Field trip registration.** — The registration fee for the post-conference field trip in the Hunan and surrounding provinces is estimated at 5000-6000 RMB (750-850 USD), which includes transportation, guidebook, meals, and double occupancy lodging.



Part of the Wentang O-S section: location for the post-conference field trip (up-left), Silurian jawed vertebrates (up-middle, up-right), GSSP of Guzhangian (lower-left) and the Liexi Fauna (lower-right)

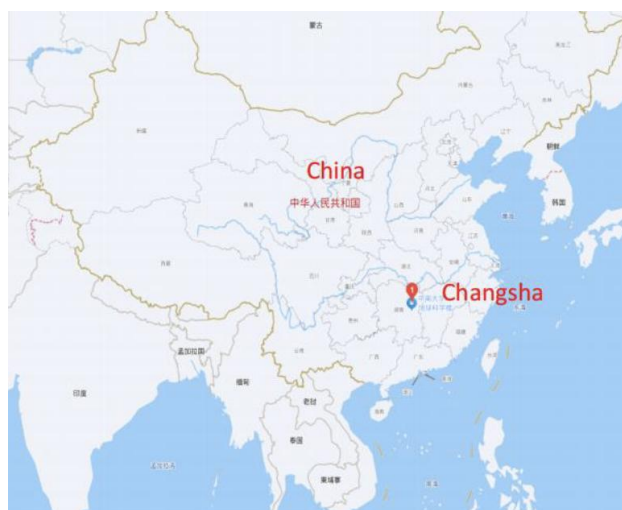
**Funding.** — IGCP 735 has some funds available for students, early career researchers, and participants from developing countries who will present their research at the conference. Those who are interested in the financial support need to apply for it before the meeting.

### Conference Publications

A program and abstracts volume will be available at the meeting. The abstract volume will be published before the meeting. A thematic issue in *Palaeoworld* will be arranged to publish papers after the conference.

### Travel

Central South University (CSU) is located in the northwestern part of Changsha City, ca. 40 km from the Huanghua International Airport (<https://www.hunanairport.cn/>). The Huanghua Airport receives flights from all the major Chinese airlines daily, including some from overseas. The CSU is approximately 20 km from the Changshanan Railway Station. Coaches will be arranged to pick up delegates from both the airport and high-speed rail station to Central South University on Oct. 17th.



Metrolines are also available from Huanghua Airport (transfer from Line 6 to Line 3, 70 minutes) and from the Changshanan Railway Station (transfer from Line 4 to Line 3, 40 minutes). Send out to airport or high-speed rail station may also be possible pending final field trip arrangements.



*Metrolines in Changsha, China*

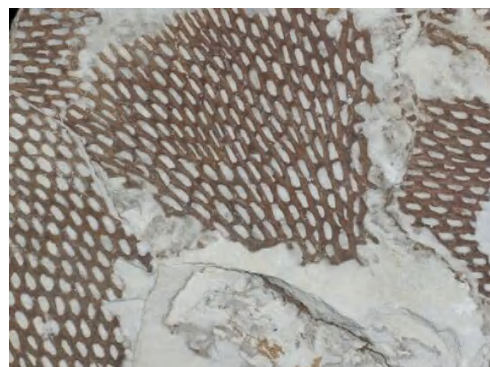
## Accommodation

Many hotels surrounding the university will be available at an estimated rate of 350-500 RMB (50-80 USD) per person per night for single occupancy or double occupancy. The information about the suggested hotels will be provided in the second circular.

Sandwiches or special university meals will be offered as lunch during the conference.

## Important dates

- **February 18, 2025:** Distribution of First Circular
- **May 15, 2025:** Distribution of Second Circular; Opening of abstract submission and early registration
- **August 31, 2025:** Abstract submission and early registration deadline
- **September 15, 2025:** Distribution of Third Circular





### Local Organizing Committee

Wenhui WANG (Chair), Central South University, China  
Renbin ZHAN (Co-Chair), NIGPAS, China  
Yuandong ZHANG (Co-Chair), NIGPAS, China  
Jingqiang TAN (Co-Chair), Central South University, China  
Xiang FANG (Field Trip Chair), NIGPAS, China  
Yi WANG (Field Trip Co-Chair), NIGPAS, China  
Xuejian ZHU (Field Trip Co-Chair), NIGPAS, China  
Yan LIANG (Field Trip Co-Chair), NIGPAS, China  
Xiaocong LUAN (Field Trip Co-Chair), NIGPAS, China  
Wenjie LI (Field Trip Co-Chair), NIGPAS, China  
Ruining HU, Central South University, China  
Xun KANG, Central South University, China

### IGCP 735 Co-leaders

Bertrand LEFEBVRE (Chair, Lyon, France)  
Yves CANDELA (Edinburgh, UK)  
Khadija EL HARIRI (Marrakech, Morocco)  
Mansoureh GHOBADIPOUR (Gorgan, Iran)  
Elena G. RAEVSKAYA (Saint-Petersburg, Russia)  
Oive TINN (Tartu, Estonia)  
Beatriz G. WAISFELD (Córdoba, Argentina)  
Wenhui WANG (Changsha, China)

### Contact

Please direct questions to Dr. Wenhui WANG ([whwang@csu.edu.cn](mailto:whwang@csu.edu.cn))



### 5<sup>th</sup> International Congress on Stratigraphy Suzhou (China), June 28 – July 3, 2026

#### Introduction: Welcome STRATI to China



The STRATI congress has long been a prominent event in Europe, with previous ISC conferences held in European cities such as Lisbon (Portugal) in 2013, Graz (Austria) in 2015, Milan (Italy) in 2019, and Lille (France) in 2023. Over the years, the STRATI congress has gained an increasing recognition on a global scale, especially in China. Hosting this prestigious event outside of Europe would mark a truly enhance of STRATI's influence worldwide and represent a significant milestone for the ICS.

China has a thriving community of stratigraphers and has fostered a strong, collaborative relationship with the ICS for many years. It has the greatest number of stratigraphers and voting members serving in ICS subcommissions. Chinese stratigraphers have consistently formed one of the largest delegates at previous STRATI congresses. Furthermore, the Geobiodiversity Database (GBDB) (<https://stratigraphy.org/gbdb>), serves as the official database for the ICS. To date, eleven GSSPs have been established in China, with additional GSSP candidates under active study. The Chinese stratigraphy community is enthusiastic in cooperation with the international colleagues on stratigraphy and palaeontology, and eager to further enhance the ICS's influence in China.

The Chinese stratigraphy community and local government of Jiangsu Province are both committed to providing substantial supports. We are planning to waive registration fees for executives of all subcommissions and all session chairs, and to significantly reduce the registration fee and accommodation costs for all participants. The Suzhou DDE (Deep-time Digital Earth) Center as the headquarter of first IUGS recognized big science program that ICS is one of founders will provide financial and logistic supports for the congress.

#### Leadership

Co-chairs of the congress include:

- Prof. Shuzhong Shen, current ICS vice-chair, professor and academician of CAS, School of Earth Sciences and Engineering, Nanjing University
- Prof. Maoyan Zhu, current chair of Subcommission on Cryogenian Stratigraphy, professor of Nanjing Institute of Paleontology and Stratigraphy, Chinese Academy of Science
- Prof. Zhong-Qiang Chen, current chair of the Subcommission on Triassic Stratigraphy, professor of China Geoscience University Wuhan

#### Dates

After careful consideration and discussions, STRATI 2026 will take place at Suzhou Center from June 28 – July 3, 2026. This decision was made due to a significant scheduling conflict between STRATI 2026 (originally planned for June 18–23, 2026, in China) and FORAMS 2026 (scheduled for June 21–26, 2026, in Amherst, Massachusetts). The overlap would have prevented some forum specialists involved in ICS activities from attending both congresses, as they were likely to prioritize FORAMS.

After consulting with various officers and members of different subcommissions, we determined that rescheduling STRATI 2026 would be the best solution to accommodate as many participants as possible. This revised schedule has been discussed and agreed upon by ICS Chair Elisabetta Erba and General Secretary Charles Henderson.

We acknowledge that selecting the perfect date for a conference is challenging, given the many meetings and commitments within our field. However, we believe this adjustment will allow more attendees to participate in both STRATI 2026 and FORAMS 2026 if they so wish.

We are excited to announce that the tentative theme for STRATI 2026 is: "Exploring the Depths: Bridging Tradition and Innovation in Stratigraphy." This theme reflects our commitment to advancing stratigraphy by honoring its rich traditions while embracing cutting-edge innovations, including big data and artificial intelligence. It fosters cross-disciplinary exchanges, encouraging the integration of new methodologies and perspectives into traditional stratigraphic studies.

In addition to announcing the new dates, we want to emphasize our commitment to making STRATI 2026 a highly successful and engaging event. We aim to develop a dynamic program that promotes greater collaboration among specialists, enriching field excursions, and interactive workshops/sessions. We welcome your suggestions on the types of sessions that should be included. Additionally, we plan to offer workshops and sessions tailored for students and early-career researchers to enhance knowledge-sharing and professional development.

### Location

Suzhou, located at the lower reaches of the Yangtze River in southeastern Jiangsu Province, eastern China and next to Shanghai City, is one of hottest tourism destinations in China. It is also a place celebrated for its Chinese traditional gardens, ancient canals, and cultural heritage. Several locations are stratigraphically and geologically significant within the city, including:

**1. Taihu Xishan Geopark.** — The auxiliary section for the PTB at Mashishan; Paleolithic Cultural Sites and Pleistocene Mammal Fossil Sites. The Xishan Island within the scenic Taihu Lake is a captivating natural and cultural destination covering 79.8 square kilometers. As the largest island in China's freshwater lakes, Xishan is famous for its stunning landscapes and historical cultures. The sedimentary successions exposed at the Xishan Island are particularly noteworthy, with the uppermost Permian Changhsing Formation being one of the most iconic sections. This formation represents the only auxiliary section for the Permian - Triassic boundary (PTB) in the Taihu Lake region, making it as one of Xishan Island's key geological landmarks. The excavation of the Sanshandao Paleolithic site has provided the first evidence of Paleolithic cultural activities in the Taihu region, extending the history of human activities in the area by three or four thousand years. It demonstrates that early humans civilized at the Taihu area over 10,000 years ago. Additionally, a large number of Late Pleistocene mammal fossils has been uncovered on Sanshan Island, with the *Crocota crocota ultima* being the most notable. Both fossil and stratigraphic records suggest that these animals likely lived in the region over 12,000 years ago.



**2. Tiger Hill : Jurassic Volcanic Rock Layers.** — Tiger Hill is renowned as the premier scenic spot and the top mountain in Wuzhong District, Suzhou. With a history of over 2,500 years, Tiger Hill rises 34.3 meters above sea level and covers an area of 0.19 square kilometers. The hill is composed of Jurassic volcanic rocks that offer fascinating geological insights. The pyroclastic rocks of Tiger Hill formed from the short-distance transport and deposition of detrital materials produced by nearby volcanic eruptions. The ancient volcanic formation consists of Jurassic pyroclastic rocks, with the base comprising red rhyolitic volcanic breccia. Above this, the layers sequentially include conglomeratic tuff, welded tuff, tuffaceous sandstone, and caitstone, among other rock types.

**3. Archaeological Park of the Caoxieshan Site–Neolithic Period.** — Located to the south of Yangcheng Lake, the Caoxieshan site boasts a history spanning over 6,000 years. It is currently the only site in China where all cultural remains from the Neolithic period are preserved in a single location. The site offers a comprehensive view of the development of prehistoric human civilization in the lower reaches of the Yangtze River.

**4. Granite Landforms of Lingyan Mountain and Tianping Mountain.** — Tianping Mountain, located in the southwestern part of Suzhou, is renowned for its stunning granite landscapes and its place within the city's rich cultural and natural heritage. About 150 million years ago, during the Jurassic–Early Cretaceous Yanshanian intracontinental orogeny, magma from deep within the Earth invaded the center of the Mudu syncline in multiple stages, slowly solidifying into granite. The early Yanshanian saw the formation of medium-grained biotite granite, while the late Yanshanian produced fine-grained biotite granite. This granite now extends across the southwestern suburbs of Suzhou, with Lingyan and Tianping mountains at its core.

**5. Two GSSPs and end-Permian mass extinction at the Meishan Section, Changxing, Zhejiang Province.** — To the west of Taihu Lake lies the Meishan sections in Changxing county, which is situated opposite Suzhou across the Taihu lake. This section is located in Meishan Town of Changxing County, Zhejiang Province, 190 km west to Suzhou. The section holds two GSSPs including bases of Changhsingian Stage and Triassic (also the P-Tr boundary) and recorded the entire process of the largest end-Permian mass extinction. A beautiful geopark with two museums has been established to protect these GSSPs, and also facilitate the researches and tourism. The Meishan section was recognized as the first 100 IUGS recognized world geological heritage site.

The Most Famous Historical Sites and Cultural Heritage of Suzhou include :

**1. The Humble Administrator's Garden (Zhuo Zheng Yuan).** — Suzhou is famous for its elegant classical oriental-style gardens, and among them, the Humble Administrator's Garden stands as the largest and most famous. Recognized for its unique design and ethereal beauty, the garden is a UNESCO World Cultural Heritage site. Originally constructed in 1509 during the Ming Dynasty (1368-1644), it was the private garden of Wang Xianchen, a former government official. The garden was built on the site of an old residence and a Taoist temple. Central to its design is a water feature, which serves as the backdrop to a natural landscape that includes small forests, hills, and rock formations. It also boasts man-made pavilions, halls, and parlors. Unlike the Grand View Garden and other famous gardens in Beijing, the Humble Administrator's Garden is a quintessential example of Ming Dynasty architectural style.

**2. Zhouzhuang.** — Zhouzhuang, one of the most famous water towns in China, is located in Kunshan City, Suzhou. The town is celebrated for its deep cultural heritage, well-preserved ancient residences, picturesque waterways, and rich local traditions. Covering 124 acres (about half a square kilometer), Zhouzhuang's architectural landscape is predominantly composed of structures built during the Ming and Qing Dynasties (1368-1911). Approximately 60% of the buildings feature traditional Chinese architecture, with characteristic hanging roofs, painted columns, small wooden boats, and graceful arch bridges. The town's enchanting scenery further adds to its historical charm.

**3. Kunqu Opera.** — Kunqu Opera, one of the oldest forms of Chinese drama, originated in Kunshan during the Ming Dynasty (14th–17th centuries). In 2001, it was inscribed on UNESCO's list of "Masterpieces of the Oral and Intangible Heritage of Humanity." Known for its elegant Suzhou cultural characteristics, Kunqu Opera is celebrated for its fine makeup, graceful singing, refined gestures, and traditional music, creating a captivating visual and auditory experience. This classical art form remains an integral part of Suzhou's rich cultural legacy.

### Accessibility

Shanghai is the largest city in China and Suzhou is next to Shanghai and has direct trains and buses access to the Shanghai airports. It takes half hour to the Shanghai city center from Suzhou. There are lots of direct flights from European, North American, Oceanian and African countries to Shanghai.

Under China's current policies, citizens from 31 countries can travel to China visa-free for up to 30 days. Additionally, citizens from 28 countries, including several major European nations, can stay visa-free for up to 15 days. Furthermore, citizens from 54 countries are eligible for visa-free transit, allowing them to stay in China for up to 10 days.

### Accommodation

Suzhou offers several comfortable and well-appointed hotels that serve as both excellent accommodations and venues for large conferences. Surrounding these major hotels are a variety of mid-range and budget-friendly options, catering to participants with diverse budgets. Below are three recommended hotels.

**1. Crowne Plaza Kunshan East, an IHG Hotel,** can be a main accommodation and conference venue. All rooms are equipped with air conditioning and a desk. The accommodation offers an indoor pool, fitness centre, two onsite restaurants and free WiFi.

- Room number in total: 532 People accommodate: ~800
- Standard room: 460 to 580 RMB (\$65-80)
- Suites: 1200 to 1500 RMB (\$165-205).

**2. Kunshan Jinling Grand Hotel.** Opposite to the above-mentioned Crowne Plaza Kunshan East, also can be a main accommodation and conference venue. Rooms accessible for people with disabilities are available. All rooms are equipped with air conditioning and a desk. The accommodation offers an indoor pool, fitness center, two onsite restaurants and free WiFi.

- Room number in total: 347 People accommodate: ~800
- Standard room: 380 to 460 RMB (\$52-63)
- Suites: 760 RMB (\$104)



*Crowne Plaza Kunshan East (top); Kunshan Jinling Grand Hotel (bottom)*

Several hotels within walking distance of these two venues are suitable for student accommodations. These include the Vienna Hotel Jiangsu Kunshan Exhibition Center, GreenTree Inn Jiangsu Kunshan Lujia Town Furong Road Express Hotel, and GreenTree Inn Suzhou Kunshan Dongcheng Road International Exhibition Express Hotel, among others. All rooms in these hotels are equipped with air conditioning, and the cost of a standard room ranges from 200 to 250 RMB (approximately \$30) per night.

**3. Crown International Exhibition Hotel (Kunshan).** All rooms are equipped with air conditioning and a desk. The accommodation offers an indoor pool, fitness centre, two onsite restaurants and free WiFi. The hotels nearby for students' accommodation include Lavande Hotels Kunshan Renmin Road, Boyi City Hotel, etc. All rooms in these hotels are equipped with air conditioning, and the price of standard room is 200 to 300 RMB (\$30-40) per room per day.

- Room number in total: 750 People accommodate: ~800
- Standard room: 400 to 500 RMB (\$55-68)
- Suites: 1280 RMB (\$175).

All the room prices of the above-mentioned three hotels are proposed special rates for holding the conference.

## Venue

All of the three proposed hotels can host big conferences.



**1. Crowne Plaza Kunshan East, an IHG Hotel.** — The main meeting hall can accommodate around **1,500 people**, and there are more than **8 meeting rooms** can hold concurrent sessions about 100-300 people. Smaller meeting rooms available for ICS and subcommission business meetings are also available (~50 people). All the meeting rooms are equipped with lecterns, microphones, projectors.

**2. Kunshan Jinling Grand Hotel.** — The main meeting hall can accommodate around **1,400 people**, and there are more than **10 meeting rooms** can hold concurrent sessions about 100-600 people. Smaller meeting rooms available for commission and subcommission business meetings are also available (~50 people). All the meeting rooms are equipped with lecterns, microphones, projectors.

**3. Crown International Exhibition Hotel (Kunshan).** — The main meeting hall can accommodate around **1,500 people**, and there are more than **10 meeting rooms** can hold concurrent sessions about 100-300 people. Smaller meeting rooms available for commission and subcommission business meetings are also available (~50 people). All the meeting rooms are equipped with lecterns, microphones, projectors.

## Field Trips

Proposed pre/post-congress field excursions:

**1. Critical stratigraphic boundary intervals in NE Yunnan and W. Guizhou, SW China.** — This 5-day excursion will examine the well-studied type sections across the Ediacaran-Cambrian, Silurian-Devonian and Permian-Triassic boundary intervals. The main geological sites include: (1) the Ediacaran-Cambrian boundary stratotype section at Meishucun, Jinning, showing the abundant and diverse phosphatized small shelly fossils and trace fossils, as well earliest fossil occurrence of trilobites and soft-bodied fossils. (2) The fossil site the Cambrian Chengjiang fauna and the Field Research Station of Nanjing Institute of Geology and Palaeontology (CAS) at Maotianshan, UNESCO Natural Heritage. (3) Sections across the Silurian-Devonian boundary interval and the famous early vertebrate fossil sites of the late Silurian Xiaoxiang fauna and Xitun Fauna, as well early land plant fossil sites near Qujing. (4) Terrestrial Permian-Triassic section at the Taoshujing section, Xuanwei, in western Yunnan Province, showing the transition from humid swamp to semiarid alluvial environments and the collapse of the tropical forest ecosystem across the Permian-Triassic boundary.



*Ediacaran-Cambrian boundary stratotype section at Meishucun (left); fossil site of the Chengjiang fauna at Maotianshan (right).*

- Participants: **20-30** persons
- Trip duration: **5** days
- Estimated cost: **3500 RMB/500\$** (including accommodation, meals, transport, guidebook, etc.; flight costs are not included)

**2. The Cryogenian-Cambrian stratigraphy and biotas in Guizhou and W. Hunan, SW China.** — This **5-day excursion** will be organized to check the Cryogenian-Cambrian sections in various facies ranging from the shallow to deeper water, including famous fossil sites and the Cambrian GSSPs of the Wuliuan, Guzhangian and Paibian stages in Guizhou and W. Hunan. The main geological sites include: (1) The Cryogenian-Ediacaran section and the fossil site and Field Research Station of the Ediacaran Weng'an biota at Beidoushan phosphorite mine, Weng'an, showing the abundant and diverse phosphatized embryo fossils. (2) The pre-Cryogenian to Cambrian succession in the slope facies at Wuhe section, the fossil site of the Cambrian Kaili biota and the Wuliuan GSSP at Dengzhou, Jianhe. (3) The Cryogenian to Cambrian succession in the slope facies, and fossil site of the Ediacaran Wenghui biota showing the abundant and diverse macroscopic carbonaceous fossils associated with the Ediacara-type fossils at Taoying and the Cambrian Huayuan biota showing the abundant and diverse Burgess Shale-type fossils at Jiwei. (4) The GSSPs of the Cambrian Guzhangian and Paibian stages in Huayuan and Guzhang.

- Participants: **20-30** persons
- Trip duration: **5** days
- Estimated cost: **3500 RMB/500\$** (including accommodation, meals, transport, guidebook, etc.; flight costs are not included)



*Fossil site of the Weng'an biota at the Beidoushan phosphorite mine, Weng'an (left); the Wuliuan Stage GSSP at the Dengzhou, Jianhe (right).*

**3. Late Paleozoic to earliest Mesozoic stratigraphy and faunas in Guizhou, South China.** — This excursion investigates the well-preserved successions of Carboniferous, Permian to early Triassic, including: the Late Paleozoic ice age (LPIA) at the Naqing section, and the Early Triassic lagerstätten of the Wangmo and Guiyang biotas. The Naqing section, is located in Luodian County, southern Guizhou province, South China. It is represented by the platform margin to slope facies and contains continuous carbonate deposits from the Early Carboniferous to the Late Permian. Conodont fossils are abundant throughout the section, providing potential correlation with the global scale chronostratigraphic scheme. The basal boundary of four Carboniferous stages, namely the Serpukhovian, Moscovian, Kasimovian, and Gzhelian stages can be well defined by conodonts and foraminifers (fusulines) in the section. Meanwhile, through the geochemical studies on  $\delta^{238}\text{U}_{\text{carb}}$ ,  $\delta^{13}\text{C}_{\text{carb}}$ , and  $\delta^{18}\text{O}_{\text{PO}_4}$ , two environmental events such as warming and expanded oceanic anoxia during



the Late Paleozoic Ice Age (LPIA) can be observed in this section, one of which occur at the end-Serpukhovian stage and another at the earliest Gzhelian stage.

High-resolution cyclostratigraphy and sedimentology further enhance our understanding of the temporal and spatial evolution of the South China Sea during the LPIA. The Naqing section offers a unique opportunity to refine the Carboniferous and Lower Permian timescales, study the evolution of Late Paleozoic conodonts, reconstruct paleoenvironmental and paleoclimatic changes during the LPIA, and examine the bio-environment interactions during one of Earth's most extreme climatic periods.

The exceptionally preserved lagerstätten have also been reported from the Wangmo county and Guiyang city, Guizhou Province, named as the Wangmo and Guiyang biotas. These exceptional fossils are yielded in the lower part of the Lower Triassic (i.e. 250.83  $\pm$  0.07/ – 0.06 million years ago). The Guiyang biota comprises at least 12 classes and 19 orders, including diverse fish fauna and malacostracans, revealing a trophically complex marine ecosystem. Therefore, these early Triassic Lagerstätten represent the oldest known Mesozoic biotas, marking the rapid rise of modern-type marine ecosystems after the Permian-Triassic mass extinction. The Wangmo biota is an another newly discovered early Triassic fossil Lagerstätte in Wangmo County, two hours driving from Guiyang. The fossils are exceptionally preserved in thin bedded mudstones and microcrystalline limestones of the Lower Triassic Luolou Formation. The fossil assemblages are dominated by ammonites and arthropods, accompanied by bivalves, belemnoids, brachiopods, conodonts, fishes, microconchids, and problematic fossils.

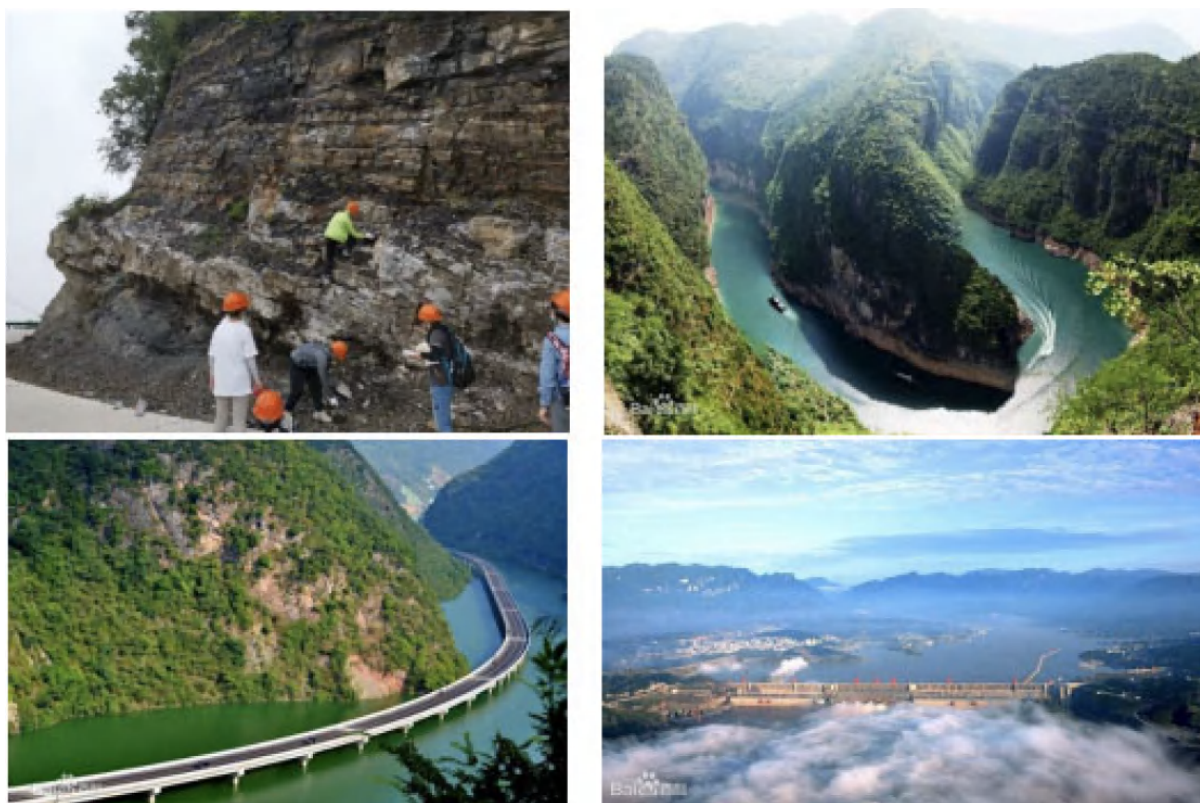
- Participants: 20-30 persons
- Trip duration: 4 days
- Estimated cost: 3000 RMB/700\$ (including accommodation, meals, transport, guidebook, etc. ; flight costs are not included)



*Distal view of the Naqing section with a sequence from Devonian until Triassic*



**4. From Snowball Earth to Great Mass Extinction: Ediacaran to Triassic Stratigraphic Records in the Three Gorge area, central China.** — The Three Gorge area, western Hubei Province, central China is not only famous with the spectacular landscapes sculptured by the Yangtze River and the greatest dam in the world, but also records one of the most continuous marine Late Neoproterozoic to Mesozoic successions in China, providing the classic book of Earth evolution for this period and displaying excellent stratigraphic and geologic records of several most important events characterizing the lifeenvironment evolutions of Earth, including the Snowball Earth event, early animal evolution, Cambrian explosion (Qingjiang Lagerstätte), the Great Ordovician Biodiversification, end-Ordovician mass extinction, two GSSPs of stages within the Ordovician, middle-late Permian mass extinction, Permian-Triassic mass extinction, and Early Triassic hothouse regime.



*Cap carbonate of the Doushantuo Formation, Ediacaran (upper left); beautiful landscape of the Dengying Fm dolomites sculptured by Yangtze River (upper right); water highway in Three Gorge area (lower left); Great Dam of the Yangtze River (lower right).*

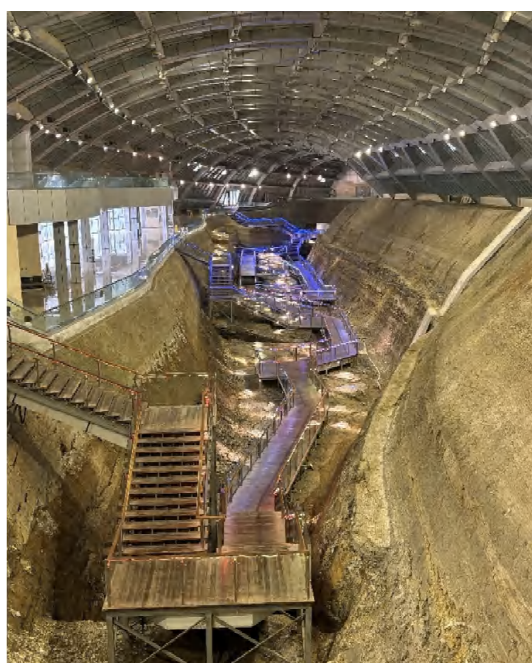
This 7-day excursion will examine Ediacaran succession that is characterized by Marinoan tillite, cap carbonate, black shale, and massive dolomite, and correlates well with their counterparts exposed elsewhere in China and the world. The well-known Marinoan Snowball Earth event and its aftermath as well as unique records of well-known multicellular Ediacaran biota (Shibantan Biota, including the first footprint of animal ever in Earth history) are also investigated in this route. The Precambrian-Cambrian transition is rather continuous and comprised of black shales containing abundant phosphorus sediments of industrial value. The Qingjiang Lagerstätte, equivalent to the Chengjiang Biota, from the Changyang county of Yichang City witnessed the Cambrian explosion in early Cambrian. The Lower Paleozoic successions are particularly continuous around the Yichang City and yield abundant invertebrate fossils. To date, at least two stage-level GSSPs of the Ordovician have been established in this area, and the Ordovician/Silurian (O/S) boundary mass extinction is also

well recorded herein. The equivalent of black shale succession yielding huge sources of shale-gas in South China is also examined during this excursion. The Devonian to Lower Permian strata are locally exposed in the Three Gorge area. The middle Permian to Triassic successions are well exposed in the Xiaokou section of the Xingshan county, northern part of the Three Gorge area, displaying lithologic and biotic variations across the Guadalupian-Lopingian and Permian-Triassic mass extinctions. The Lower marine reptile Lagerstätte of the Yuanan Biota is also located in the north of Yichang City. The Middle-Upper Triassic successions are dominated by lacustrine facies sediments, while the Jurassic comprises fluvial facies conglomerate, sandstone and mudstone due to the uplift of the Three Gorge area since the Middle Triassic.

The complete and continuous successions of the Ediacaran to Triassic of this excursion offers you a better understanding of biotic and environmental evolution during the first half pace of Phanerozoic. Additionally, this field excursion provides a unique opportunity to enjoy the spectacular landscapes of the Three Gorges and great dam as well as local cultures of ancient Chu Kingdom in the central part of China.

- Participants: **20-30** persons
- Trip duration: **7** days
- Estimated cost: **5000 RMB/700\$** (including accommodation, meals, transport, guidebook, etc.; flight costs are not included)

**5. The Yanliao and Jehol biotas in North China.** — The Mesozoic strata of western Liaoning, northern Hebei Province, and southeastern Inner Mongolia host the renowned Yanliao and Jehol Biotas, offering critical insights into terrestrial ecosystems during the middle to late Mesozoic.



The Yanliao Biota is widely distributed in Ningcheng, Inner Mongolia; Luanping and Qinglong in northern Hebei; and Lingyuan, Beipiao, Jianchang, and Jianping in western Liaoning. It can be subdivided into two assemblages: the Lower Assemblage, represented by the Daohugou Biota, with fossils preserved in the Haifanggou Formation (upper Middle Jurassic) in Ningcheng, Inner Mongolia, where numerous fossils of insects, branchiopods, salamanders, feathered dinosaurs, diverse mammals, and abundant plant fossils have been discovered; and the Upper Assemblage, represented by the Linglongta Biota, with fossils preserved in the Tiaojishan Formation (Middle to Upper Jurassic) in Jianchang, western Liaoning, where numerous fossils of insects, fishes, feathered dinosaurs, and pterosaurs have been found.

*The section yielding the Jehol Biota from the Jiufutang Formation in the Chaoyang Museum in Liaoning Province, NE China*

The Early Cretaceous Jehol Biota is widely distributed in Beipiao and Lingyuan in western Liaoning, Weichang and Pingquan in northern Hebei, and Ningcheng in Inner Mongolia. It can be divided into three assemblages: the Lower Assemblage, mainly preserved in the Dabeigou Formation in northern Hebei, yielding numerous fossils of insects, branchiopods, fishes, salamanders, and birds; the Middle Assemblage, marking the zenith of the flourishing period of the Jehol Biota, centered in the Yanliao area and preserved in the Yixian Formation, characterized by abundant fossils of insects, fishes, pterosaurs, dinosaurs, birds, mammals, and plants, among which the *Confuciusornis*-rich layer has an absolute age of *ca.* 125 Ma; and the Upper Assemblage, represented by fossils preserved in the Jiufotang Formation in Lingyuan and Jianchang, western Liaoning, mainly including fishes, reptiles, and birds.

The exceptionally preserved Yanliao Biota of the Middle-Late Jurassic and the Jehol Biota of the Early Cretaceous are located in core areas with developed volcanic rocks, and their fossil layers often have well-constrained chronologies. The fossils are exquisitely preserved and vast in number, serving as a treasure trove for understanding the evolution of terrestrial ecosystems during the Mesozoic.

- Participants: **20-30** persons
- Trip duration: **4** days
- Estimated cost: **3000 RMB/400\$** (including accommodation, meals, transport, guidebook, etc.; flight costs are not included)

**6. Linxia Basin and Loess in North China.** — The Linxia Basin is located at the triple junction of the northeastern Tibetan Plateau, the western Qinling Mountains, and the Loess Plateau, delineated by high-angle deep thrusts. The lateral extent of the Linxia Basin is marked by structural boundaries on the northern, western, and southern edges, but its eastern margin is poorly determined. The basin is filled with 700-2000 m of Cenozoic deposits, mainly red in color and dominated by lacustrine siltstones and mudstones punctuated by fluvial conglomerates or sandstones, and 30-200 m of Quaternary loess sediments. To the west and south, the major basin-bounding faults within the Tibetan Plateau are the Leijishan and North Qinling faults, respectively. The Cenozoic deposits of the Linxia Basin begin in the Eocene and lap over Cretaceous deposits in the Maxian Mountains to the north. Throughout the central part of the Linxia Basin, the oldest deposits were laid down unconformably on the granite of presumed Paleozoic age. To the southwest of the Linxia Basin, the Tibetan Plateau consists of Devonian-Permian terrestrial and marine deposits and Triassic submarine fan deposits, which were shed by the east-southeast striking Qinling Mountain belt to the east of the plateau.

The Cenozoic sediments in the Linxia Basin are relatively stable, with strata close to horizontal and containing a large number of mammalian and other vertebrate fossils. It is not only an ideal area for studying the evolution of Cenozoic mammals, but also records important information such as the tectonic movement and climate change in the northeastern margin of the Tibetan Plateau. The localities in the Linxia Basin are notable for abundant, relatively complete, well-preserved, and sometimes partially articulated bones of large mammals, which often occur in dense concentrations. Many new species of the Late Oligocene *Paraceratherium* (giant rhino) fauna, the Middle Miocene *Platybelodon* (shovel-tusked elephant) fauna, the Late Miocene *Hipparion* (three-toed horse) fauna, and the Early Pleistocene *Equus* (true horse) fauna have been described from the Linxia Basin, including insectivores, rodents, lagomorphs, primates, carnivores, proboscideans, perissodactyls, and artiodactyls. The region in the Linxia Basin, mainly consisting of Hezheng, Guanghe, and Dongxiang counties, which is rich in Cenozoic fossils, is called the Hezheng area. It is the largest Cenozoic mammalian fossil producing area in China and the world, especially in the period of the *Hipparion* fauna.



The loess in China is renowned for its wide distribution range, continuity, complete stratigraphic development, and large thickness, forming the famous Loess Plateau. The Quaternary loess in the Linxia Basin, like the typical sequence of the Loess Plateau, includes the Early Pleistocene Wucheng Loess, the Middle Pleistocene Lishi Loess, and the Late Pleistocene Malan Loess. The loess strata contain multiple paleosol layers, indicating that the ancient climate during the formation of loess underwent multiple dry-cold and humid-warm changes. Through the study of loess, the changes in atmospheric circulation, the evolution of ancient climate and environment, and the processes of dust transport and accumulation can be revealed. Therefore, loess, along with ice cores and deep-sea sediments, are known as the “three pillars” of paleoclimatological research.

- Participants: **20-30** persons
- Trip duration: **4** days
- Estimated cost: **3000 RMB/400\$** (including accommodation, meals, transport, guidebook, etc. ; flight costs are not included)



*An example of the Linxia Basin exposures is near the basin center looking toward the northwest. Cenozoic exposures are excellent and continuous, with many fossil-rich beds.*

**7. Mesoproterozoic, Cambrian and terrestrial Permian-Triassic successions in the Yuntai Mountain-Shaolin Temple areas, Henan Province, central China.** — Marine Mesoproterozoic and Cambrian, and terrestrial Permian and Triassic successions are well exposed in the Yuntaishan, Dengfeng and Yiyang areas, respectively in Henan Province, central China. The Yuntai mountain consists mainly of Mesoproterozoic conglomerate, sandstone and mudstone of the Ruyang Group. The spectacular reddish sandstone landscapes sculptured by the local creeks not only attract publics and thus become one of the most attractive tourist hot spots in central China, but also provide a unique window investigating

Mesoproterozoic environment and ecosystems. Here, reddish sandstone yields abundant microbially induced sedimentary structures (MISSs), and wrinkle structures, sandy cracks and microbial mats are particularly common. Acritarch microfossils have also been extracted from the mudstone sediments of the Ruyang Group.

Cambrian successions are well exposed in the Dengfeng area, at which the famous Shaolin Temple of Chinese Kung Fu is located. The Cambrian strata are dominated by muddy limestones which are often highly bioturbated and yield abundant microbialites and giant ooids. Here we will examine substrate revolution of Cambrian where trace-making animals were associated with microbial ecosystems (microbial mats or ooids). Terrestrial Permian and Triassic successions are well exposed in many areas of Henan Province, while the Permian-Triassic boundary succession is best exposed in Yiyang area. Here, the uppermost Permian strata comprise greenish and black shale/mudstone and sandstone of floodplain facies of the lower Sunjiagou Formation, while the basal Triassic is characterized by massive reddish paleosols, sandstone and mudstone of the upper Sunjiagou Formation, followed by massive sandstone/conglomerates of the Liujiagou Formation, which indicates the sedimentation of fluvial facies. The lithological variations are distinct across the P-Tr boundary and also indicate pronounced climatic changes from warm-wet condition to arid-hot regime.



*Field photos showing reddish sandstones and conglomerates of the Mesoproterozoic Ruyang Group, which form the gorges of the Yuntai Mountain Geopark, Henan Province, central China (left) and the continuous Permian-Triassic boundary indicated by the base of these three layers of reddish beds at the Yiyang section (central part of the photograph on the right)*

This 4-day excursion offers you a better understanding of biotic and environmental evolution during the Mesoproterozoic, Cambrian and particularly terrestrial ecosystems of the P-Tr transition. Besides, this field excursion also provides a unique opportunity to enjoy the spectacular landscapes of the Yuntai Mountain Geopark as well as Chinese Gung Fu cultures at the famous Shaolin Temple.

- Participants: **20-30** persons
- Trip duration: **4** days
- Estimated cost: **3000 RMB/400\$** (including accommodation, meals, transport, guidebook, etc.; flight costs are not included)



*Many small towers at the Shaolin Temple in which buddhists practice Chinese Gung Fu.*

**8. Upper Devonian to lowest Carboniferous successions in Guilin Karst area, Guangxi, South China.** — The Guilin area of Guangxi Province, South China is famous for its spectacular carbonate karst landscapes and fantastic carbonate caves. Herein the cone-shaped hills consist of Upper Devonian carbonates, which usually develop platform facies metazoan reefs (i.e. sponge and coral reefs) of Frasnian and microbialites of Famennian, witnessing biosedimentary changes from the metazoan-dominated reef systems to microbial reefs across the Frasnian-Famennian (FF) mass extinction on shallow platforms.



*Field photos showing spectacular karst landscapes of Upper Devonian microbial limestones*

The continuous F-F boundary is recorded at the Yangdi and Baisha sections, representing the restricted platform and intraplatform basin facies, respectively. In Yangdi the F-F succession comprises the Xiangtian and Wuzhishan formations. The former is composed of grey to dark grey brecciated limestone, muddy limestone, nodular limestone, while the



overlying Wuzhishan Formation comprises light grey nodular limestone. The Baisha section records relatively deeper successions of the F-F boundary, which are dominated by thin-bedded laminated muddy limestone of the Gubi Formation at the lower part of the section, while the upper part also consists of the Wuzhishan Formation (Zhao et al., 2024). The Famennian-Tournaisian (also Devonian- Carboniferous) boundary succession is recorded in the north of Guilin where we have chance to examine the Hangenberg extinction event.

- Participants: **20-30** persons
- Trip duration: **2** days
- Estimated cost: **1500 RMB/200\$** (including accommodation, meals, transport, guidebook, etc. ; flight costs are not included)

**9. Mesoproterozoic successions in Jixian area, Tianjin City, North China.** — The relatively complete Mesoproterozoic successions were deposited in some rift and postrift basins in the North China Craton in the course of tectonic evolution from the break-up of Columbia to the assembly of Rodinia during the Mesoproterozoic times. The entire Mesoproterozoic succession is composed of the Changcheng and Jixian Groups. The former includes the Tuanshanzi, Dahongyu, and Gaoyuzhuang Formations, while the Jixian Group comprises the Yangzhuang, Wumishan, Hongshuizhuang, and Tieling Formations. The overlying Xiamaling Formation is assigned to Tonian in age.

The Mesoproterozoic successions (~6.4 Ga-1.4 Ga) are best exposed in the Jixian area, which was situated the northeastern margins of the North China Craton. This 2-day excursion will examine the Changzhougou, Chuanlinggou, Tuanshanzi, Dahongyu, Gaoyuzhuang, Yangzhuang, Wumishan, Hongshuizhuang, Tieling, and Xiamaling formations in ascending order. Of these, the first confirmed eukaryotes from the Gaoyuzhuang Formation (Miao et al., 2024), mini-digital stromatolites from the Wumishan Formation, and spectacular giant stromatolites This 2-day excursion offers you a better understanding of biotic and environmental evolutions during the Mesoproterozoic and a unique opportunity to enjoy local cultures of North China.



*Field photos showing carbonate successions of Mesoproterozoic in Jixian, Tianjin City*



- Participants: **20-30** persons
- Trip duration: **2** days
- Estimated cost: **1500 RMB/200\$** (including accommodation, meals, transport, guidebook, etc.; flight costs are not included)

*Field photos showing the stromatolites of the Tieling Formation.*

Proposed one-day field trip:

**1. Meishan section and Meishan Geopark.** — The Meishan sections, recognized as the most intensively studied geological site in the world, feature the unique Changhsingian body stratotype defined by two Global Boundary Stratotype Sections and Points (GSSPs). These sections capture the entire process of the end-Permian mass extinction and serve as a cornerstone for understanding Earth's history in both scientific and popular contexts. To highlight its significance, a geopark and two exceptional paleontological and GSSP museums have been established at the site.

The Meishan Geopark offers a rich repository for exploring the Permian-Triassic world, the GSSPs, volcanic ash layers, the history of the largest mass extinction of the Phanerozoic, and the local culture. The Meishan Museums provide a vivid depiction of Earth's life history, showcasing a diverse array of fossils, minerals, and the contributions of prominent Chinese and international scientists who have studied the Meishan sections. This site has become a premier destination for students across China and plays a crucial role in promoting geoscientific knowledge and environmental awareness to the public. Additionally, it fosters international scientific research and collaboration.

- Participants: **10-40** persons
- Estimated cost: **800 RMB/100\$** (including meals, transport, guidebook, etc.)





**2. Tai Lake Xishan Section.** — The Xishan section is located on the Xishan Island in Tai Lake in Jiangsu Province, South China. During the Permian-Triassic transition, the South China Block was located in the eastern Palaeo-Tethys near the equator, where shallow platforms were widespread and separated by numerous deep intra-platform basins or troughs. The section is composed of the uppermost Permian and the lowermost Triassic strata. The uppermost Permian succession (Changxing Formation) is a set of 179 m-thick limestone accumulated on the carbonate platform. These limestones mainly comprise thick- to very thick-bedded bioclastic grainstone/packstone with sponge reef/mound interbeddings. Overlying the grainstone/packstone-reef/mound complex is a set of 9 m-thick thin- to medium-bedded calcareous algae wackestone/packstone. Fossils in the Permian Changxing Formation are abundant and diverse, including calcareous algae, calcareous sponges, bryozoans, crinoids, fusulinids, small foraminifers, gastropods, brachiopods, and ostracods. The lowermost Triassic succession (Yinkeng Formation) is a 14-m-thick deep-shelf mixed carbonate-siliciclastic sequence, consisting of grayish green and grayish black mudstone with very thin- to thin-bedded dolomite interbeddings. Fossils are sparse, dominated by brachiopods, gastropods, and echinoderm clasts of Permian types, with occasional Triassic-type bivalve shell beds. The abrupt decrease of fossil diversity and abundance at the boundary between the Changxing and the Yinkeng formations indicates the Permian-Triassic event boundary (or the maximum mass extinction horizon).



*The Permian-Triassic boundary interval at Xishan, Suzhou*



The basal 2-m-thick layer of the Yingkeng Formation is a dolostone crust. It is in this stratigraphic interval we discovered carbonate concretions approximately 10 cm across with fabrics and fossils associated with microbialites. The microbialite-associated structures in these concretions include clotted fabrics and laminated carbonate needles, as well as abundant carbonate crystal fans. Fossil groups associated with microbialite include microconchids, small gastropods, and small foraminifers. On the basis of the analysis of the microfabrics and the fossil groups together with a comparison to modern analogues, we attribute the formation of the micritic patches in the microbialite concretions to the calcification of cyanobacterial mats via carbonate nanoparticles and we attribute the carbonate crystal fans to the direct recrystallization of micritic carbonates. The sparitic patches were interpreted as either the direct recrystallization of micritic carbonates or the precipitation of carbonate spars in the inter-/intra-spaces of metazoan shells together with the recrystallization of these shells. The similarities to modern stromatolites, both in morphology and in internal texture, suggest that the laminated carbonate needles are stromatolite laminae built by filamentous cyanobacteria. The preservation of these microbialite microfabrics indicates that early lithification by carbonate precipitation was widespread and intense following the end-Permian boundary events. The weak development of microbialites as small concretions may be attributed to the deeper water depth and the lower water energy in the Xishan area during the earliest Triassic.

- Participants: **10-40** persons
- Estimated cost: **800 RMB/100\$** (including meals, transport, guidebook, etc.)

**3. Ordovician Strata in the Changshan-Jiangshan Region and the Global Boundary Stratotype Section and Point (GSSP) for the Darriwilian Stage.** — The northwestern Zhejiang region, encompassing Changshan and Jiangshan counties, serves as a classic area for the study of Ordovician systems in China. Pioneering geological investigations in this region date back to the late 19th century. Ordovician rocks are extensively exposed and exhibit pronounced folding predominantly in a NE-SW orientation. The Ordovician stratigraphy comprises several formations: the Yinchufu Formation (Tremadocian), Ningkuo Formation (Floian to lower Darriwilian), Hulo Formation (middle Darriwilian to lower Sandbian), Yenwashan Formation (middle Sandbian to lower Katian), Huangnehkang Formation (middle Katian), Changwu/Sanqushan Formation (late Katian), and Wenchang/Hongjiawu Formation (Hirnantian?). Generally, the Early to early Late Ordovician rocks across the region exhibit considerable homogeneity, predominantly composed of shales and carbonates. In contrast, the upper Upper Ordovician strata show greater differentiation, characterized by hundreds of meters thick sequences of flysch and carbonates containing reefs. A comprehensive biostratigraphic succession has been established based on abundant fossil occurrences, primarily anchored in graptolite biozones.



*The Global Boundary Stratotype Section and Point (GSSP) for the base of the Darriwilian stage at the Huangnitang section, Changshan County, Zhejiang Province, SE China*

## CONFERENCE ANNOUNCEMENTS

The Global Boundary Stratotype Section and Point (GSSP) for the base of the Darriwilian stage was established at the Huangnitang section in 1997, marking the first “Golden Spike” in China. This section is situated along the riverside near Huangnitang village in the Tianma subdistrict, approximately 3.5 km southwest of Changshan County.

- Participants: **10-40** persons
- Estimated cost: **800 RMB/100\$** (including meals, transport, guidebook, etc.)

### Accompanying members

Hosts can organize extra short trips (1, 2, or 3-days) around the region during the conference and professional teams will be hired to provide services.

### Social activities

Ice-breaker, pub tour and conference dinner can all be held in the venue hotel which provides excellent services for the social events.

### Sponsorship

- 1) “Deep-time Digital Earth” Big Science Program.
- 2) Jiangsu provincial and Suzhou government of China

### Promotion

- First circular and call for session proposals: May, 2025
- Second circular and call for abstracts: October, 2025
- Abstract submission and early registration deadline: February 28th, 2026
- Final circular: May 1st, 2026

### Anticipated registration fees

Registration fee including icebreaker, lunch, hard copy program, digital proceedings and a bag.

- Early-bird registration : 2000 RMB/280\$ (professional) 1200 RMB/160\$ (students)
- Standard registration: 2900 RMB/400\$ (professional) 1500 RMB/200\$ (students)
- Onsite registration: 3300 RMB/450\$ (professional)



IGCP 735 regional meeting and field excursion  
Kitab Geological National Natural Park (Uzbekistan), August 2026



The IGCP 735 workshop and field excursion on the Ordovician System is scheduled to take place in the Kitab Geological National Natural Park. This park protects unique geological objects from the Palaeozoic era, including stratigraphic and fossiliferous sites of worldwide importance, as well as modern fauna, flora, and landscapes in the western part of the Zeravshan-Hissar mountain region and the Kashka-Dariya river basin. It boasts the best-documented Upper Ordovician rock sequence exposed in Uzbekistan and an almost continuous Ordovician- Silurian transition.

The area is part of a complex orogenic belt formed during the late Palaeozoic era. It belongs to the Zeravshan-Hissar tectonic unit and is commonly referred to as the hypothetical Karakum-Tajik or Turan microplate in Ordovician-Silurian palaeogeographic reconstructions. Unlike other parts of Uzbekistan, the Ordovician deposits within Kitab National Natural Park mainly consist of shallow- water siliciclastic and carbonate deposits, with a few horizons of volcanic and volcanoclastic rocks referred to the Shahriomon Formation, which mainly corresponds to the *Dicellograptus complanatus* - *Paraorthograptus pacificus* graptolite zones. During this interval, biodiversity trends were characterized by successive immigrations, leading to the replacement of typical Mediterranean fauna (brachiopods, trilobites, and echinoderms) with distinct tropical/subtropical fauna (stromatoporoids, rugose and tabulate corals, and brachiopods with affinities to South China) within the duration of the *Paraorthograptus pacificus* graptolite Zone. This shift was likely caused by a change in climatic belts due to significant global warming just before the Hirnantian glaciation.



*Southwestern spurs of the Hissar Range (left); Upper Ordovician Archalyk beds in the Novobak section (right).*





*The mouth of the Khodzha-Kurgan stream with the base camp of the Kitab Nature Park*

The workshop and field excursion provide a valuable opportunity to renew and strengthen cooperation among researchers working on various aspects of Ordovician and Silurian geology and palaeontology. It will be held at the Kitab Natural Park's field base camp in the Dzhindydarya River valley. The Park is equipped with all necessary facilities: residential premises, cameral and laboratory workspaces, an assembly hall, paleontological and modern fauna/flora museums, and dining amenities. The event will include a 1- or 2-day meeting at the base camp's conference hall, featuring oral and poster presentations and public events, along with a one-day cultural tour to Shahrissabz Town. Additionally, a field excursion will visit classic Ordovician sections of the Southern Tien Shan, located in the Zeravshan-Alai tectonic unit.

During the field excursion, participants will explore 3-4 well-studied Upper Ordovician sections, including Shakhriomon Pass and the Novobak and Zinzilban gorges. These sections contain horizons with brachiopods, trilobites, corals, crinoids, algae, conodonts, and chitinozoans.

The Kitab Nature Park holds the Global Stratotype Section and Point (GSSP) defining the base of the global Emsian Stage, the uppermost chronostratigraphical unit of the Lower Devonian Series, located in the Zinzilban section. This designation was made by the International Subcommission on Devonian Stratigraphy and approved by the International Commission on Stratigraphic Nomenclature and the IUGS Executive Committee in 1989, making the Zinzilban section a part of the world's geological heritage and granting Kitab Nature Park international status. Participants interested in this information will have the opportunity to visit the GSSP.

Administratively, the National Park belongs to the Kitab District of the Kashkadarya Region in southern Uzbekistan. This region boasts diverse natural landscapes and historical places. The Park is near Shahrissabz Town, a renowned historical location in Uzbekistan. In ancient times, it was on the southern section of the Great Silk Road, where caravans travelled through the Kashkadarya Valley to Bactria and India. Shahrissabz is the birthplace of Tamerlane, a prominent statesman of the East and founder of the Timurid dynasty, which extended its influence to India.



Although it was a small town during Tamerlane's time, his descendants continued its development long after his death. Today, Shahrizabz is a center of advanced industry and high culture, famed for traditional bright rugs, fine embroidery, ceramics, and good wines. Its unique architectural monuments, grand in scale and magnificence, maintain the medieval atmosphere of an ancient oriental town. We aim to create all the necessary conditions to make this meeting valuable and engaging for specialists, and for those who simply want to visit Kitab Nature Park.

If you are interested in this event or have any questions, please contact us at [coral06@mail.ru](mailto:coral06@mail.ru). We would be grateful if you inform us of your intention to participate in advance so we can proceed with organizing the event.

*Firuz Salimova, Nodir Davlatov, Nuriddin Abdiev, Mir-Alisher Ismailov*



*Architectural monuments of the Timurid epoch (1370–1507), Shahrizabz*

## CONFERENCE ANNOUNCEMENTS

7<sup>th</sup> International Palaeontological Congress  
& 6<sup>th</sup> annual meeting of IGCP 735,  
Cape Town (South Africa), November 30 –December 3, 2026



You are warmly invited to attend the 7<sup>th</sup> International Palaeontological Congress (IPC7) in South Africa in 2026. This is the first time that this meeting will be held in Africa, and we are delighted to be hosting the meeting in Cape Town during our pleasant early summer season from the 30 November to 3 December 2026.

### Venue

The venue for IPC7 will be the top-rated sustainably designed Century City Conference Centre (CCCC) ([ccconferencecentre.co.za](http://ccconferencecentre.co.za)), which has cutting-edge technological facilities and the capacity to host hundreds of delegates. The CCCC is situated in Century City, which is just 10 mins from Cape Town's CBD, and hosts several hotels, and numerous restaurants to suit all pockets. CCCC is meticulously maintained, a short walk to the award-winning wetlands and bird sanctuary, Intaka Island (<https://intaka.co.za/>), and the beautifully landscaped Ratanga Park.

### Field excursions and access to collections

We are also organising a series of fieldtrips to give delegates a feel for the richly fossiliferous rocks in southern Africa that span significant periods of geological time. Among the fieldtrips planned are a mid-conference day trip to West Coast Fossil Park, as well as a visit to the local Iziko SA Museum of Cape Town.

In addition, several pre- and post-conference trips are being planned to the:

- Karoo Basin
- Evolution of Early-Middle Palaeozoic environments and ecosystems of South Africa
- Devonian Ecosystems
- Lower Jurassic of Southern Africa
- Maropeng Cradle of Humankind

More details about the different fieldtrips are available on our website: The 7th International Palaeontological Congress ([ipc7.site](http://ipc7.site))

Museum collection visits to various museums (see below) in South Africa can be arranged post- or pre- conference.

- Iziko Museums of Cape Town
- Ditsong Museums (Pretoria)
- Albany Museums (Makhanda)
- Bloemfontein National Museum
- Evolutionary Studies Institute (Johannesburg)



## General information

The conference is open to any aspect of palaeontology, and we invite you to propose a symposium or themed session on any of the following topics, or on any other topic for which you think you would be able to attract speakers: Early Life: origin, and diversification; Palaeozoic seas; Evolution of trees and forests; Early animals; Tetrapod diversification; Therapsid diversification; Diversification of angiosperms; Rise of Archosauromorpha; The rise and diversification of nonavian dinosaurs; Evolution of birds; Palaeoneurology; Devonian stratigraphy, environments, and palaeontology; Cenozoic vertebrates; Extinctions; Ichnology; Continental Palaeoecology; Indigenous Knowledge; Indigenous palaeontology; Evolution of the brain and nervous system; Palaeohistology of mineralised tissues; Hominin diversification; Palaeosciences to the wider public; Synchrotron imaging and 3D imaging; 3D Morphometrics; General palaeontology.

## Symposia

Here is a list of all the accepted symposia for IPC7. Although conveners have already identified several potential speakers, you are still welcome to present in the symposia if your work falls within the ambit of the symposium. Please click on the download tab to get more details about the symposium and to find the contact details of the organisers.

1. Major biotic events during the Ordovician and Silurian and their dynamics
2. Paleoneurology, cognition, and behaviour of vertebrates, from fish to hominins
3. The History and pre-history of palaeosciences, geomyths, and indigenous palaeontology
4. Recent advances in Mongolian Cretaceous Palaeontology and Geology
5. Life in the Phanerozoic Oceans: Evolution, diversity and ecology in deep time marine ecosystems
6. The Precambrian: the earliest chronicles of life on Earth
7. Ichnology – traces as multi-disciplinary lenses into the deep past
8. Biogeography: ranging through a dynamic Earth
9. The Evolution and Diversification of Life in the Neoproterozoic and Cambrian
10. Devonian stratigraphy, environments and palaeontology with focus on Gondwana

## 11. Filling knowledge gaps in the Early Palaeozoic Biodiversification



Our understanding of the pattern and tempo of the initial diversification of metazoans in Early Palaeozoic times is more challenged than ever, with raising questions about the accuracy and completeness of the current sets of available palaeontological data and environmental proxies.

This symposium, corresponding to the sixth and final annual meeting of the UNESCO/IGCP 735 “Rocks and the Rise of Ordovician Life” (Rocks n’ROL) - <https://rocksnrol.wordpress.com/> - primarily aims at filling the numerous knowledge gaps related to various aspects of the Ordovician diversification: obviously, data gaps within the period

from the preceding Cambrian explosion to the post-Hirnantian Silurian recovery do exist, but also major regional biases in knowledge/data during the Ordovician itself, e.g. from Africa, South America, the Near and Middle East, southeastern Asia, Siberia.

This symposium is not restricted to talks on palaeo(bio)geographic and stratigraphic gaps, but it also welcomes all presentations contributing to enhance knowledge on less investigated or poorly known aspects of Early Palaeozoic diversifications related to e.g. taphonomic gaps, reef communities, trace fossils, and the early colonization of continental environments by plants and animals.

**Invited keynote speaker:** Sarah Gabbott, University of Leicester (UK)

**Conveners:**

Yves Candela (Y.Candela@nms.ac.uk)  
Khadija El Hariri (elhariri@fstg-marrakech.ac.ma)  
Mansoureh Ghobadi Pour (mghobadipour@yahoo.co.uk)  
Bertrand Lefebvre (bertrand.lefebvre@univ-lyon1.fr)  
Lena Raevskaya (lena.raevskaya@mail.ru)  
Oive Tinn (oive.tinn@ut.ee)  
Beatriz Waisfeld (bwaisfeld@unc.edu.ar)  
Wenhui Wang (wwhever@126.com)

If you are interested in this symposium, please contact the conveners.

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12. Recent advances in vertebrate taphonomy
13. Ichthyosaur evolution and biology
14. Origins: Triassic and Early Jurassic dinosaurs
15. Paleobionics: the biomechanical factors that drive evolution
16. Pangea in crisis: life on land during the Permian–Triassic
17. Recent advances in dinosaur eggs and reproduction
18. Disease in the fossil record
19. Advances on the histology of the mineralised tissues of vertebrates
20. Flight evolution in vertebrates
21. Communicating palaeosciences
22. New directions in palaeoanthropological research in Southern Africa
23. Cenozoic vertebrates of Africa
24. New Eocene faunas from Southwestern Morocco: paleoenvironmental and paleogeographic implications
25. Neogene primates and the origin and evolution of Hominidae
26. Freshwater paleoecosystems
27. Vegetation change and plant-insect interaction from the Palaeozoic until modern times - Case studies from Africa and beyond
28. Evolution of brain and cranial anatomy through five major extinctions
29. General

**Registration and abstract submission**

Preliminary registration for the conference: The 7th International Palaeontological Congress (ipc7.site)

Future circulars will provide more details regarding abstract submission format and deadline, accommodation, etc. If you have any questions, you are welcome to contact us by email [2026ipc7capetown@gmail.com](mailto:2026ipc7capetown@gmail.com) or on our social media channels.

### Organising Committee

Anusuya Chinsamy-Turan (Chair), University of Cape Town  
Emese M. Bordy, University of Cape Town  
Miengah Abrahams, University of Cape Town  
Maria-Eugenia Pereyra, University of Cape Town  
Caitlin Rabe (postgrad student), University of Cape Town  
Marion Bamford, University of the Witwatersrand  
Jonah Choiniere, University of the Witwatersrand  
Julien Benoit, University of the Witwatersrand  
Cameron Penn-Clarke, University of the Witwatersrand  
Romala Govender, Iziko Museums of Cape Town  
Mirriam Tawane, Ditsong Museum  
Rob Gess, Albany Museum  
Jonatan Dechamps, Website manager



Field Excursion to the Cape Supergroup will provide an unparalleled ~120 million-year long testament of environmental, and biodiversity change during the Palaeozoic (Ordovician-Carboniferous) from a uniquely West Gondwanan perspective. The Cederberg area is perhaps the best locale in West Gondwana to study this time period. Here, one can journey through time from the Ordovician to the Devonian. The rocks of the Table Mountain Group provide tantalising evidence for life's earliest movements onto land as well as early shallow marine ecosystems in rocks of the Graafwater and Peninsula formations. Importantly, the Table Mountain Group contains evidence that South Africa was a refugium for the Late Ordovician Hirnantian biota in the aftermath of a global ice-age recorded in the strata of the Pakhuis and Cedarberg formations. The fossils of the Bokkeveld Group comprise the truly West Gondwanan endemic Malvinohosan biota that persisted at high polar latitudes during global hothouse conditions in the Devonian Period. Their rise and demise is closely linked to changes in environment that are recorded in these rocks as well as the overlying Witteberg Group [**Fieldtrip leader:** Cameron Penn-Clarke].



### 15<sup>th</sup> International Symposium on the Ordovician System Xi'an (China), August 2027

The 15<sup>th</sup> International Symposium on the Ordovician System (ISOS) is planned to be held at Northwestern University in Xi'an (central China) in August 2027. The organizers of this symposium will provide a wonderful opportunity for the international Ordovician community to meet old and new friends and to exchange their recent progresses of research on the Ordovician System from a global and multidisciplinary perspective, which will obviously strengthen the communication and collaboration between Ordovician workers (such as experts, students, technicians, etc.).

It has been 20 years when ISOS comes back to China in 2027. Some of our friends may remember that, in July 2007, the Ordovician working group at the Nanjing Institute of Geology and Palaeontology, Chinese Academy of Sciences (NIGPAS) organized the 10th ISOS that contained a 3-day indoor meeting in Nanjing (capital city of Jiangsu Province, eastern China) together with a pre-conference field excursion to the border region between Zhejiang and Jiangxi provinces and a post-conference field excursion to Guizhou and Hubei provinces as well as Chongqing District (central and southwestern China). The 10th ISOS was chaired by Prof. Chen Xu and Prof. Rong Jiayu while Dr. Li Jun was the secretary-general and Dr. Zhang Yuandong and Dr. Zhan Renbin were serving as the deputy secretary-general of the meeting.

The proposed 15<sup>th</sup> ISOS will include a 3-day indoor meeting in Xi'an (with a half day cultural tour included) and a pre- and post-conference field excursion respectively. The indoor meeting will contain oral and poster presentations, key note talks, workshops, as well as some social events particularly for accompanying persons. The pre-conference field excursion will be arranged to visit those classical Ordovician sections in southern Shaanxi Province (palaeogeographically belonging to the northern Upper Yangtze Platform, South China palaeoplate). During the post-conference field excursion, participants will have opportunity to check several classical and well-studied Ordovician sections in northern Shaanxi Province and southwestern Inner Mongolia Autonomous Region (palaeogeographically belonging to the western North China palaeoplate and the Ordos block). Both excursions will visit complete Ordovician sequences within which there are many fossiliferous horizons yielding abundant fossils, such as trilobites, graptolites, brachiopods and others. Besides, there are many internationally famous scenery spots and historical sites that are going to be visited during the excursions because Shaanxi is famous for these.

#### **Symposium Venue**

Northwestern University (China) is located in Xi'an. Xi'an is one of the most famous cities in China where full of historical sites and scenery spots, such as the Terracotta Warriors Museum, Xi'an City Wall, etc. The city itself is over 3100 years old, and has served as the national capital for 13 dynasties in the history of China. Xi'an reached its prime during the Han (206 BC-AD220) and Tang (618-907) dynasties, when its influences extended far away to Europe owing to the opening of the ancient Silk Road. At present, Xi'an has already become a modernized and internationalized city in China with a population of over seven million.



*The Terracotta Warriors*

The following individuals, together with their group, have agreed to constitute the organizing committee of the proposed 15<sup>th</sup> ISOS: Zhan Renbin (chair), Zhang Yuandong (vice chair), Wu Rongchang (secretary-general), and Fang Xiang (deputy secretary-general). Both Academicians Rong Jiayu and Chen Xu will behave as consultants of the meeting.

Upon formal notification by the Executives of Ordovician Subcommittee, the above proposed organizing committee will be formalized and a complete working group will be established including people from NIGPAS and Northwest University (Xi'an) to guarantee an impressive, wonderful and successful ISOS. Of course, some other relevant committees (such as the Scientific Committee and the Advisory Committee) will be fixed in due course.

As usual, the organizer will apply for some extra-supports from various sources as soon as possible as possible to ensure a successful ISOS and to provide some financial support for those student delegates and those in need from developing countries. Detailed procedure for those intended application will be issued in time.



*Xi'an city walls are the most complete city walls in China*

## IN MEMORIAM

Rimma SOBOLEVSKAYA (1929–2023)

Our cherished colleague and graptolite specialist Rimma Sobolevskaya passed away on June 1<sup>st</sup> 2023 in her 94<sup>th</sup> year. She continued to work until the very end.

Rimma was the oldest employee of the Gramberg All-Russia Scientific Research Institute for Geology and Mineral Resources of the Ocean (VNIIOKEANGEOLOGIA), Saint-Petersburg, Russia. She devoted her whole life to the study of graptolites, regional geology and stratigraphy of the Palaeozoic deposits of Taimyr, the Novaya Zemlya archipelago, the New Siberian Islands and the Kolyma region. All graptolite collections of these areas that she collected over the years remain unique. Rimma spent 40 field seasons in the Russian Arctic. She was the author of more than 100 papers and 7 monographs. She worked closely with Tanya Koren' for many years.



Rimma was a huge enthusiast in the profession, as well as a sympathetic and kind person. We will keep her in our minds and always appreciate her work on graptolites that influenced our understanding on graptolites and biostratigraphy.

*Anna Suyarkova & Jörg Maletz*

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## Alfred LENZ (1929–2024)

It is with great sadness we announce the passing of Alfred Carl Lenz on September 18, 2024, at University Hospital in London Ontario. Alfred was in his 96<sup>th</sup> year and had a wonderful, long and adventurous life. Alf is predeceased by his beloved wife Grace, daughter Carol Lenz and sister and brother-in-law Marion and Ken Kasha. He was the loving father of Dianne Lorimer (Darren) and Steven Lenz. He was the proud grandfather (Gpa) to Lucas and Chloe Lorimer and brother to Gordon Lenz (Melodie).



Alfred was born on a farm in Olds Alberta, January 6, 1929. Inspired at an early age by his maternal grandfather, he dreamed of leaving the farm and becoming a geologist. Through hard work and dedication, he graduated from Princeton University with his doctorate in Geology. After a few years of working for oil companies, he decided his true passion was in research and teaching and became a professor at the University of Western Ontario. Alfred enjoyed a wonderful career contributing greatly as teacher, researcher, mentor and friend to the geological community.

Alf has been a prominent member of the community of graptolite workers since the 1960s. He is best known for his pioneering biostratigraphic and taxonomic studies of the Ordovician-Devonian graptolite-bearing successions in northwestern and Arctic Canada. He also contributed significantly to our understanding of the details of graptolite morphology, phylogeny and evolution, as well as many other aspects of graptolite studies. He had numerous collaborations with researchers from around the world, especially Dennis Jackson and Anna Kozłowska, and a very early international Chinese exchange with Chen Xu. He also published papers on brachiopods and other fossil groups and collaborated on chemostratigraphic research. To me and many others Alf was a great mentor, colleague and friend. His passing is a great loss to our community.

*Mike Melchin*

### **Selected publications**

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## John A. TALENT (1932–2024)

John Talent passed away in early 2024 after several years of ill health. Extensive obituaries documenting John's lifetime of research endeavours were prepared by Andrew Simpson for publication in the *Pander Society Newsletter* and the newsletter of the Subcommittee on Devonian Stratigraphy, to which the reader is referred for further information. A Special Issue of *Palaeoworld* commemorating his stature as an eminent global palaeontologist is in preparation for publication later this year. The following few paragraphs summarise some of John's many achievements and serve as a record of his passing.



John Talent was a long-term Professor of Palaeontology at Macquarie University in Sydney, Australia. He co-led the university's Centre for Ecostratigraphy and Palaeobiology (MUCEP) for many years with Ruth Mawson, mentoring many undergraduate and postgraduate students. John maintained an extensive international network of scientific colleagues during his long career. His academic research interests were primarily focussed on understanding the mid Palaeozoic interval (Silurian-Devonian-early Carboniferous) globally which he pursued seeking finer chronostratigraphic intervals using brachiopods, conodonts and isotopes. But John's interests extended much further as can be seen from contributions to his monumental late career work '*Earth and Life: Global Biodiversity, Extinction Intervals and Biogeographic Perturbations Through Time*', published by Springer as part of the UNESCO International Year of Planet Earth (IYPE) scientific programme in 2012.

One of John's earliest papers, published in 1959 when he was employed at the Department of Mines, Victoria (prior to moving to Macquarie University in 1969), dealt with a Lower Ordovician nautiloid from Bendigo, Victoria. In 1988 he compiled (with the late Rube Ross) 'Correlation of the Ordovician rocks of most of Russian Asia' *International Union of Geological Sciences Publication* 26. Subsequently John (together with Ruth Mawson and students) investigated allochthonous limestone blocks containing Ordovician conodonts in the Broken River Province of Queensland and the Hill End Trough of New South Wales.

Although Ordovician topics were not high on John's agenda, many Ordovician specialists will be aware of John's international reputation for innovation in championing palaeontological causes such as leading the initial IGCP project in 1970–1975 (Project IGCP-1: *Timing and nature of events in the Himalaya and Hindu Kush*), and (with Ruth Mawson) in organising the First International Palaeontological Congress in 2002 at Macquarie University. John was also instrumental in exposing the infamous fraudulent scientific 'research' perpetrated by V.J. Gupta, which contributed to extensive misinformation being published on Himalayan and Indian palaeontology and stratigraphy over several decades in the late 20<sup>th</sup> Century.

A man of many talents in palaeontology, he will be sadly missed.

*Ian Percival*

## Viive VIIRA (1933–2025)

With sadness, we inform the Ordovician community that Viive Viira, a well-known expert on early Palaeozoic conodonts, passed away on February 13<sup>th</sup>, 2025, at the age of 92.

Viive's scientific career began in the late 1960s when she published her first papers on Ordovician conodonts from Estonia. She defended her Cand. Sci. (PhD) thesis on the same topic in 1970 and, a few years later, published the monograph *Ordovician Conodonts of the East Baltic Region*. This work established the basis for Ordovician conodont biostratigraphy in the region and continues to be cited today. Over the course of her career, Viive authored more than a hundred publications on conodont taxonomy, biostratigraphy, palaeoecology, taphonomy, and diversity patterns, with her final paper published in 2022.



Viive worked closely with bedrock geologists and palaeontologists at the Institute of Geology of the Estonian Academy of Sciences and later at Tallinn University of Technology. She also maintained strong collaborations with international colleagues, notably Anita Löfgren from Lund and Richard Aldridge from Leicester. I had the privilege of working with Viive on Early and Middle Ordovician microfossils from several Estonian sections. She introduced me to the world of conodonts, for which I am deeply grateful. We co-authored three papers, yet several ideas we discussed in the late 2010s, particularly on Tremadocian conodont biostratigraphy, never materialized into publications. However, Viive's well-curated conodont collections remain available for future researchers to build upon her work.

Although Viive also studied Silurian sections, she remained an *Ordovician person* at heart. The Ordovician community will remember her as a dedicated palaeontologist and biostratigrapher whose contributions significantly advanced the study of conodonts in the Baltic region and beyond.

*Olle Hints, on behalf of Estonian palaeontologists*



## David SKEVINGTON (1935–2024)



David Skevington died at the beginning of October two days short of his 89<sup>th</sup> birthday. During the 1960s and 70s in particular he made significant contributions to Ordovician stratigraphy and graptolite palaeontology, and is fondly remembered by colleagues with whom he collaborated. As a gifted administrator he built up geology departments in universities in Galway, Ireland, and St John's, Newfoundland, both of which nurtured some of the best-known names in the earth sciences.

David was born in Grimsby in the Northeast of England. His first degree – in geology – was at the University of Bristol (1957). From there he went to Cambridge and Sidney Sussex College to study under the great, if imperious Professor O.M.B. Bulman, then the doyen of graptolite studies. Professors Kozłowski and

Bulman were revealing hitherto unrecognized details of graptolite morphology thanks to the isolation of three-dimensional specimens derived from the dissolution of limestone in acetic acid – a technique developed by Gerhard Holm early in the 20<sup>th</sup> Century. Bulman's many papers on this material have become classics. David Skevington's part in the endeavor was to study the graptolites isolated from the Ontikan Limestone from the island of Öland, which revealed much of importance in dichograptid evolution. Following the award of his PhD in 1962 he quickly started putting the results into print in the late lamented *Publications of the Geological Institution of the University of Uppsala* in 1963 and 1965 – contributions that are still used today, and include the proposition of the well-known genus *Aulograptus* Skevington, 1965. Bulman always insisted on high quality drawings, and "Skev's" were up to the mark.

In 1969, David took up the chair in Geology in University College, Galway. Paul Ryan tells me that it then comprised only one assistant and one technician, and geology was there only as an add-on to the engineering degree. David soon established a 4-year geology degree course and a research programme. He helped save the James Mitchell collection – including important Permian material of William King – that, as Paul remarks, "might otherwise now be landfill". The cause of safeguarding these collections was taken up by David Harper – a later, distinguished Galway professor.

The late sixties was an exciting time for Lower Palaeozoic palaeontology as the implications of the plate tectonic revolution played out in the field. David was in the right place to contribute to the debates. The Ordovician-Silurian geology of the South Mayo trough in western Ireland was both complicated and little understood at the time. Patient collecting bed-by-bed was needed to make sense of the geological history. Graptolites contributed more than anything else to unscrambling the history of this part of the Caledonides, notably that the 'Caledonian Orogeny' had two phases – an Ordovician arc-continent collision followed by a Silurian closure of Iapetus. David was quick to realize that the composition of the graptolite

faunas was germane to understanding this history. The western Irish Ordovician graptolite faunas were attributed to the “Pacific Province” and invited close comparison with faunas from the Laurentian plate in former low palaeolatitudes, in contrast to the “Atlantic Province” faunas that formerly lay at high palaeolatitudes. Later, brachiopods and trilobites from the Tourmakeady Limestone also proved their palaeotropical credentials. Appropriately, some of these results were summarized in a paper honouring Professor Bulman’s life (Skevington 1974). David then went on to recognise “Pacific” faunas in the Caledonides of the Trondheim district of Norway. Paul Ryan remembers spending weeks in an isolated shepherd’s cottage in Trondheim with “only a log fire and a toilet facility in the wood shed that consisted of three holes in a wooden plank: one father sized; one mother sized; and one baby sized”.

David spent a sabbatical year in St John’s, Newfoundland, in 1975, which led to him being offered the job of leading the Geology Department there (1976). In some ways this was his most important contribution, as the department that he built up there became one of the best known in Canada. The structural geologist Harold (“Hank”) Williams, the distinguished carbonate sedimentologist Noel James, graptolithologist S. Henry Williams (and, for one year, Stan Finney) are particularly notable among many distinguished earth scientists. Former research students like Brian Pratt refer to the “uniquely inspirational and exciting intellectual and warm environment” of the department at the time. The writer of this notice spent a sabbatical year 1977-8 in the Department of Earth Sciences, and went with David to the west coast of Newfoundland to investigate sections in the Cow Head Group spanning the Cambrian-Ordovician boundary. It was soon recognized that these sections provided one of very few places where evidence from graptolites, conodonts and trilobites could be combined from the same rocks, and might thus provide a sound basis for a formal definition of the base of the Ordovician System (Fortey & Skevington 1980). Although the section at Green Point was ultimately selected - rather than the one we initially favoured further to the south – the rational basis for western Newfoundland remained unchanged, but it has to be said that it took until 2000 for the formal ratification of the GSSP.

In 1980, David left St John’s for personal reasons to take up a job in Glasgow as Head Stratigrapher of British National Oil Corporation (later Britoil). No doubt he performed his duties there with typical aplomb, but one must regret that he left the science to which he had given so much before. His contribution was recognized by the award of an honorary DSc in 1974 by the National University of Ireland. He was Vice President of the Yorkshire Geological Society 1987–1989. His last geological job was as editor of the Geological Conservation Review of the Joint Nature Conservation Committee, a multi-author summary of British sites of geological interest.

*Richard Fortey*

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## Euan N. K. CLARKSON (1937–2024)

Euan Clarkson was an important figure in invertebrate palaeontology for well over half a century, renowned not only for his many scientific contributions but also for his boundless enthusiasm for his subject that encouraged the work of so many others. His research encompassed a remarkably wide range of fossil groups, especially from the Palaeozoic, including a considerable body of work on Ordovician fossils.



Following his BA (1960) and PhD (1964) from Cambridge University, Euan spent his entire career at Edinburgh University retiring as Professor Emeritus in 2002 and continuing his research for the rest of his life. He was awarded a DSc by the University in 1983 and was elected a Fellow of the Royal Society of Edinburgh in 1984. He was an excellent teacher, an enthusiastic advocate for his science, an editor and a member of the councils of several societies including acting as President of the Palaeontological Association (1998-2000) and of the Geological Society of Edinburgh (1985-1987). He was also a Trustee of the Natural History Museum, London (1987-1992) and he was awarded medals by the Edinburgh Geological Society (1993), the Royal Society of Edinburgh (1997), the Geological Society of Glasgow (1999), The Geological Society (2010) and the Palaeontological Association (2012).

The impressive breadth of Euan Clarkson's palaeontological knowledge resulted, at least in part, from his dedication to the writing of his highly acclaimed textbook '*Invertebrate Palaeontology and Evolution*' that went through four editions between 1979 and 1998 and was widely used in many parts of the world. In terms of his own research, Euan was perhaps best known for his work on trilobites, especially on the structure and functioning of their calcite eyes, a research theme throughout his career with an expanding field of collaborators from diverse disciplines. His many other works on trilobites included investigations of their functional morphology, ecology, evolution and ontogeny and the documentation of taxa from every geological period from the Cambrian to the Carboniferous. Most of Euan's trilobite work involved a wide range of international collaborators as did his work on many other groups of fossils. These included those in exceptionally preserved faunas, especially Carboniferous crustaceans, during the investigations of which in the 1980s he discovered the first unequivocal conodont animal. His life-long work on the Silurian of the Pentland Hills, to the immediate south of Edinburgh, involved collaboration with a large number of specialists on many aspects of the highly diverse faunas in those rocks. The Palaeontological Association's multi-author *Field Guide to the Silurian Fossils of the Pentland Hills, Scotland* which he co-edited bears witness to this.

Euan Clarkson's work on Ordovician palaeontology exemplifies the breadth of his interests and his many practical skills. The latter included his artistic talents in producing superb reconstructions of ontogenetic stages and fully-grown trilobites. As with much of his work,

Euan attracted and recruited a wide variety of collaborators, both national and international. Several of these were at early stages in their research careers and they benefitted immeasurably from his genuine interest and guidance even where their specialisms lay beyond his direct experience. He enjoyed fieldwork immensely and many Ordovician workers may still remember Euan's co-leading of excursions associated with the 2006 IGCP 503 conference in Scotland; his enthusiasm unbowed by whatever the Scottish weather threw at him.

A list of many of Euan Clarkson's publications involving Ordovician rocks and fossils is given below and provides an indication of the diversity of his work and the breadth of his collaborations. Consideration of other aspects of his life and work is also given in an obituary in *Palaeontological Association Newsletter* **117** (<https://www.palass.org>). None of this can fully convey the extent of the enormous contribution Euan Clarkson made to palaeontology through his scientific work, his textbook, his 'service' to the science and, very significantly, the very positive influence he had on the careers of so many others. He is very sadly missed.

Alan Owen

**Selected publications on, or including, Ordovician fossils and regional geology by Euan Clarkson in chronological order**

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## Bruce M. BELL (1941–2024)

Bruce McConnel Bell, age 82, of Oklahoma City, Oklahoma, passed away peacefully at home on September 24, 2024. Born in Appleton, Wisconsin, October 14, 1941, Bruce was the son of the late Dr. Robert King Bell and Helen Fine Bell. Bruce grew up in Flossmoor, Illinois where his father was the Minister of the Flossmoor Community Church. He graduated from Bloom Township High School, later being awarded the Outstanding Graduate of the Class of 1959. He spent weekends and summers working tirelessly as a caddy at Flossmoor Country Club and later as a factory worker at Bennett Industries to earn money that would pay for his college education. He earned his B.A. at Earlham College and an M.S. and Ph.D. from the University of Cincinnati concentrating on invertebrate paleontology, sedimentation and stratigraphy. As a student, he published his dissertation, *A Study of North American Edrioasteroidea*, numerous articles and earned multiple awards. As an expert in the Edrioasteroidea, one such edrioasteroid species, *Pyrgopostibulla belli*, was named in his honor.



Bruce's career in the oil and gas industry began early. While in graduate school, he began a long career as a Petroleum Geologist interning at Pan American Petroleum in Oklahoma City. After graduate school, his love of science and the field of Paleontology brought him to New York where he was Senior Curator of Paleontology at the New York State Museum in Albany, New York where he worked for more than a decade. During this time, Bruce was married and had two daughters, Kathleen Bell Phillips and Susan Bell Lewis.

In 1980, Bruce was invited to be the Director of the Stovall Museum at the University of Oklahoma. Soon after his move, a mutual friend set Bruce up on a blind date with Carri Abernathy. Even as a confirmed bachelor, with her father's approval, Bruce and Carri were married a quick 6 months later. In 1982, Carri invited Bruce to become a part of her independent oil and gas producing company, Post Oak Oil Company. Bruce and Carri together went on to build Edrio Oil Company and other petroleum related businesses where they drilled wells across Oklahoma, Texas and Colorado and traveled to Russia and other foreign countries on business ventures. They were married 42 happy years working side by side in the oil and gas industry, banking industry and multiple real estate ventures. They shared their love of hard work, their country, OU Football and spending time with friends and family.

In 1991, Bruce's career took another interesting turn when Bruce was asked to join the Board of Directors for Southwestern Bank. Carri's father, the late Jack H. Abernathy, was one of the original founders of the Southwestern Bank in 1964. After Jack's death in 1996, Bruce became Chief Executive Officer and Board Chairman where he served with Carri until the bank was sold in December 2005.

Bruce was an active member of the Oklahoma City community. He had the honor of serving as chair of Mid-Continent Oil and Gas Association from 2006-2017. Bruce also proudly served on the Board of Directors for Panhandle Oil and Gas from 2004-2012 and Cleary Petroleum. He was a member of Oklahoma City Explorations Group and Committee of 100. Bruce lobbied relentlessly to improve the climate of the energy sector and his work was widely published including in *USA Today*.

A man of integrity, honor and hard work, Bruce had a strong love for family and friends. When not at work, he enjoyed spending time outdoors fishing and hiking. In his youth, Bruce's favorite memories were of fishing in the lakes of Wisconsin with his father. Later in life, he loved fishing with his father-in-law in Yellowstone and Colorado. He passed on this tradition to his two grandsons teaching them to fish in the rivers and streams of Salida, Colorado. When not in the mountains, he took every opportunity to be in the ocean, snorkeling for miles every day observing sea urchins and sea life. Bruce's love of exploration and nature was unsurpassed.

Bruce's wit and wonderful sense of humor will be missed by all that knew him.

Bruce is survived by his wife of 42 years, Carri Abernathy Bell, his two children from his previous marriage to Doris Jean Bell: Kathleen Bell Phillips and Matthew Phillips of Newport, Wales and Susan Bell Lewis and her husband Dr. Clint Lewis of Oklahoma City, Oklahoma. He was blessed with three grandchildren, Madeline Phillips, Henry Lewis and William Lewis. He is also survived by his sister-in-law Sarah Hartmann and nieces, Ellen and Joyce Bell of California.

from: <https://www.dignitymemorial.com/obituaries/oklahoma-city-ok/bruce-bell-12005479>

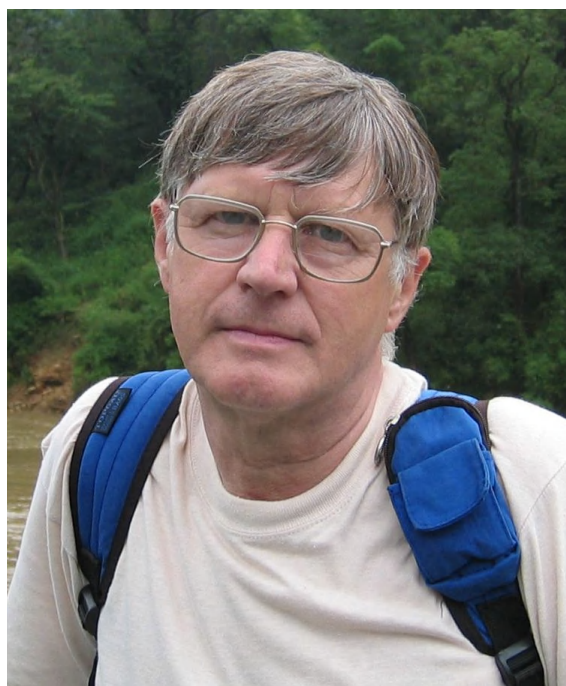
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## Jiří KŘÍŽ (1943–2024)

Jiří Kříž (March 31, 1943 – March 23, 2024), a major personality in the studies of Lower Palaeozoic rocks of the Barrandian area and Palaeozoic bivalves, passed away shortly before his 81<sup>st</sup> birthday. He was a world-renowned palaeontologist and stratigrapher, and also a leading Czech nature conservationist.

In 1961, Jiří enrolled in the Geology program at Charles University in Prague. During his studies, he intensively collected bivalves in the Ordovician, Silurian, and Devonian periods within the Prague Basin. After completing his thesis, he joined the Czech Geological Survey (CGS) in Prague, where he remained, with the exception of a year-long research fellowship at the Smithsonian Institution in 1972. In 1977, he successfully defended his doctoral thesis, a detailed systematic study of the newly established superfamily *Cardiolidae*, and subsequently obtained the position of a researcher at the CGS.



From 1984, Jiří Kříž served as a voting member of the Silurian Stratigraphic Subcommission, which at that time consisted primarily of British scientists. As part of the Ecostratigraphy project, he collaborated with colleagues to evaluate the Ludlow-Přidolí boundary interval within the Silurian. In 1984, the International Geological Congress in Moscow formally recognized the Přidolí as an international stratigraphic unit of the Silurian and designated the boundary profile between the Ludlow and Přidolí at Požáry near Řeporyje as the Global Boundary Stratotype Profile (GSSP).

Jiří's primary research interest, and his true passion, was Palaeozoic bivalves. He described an impressive list of 28 new genera and 120 new species and very soon in his career became a leading figure in the research of this group. His contributions to malacology include, for example, the description of the oldest known bivalve (1973), the oldest fossilized pearls found within bivalves (1979), and the first nektonic bivalve, *Maida*, from the Upper Silurian (1996). He also pioneered the study of ecological strategies in Lower Palaeozoic bivalves, publishing his findings in 1985. Jiří dedicated considerable time to mapping Silurian formations within the Prague Basin, documenting geological profiles, particularly those from temporary exposures. He led numerous international IGCP projects focused on geological correlation and served for many years as head of the Department of Regional Geology of Sedimentary Formations at the CGS.

Jiří Kříž was a very important personality in the protection of nature and landscape of the Czech Republic. He suggested protected status for many of today's internationally recognized key geological profiles and palaeontological sites in the Prague area. Recognizing the need for more effective protection he was a founding member of ProGEO (International Association



for the Conservation of Geological Heritage). He served on the board of the European ProGEO association as the Czech national correspondent, and from 1998, he chaired the Czech section of ProGEO.

After his retirement in 2007, Jiří Kříž remained active, continuing his work part-time and later as an emeritus researcher. Even in retirement, as long as his health allowed, he continued publishing scientific articles and contributed to several chapters in the newly prepared *Treatise of Invertebrate Paleontology*. His prolific career resulted in over 210 scientific papers and monographs, in many of which he was the sole author or first author, and many popular brochures and several books.

Marika Polechová

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## Fons VANDENBERG (1945–2024)



Alfons Henry Martin Vandenberg (always known as Fons) was born on January 16, 1945 in Eindhoven in the south of The Netherlands. He emigrated to Australia as a teenager, arriving in Melbourne in November 1960 where learned English and completed his secondary education at night. In 1963 he took a job with the Mines Department of Victoria, commencing work in the Core Laboratory. During this time he won a fully funded Public Service Scholarship which enabled him to study at Melbourne University where, in 1967, he completed a Bachelor of Science majoring in Geology and Zoology.

Now formally qualified, and at the suggestion of the then-Director of the Geological Survey of Victoria, Dr Don Spencer-Jones, he joined the Mapping Section, initially for a six-month period. He began geological mapping around Melbourne, producing 1 inch to 1 mile sheets of the greater Melbourne area (Ringwood, Melbourne, Sunbury) and subsequently mapping the Warburton and Bairnsdale 1:250,000 sheets in Gippsland. He quickly gained an appreciation that detailed mapping made it possible to subdivide the monotonous Palaeozoic sequence of the Melbourne Trough into discrete packages and then to extend these as regional units. More mapping projects followed, stimulated by copper-zinc discoveries at Benambra and the request by the mineral exploration industry for detailed mapping of the complex volcanic units of the Limestone Creek area. His work on the Kilmore and Lancefield 1:50,000 map sheets, and subsequently the Murrindal and Bendoc 1:100,000 map sheets, contributed significantly to the understanding of the geology and palaeontology of the Melbourne Trough and the adjacent Kuark Zone to the east.

Working on unravelling the detailed stratigraphy and structure of these areas of Ordovician slates and siltstones led Fons on his quest to identify the prolific graptolites in these rocks so he could use them in correlation. Fons was self-taught in the evolutionary development of graptolites, because much of the knowledge of previous workers was not published. He worked from the 1890s records of T.S. Hall and from figured specimens in overseas papers and monographs to develop and refine what is now recognised as the Pacific Province biostratigraphic scheme, one of the world's most detailed Ordovician graptolite zonations. Notably he collaborated with the late Roger Cooper (GNS, New Zealand) who had studied New Zealand Ordovician graptolites to review the Ordovician graptolite zonation of Australasia in a much-cited paper published in *Alcheringa* (1992).

In mapping the Bendoc sheet in Victoria, Fons recognised that most of the quartz rich sandstones were actually Early Silurian rather than Ordovician in age. He then used his knowledge of Ordovician graptolite zonation to realise that bands of black shale were structural repeats of the one unit—the Upper Ordovician Warbisco Shale in the Bendoc Group—and that repetition occurred without changing younging directions. In collaboration with structural geologist Dick Glen (Geological Survey of NSW) they worked out that these bands were thrust repeats of the Warbisco Shale over the Lower Silurian Yalmy Group and that thin-skinned tectonics characterised much of the Bendoc and Numbla 1:100,000 sheets. This thin-skinned model was subsequently successfully applied by Fons, Dick and Ian Stewart (Monash University) to southern NSW, where additional thrusting of Lower

Ordovician turbidites over Upper Ordovician black shales in the ‘type area’ of the Adaminaby group at Dalgety, and then around Cooma, showed the upper crust was layered and dominated by thin-skinned thrusting with decollements in both the Lower and Upper Ordovician.

Fons’ leadership of, and contribution to, field programs in the Orbost and Mount Useful areas of Victoria in the mid-1990s resulted in identification of flat thrusts in the Mount Useful region, significantly changing the interpretation of the Cambrian greenstone outcrops in the area. This period led to a whole new understanding of the State's geology, culminating in his role as co-ordinating senior author of the landmark Geological Survey of Victoria Special Publication (2000) *The Tasman Fold Belt System in Victoria*. As well, he contributed to eight chapters (one as sole author) of the Geological Society of Australia Special Publication 23 (2003) *Geology of Victoria*.

Fons received several prestigious awards during his long career. In 1996 he was the recipient of the inaugural Selwyn Medal, named after the first Director of the Victorian Geological Survey and awarded annually by the Victoria Division of the Geological Society of Australia ‘to recognise significant ongoing or former contributions of high calibre to any field of Victorian geology’. In 2000 he was awarded the W.R. Browne Medal of the Geological Society of Australia (the GSA's premier award given to a person distinguished for contributions and demonstrated impact to the Earth sciences in Australia), and was invited to present the 2020 Howitt Lecture to The Royal Society of Victoria and the Geological Society of Australia (Victoria Division), giving a presentation on graptolites.

Following his retirement from the Geological Survey of Victoria, Fons volunteered as a Research Associate with Museums Victoria in Melbourne, where he curated the graptolite and other invertebrate fossil collections. During this time he published a further six research papers on the Ordovician graptolite faunas of Victoria, as well as contributing to three chapters of the second revision of the *Treatise on Invertebrate Paleontology Part V* on graptolites and related organisms.

Fons was held in high esteem as a field mapper, structural geologist and stratigrapher. He had a well-deserved international reputation as a careful and observant researcher of graptolites, especially those found in the Ordovician rocks of eastern Australia, and was widely regarded as an expert biostratigrapher whose skills in field identification of graptolites were legendary. He will be sadly missed.

*Ian Percival*

*(with input from Dick Glen and Jörg Maletz; partly based on the citation accompanying the award of the Selwyn Medal to Fons in 1996)*

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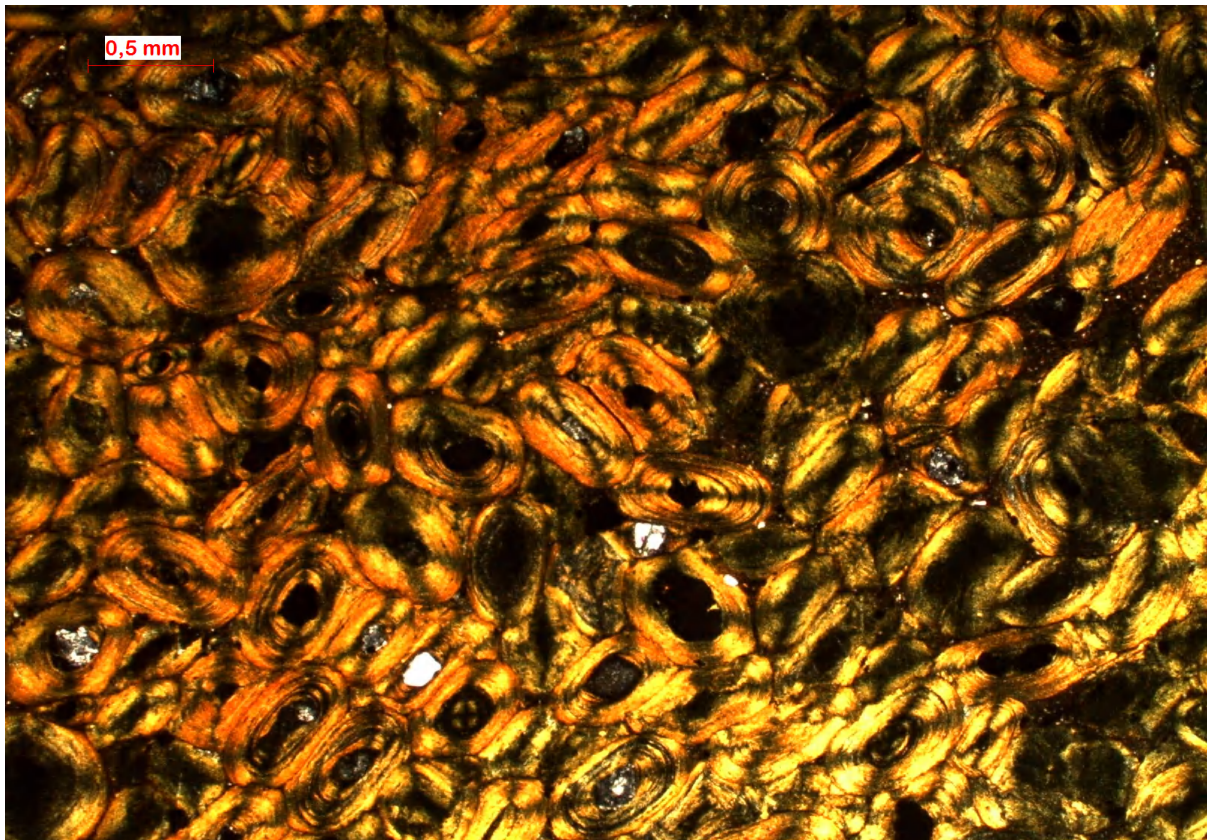
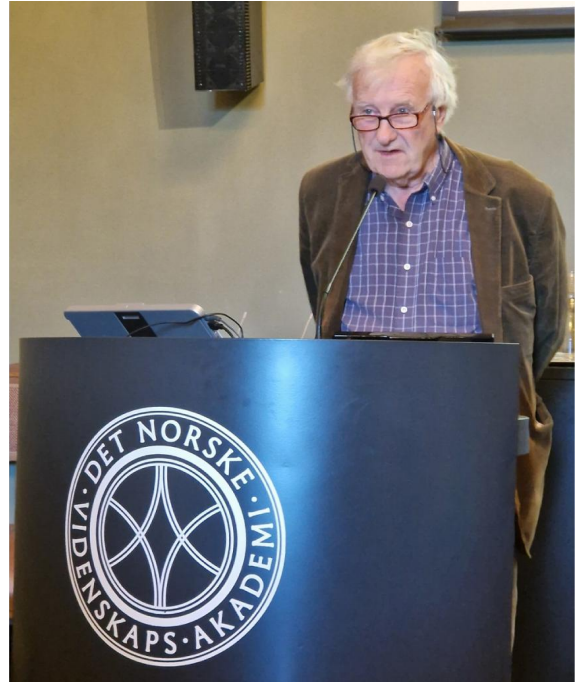


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## last minute information

We report the very sad news, that after a short illness, Professor Richard Fortey OBE, FRS FRSL passed away on the morning of the 7<sup>th</sup> March. He will be remembered for his many arthropod (predominantly trilobite) papers, his informative and entertaining popular science books and his huge engagement with the Ordovician community. Richard was a titular member of the Subcommittee on Ordovician Stratigraphy from August 1989 (IGC Washington) and remained until August 2008 (IGC Oslo). He advised the retention of the British series and stage divisions, and lead ‘A revised correlation of Ordovician rocks in the British Isles’ *Geological Society Special Report 24*.

*Ordovician News* will publish a full obituary in due course.



*Hirnantian Iron Bee Honeycomb [courtesy of Matilde Beresi (IANIGLA-CONICET) and Jessica Gómez (CICYTTP-CONICET)]*

## ORDOVICIAN RESEARCH REPORTS &amp; CONTACTS

**Sachiko AGEMATSU-WATANABAE (Japan)**

Sachiko has been spending somewhat more time on the Triassic conodonts in recent years, but she is also interested in the microfossils around the OS boundary.

**Sachiko Agematsu-Watanabae**

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**Guillermo L. ALBANESI (Argentina)**

Guillermo works on lower Paleozoic conodont faunas from South America. Diverse projects from the Precordillera and northwestern Argentina follows on with G. ORTEGA, former PhD students, and a number of colleagues. Doctoral plans are being developed by G.M. DELLA COSTA, F.E. LÓPEZ, and E.K. RUEDA, who are expected to defend their theses under his direction in 2025–2026. Likewise, he follows the supervision of M.J. MANGO as CONICET in his last year as assistant researcher. Research programs include conodont taxonomy, biostratigraphy, paleoecology, paleobiogeography, and evolution from carbonate and siliciclastic sequences of the Ordovician System in Argentina.

He is professor of Paleontology and director of the Centro de Investigaciones Geológicas Aplicadas (CIGEA) at Facultad de Ciencias Exactas, Físicas y Naturales (FCEFYN), Universidad Nacional de Córdoba (UNC), Argentina, which includes a micropaleontology laboratory especially equipped for conodont preparation. His office is located at the CIGEA (<https://fcefyn.unc.edu.ar/facultad/secretarias/investigacion-y-desarrollo/centros/centro-de-investigaciones-geologicas-aplicadas-cigea/>), and the conodont collections are housed at the Museo de Paleontología of the university (<https://fcefyn.unc.edu.ar/facultad/general/museos-fcefyn/museo-de-paleontologia/>). For the period 2022–2026, Guillermo is also the Chief of the Pander Society (the international society of conodont specialists): ([https://dxy.cug.edu.cn/dxyen/THE\\_PANDER\\_SOCIETY/About\\_the\\_Pander\\_Society.htm](https://dxy.cug.edu.cn/dxyen/THE_PANDER_SOCIETY/About_the_Pander_Society.htm)).

Guillermo ALBANESI has co-edited with Annalisa FERRETTI and Xavier CROSTA (Albanesi *et al.*, 2024) the Virtual Thematic Issue of Marine Micropaleontology “Beyond biostratigraphy: Conodont matters in evolving planetary scenarios”, which includes 16 conodont contributions spanning all the “Conodontozoic” resulting from the homonymous Session at the 5<sup>th</sup> International Conodont Symposium “ICOS 5” held in Wuhan, China (June 24-27, 2022).

**Guillermo L. Albanesi**

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## Martina AUBRECHTOVÁ (Czech Republic)

Martina is a postdoctoral researcher at the Czech Academy of Sciences. She is involved in several projects investigating various aspects of the systematics, phylogeny and palaeoecology of Ordovician cephalopods from Baltoscandia, erratics in Germany and Poland and the Prague Basin. The latter includes the use of micro-CT scanning to reveal previously inaccessible information on the internal morphology of fossil cephalopods.

### Martina Aubrechtová

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## Chris BARNES (Canada)

Chris is slowly continuing / completing his conodont paleontology / stratigraphy / isotope geochemistry research. The main projects being: a) new studies of Ca and Sr non-radiogenic isotopes to investigate causal factors for the Late Ordovician mass extinction (with Manuel RICO and Annalisa FERRETTI); and b) Ordovician and Silurian conodont biostratigraphy, bioevents, eustasy and thermal maturation, mainly for Laurentia.

### Chris Barnes

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## Juan L. BENEDETTO (Argentina)

Juan is continuing studies on phylogeny and biogeography of the Ordovician brachiopods from the Precordillera, Central Andean and Famatina basins of Argentina. On the basis of the well established *Protorthisina-Kvania* plectorthoid lineage, a quadripartite schema of phylozones has been proposed for the latest Cambrian-lower Tremadocian of the Central Andean basin of Argentina and Bolivia. The base of the Ordovician is indicated by the first appearance of *Kvania lariensis*, which is almost time-equivalent to the *Jujuyaspis keideli* trilobite biozone.

### Juan L. Benedetto

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## Matilde Sylvia BERESI (Argentina)

Matilde is involved in an integrated Ordovician study on high-resolution stratigraphy, biostratigraphy and palaeoenvironmental, palaeoclimatic, and palaeogeographic implications in the Ordovician-Silurian Transition (OST) deposits in central and eastern Precordillera of San Juan Province, western Argentina together with Dr S.. PERALTA, Dr Jessica GÓMEZ and other colleagues of the San Juan University. She also collaborated with colleagues in Mexico studying the Cambrian fauna in some Sonora State, Mexico localities. Matilde will be out of the CONICET next year.

### **Matilde Sylvia Beresi**

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## Carlton E. BRETT (USA)

Carlton was elected to Fellow of the American Association for the Advancement of Science in 2024. His research activities for 2024 include:

A) *Late Ordovician Cincinnatian Stratigraphy and Paleoecology: Tennessee-Ohio-Indiana-Kentucky*: Research with PhD student, Ian FORSYTHE, in 2024 is greatly advancing our understanding of the sequence stratigraphy resulted of Katian sections in the Nashville Dome area of central Tennessee. Documentation newly excavated complete section through much of the middle Katian north of Nashville will provide an excellent reference section. Sampling this 18 m section for carbon isotopic analysis, conodont samples and faunal assemblages on a decimeter- to meter-scale is in progress. This work also, demonstrates near synchronicity of the early main pulse of Richmondian incursion of warmer water taxa in the Cincinnati and Nashville sub-basins, and similar patterns to those documented by former students Christopher AUCOIN and Sam LITTLE. This work forms the basis of part of Ian's PhD dissertation on the timing, paleoenvironments, sequence stratigraphy, and paleoecology of the first pulse of the so-called Richmondian Invasion. Collaborative research continues with Dr. Alycia STIGALL (University of Tennessee, Knoxville, TN) on regional paleoecology and biogeography of a coordinated immigration: the Richmondian Invasion in the Nashville and Cincinnati Basins.

Study by Ian on astrochronology, advised in part by Dr. Anne Christine DASILVA (University Liège, Belgium), has generated time series based on total gamma ray and hand-held XRF-generated elemental data time series of geochemistry and gamma ray in a well-preserved drill core from the Cincinnatian in west central Ohio. More detailed cyclostratigraphic analysis of these data 2024 led to the discovery of an intriguing pattern of changing dominant cyclicity from apparent meter scale (probable obliquity cycles) in the lower Waynesville Fm to a dominance of 2.7 meter scale eccentricity cycles commencing near the time of striking regional disconformities in upramp sections that appear to correlate with karstic surfaces that post-date the Saunja (Waynesville) Excursion in the Baltic Region, indicating probable mid late Katian sea level, prior to the Boda warming events. These associated events likely record buildup of larger glaciers in Peri-Gondwana regions.

Collaborative research with graduate students Ian FORSYTHE, Cole FARNAM, Sam LITTLE and, several earlier students, aims to improve correlations and examine patterns of sea level, climate, and faunal change during the entire Katian-Hirnantian stage interval in eastern North America. Carlton and his students, together with Cameron SCHWALBACH and Glenn STORRS of the Cincinnati Museum, and independent stratigrapher and technical report specialist, Kyle HARTSHORN, are completing editing for some 12 chapters for an anticipated book on Cincinnati Arch stratigraphy and paleontology to be published by Cincinnati Museum. The aims of this project and its scope have been expanded to include sections on astrochronology, carbon isotope stratigraphy and implications for eustasy and climatic change. They are also collaborating with Dr. Charles MITCHELL (emeritus, SUNY Buffalo) to link the graptolite biostratigraphy of the very thick (>1.5 kilometer) Katian-Hirnantian succession of Anticosti Island (Sinesael *et al.*, 2021, *Geology*), with the coeval Richmondian succession of the Cincinnati Arch, using comparison carbon isotope profiles and general sequence stratigraphy. This may allow the extension of approximate levels of graptolite zones into the well studied and highly fossiliferous but graptolite-poor Cincinnati succession.

- B) *Research on Ordovician-Silurian Boundary Sequence and Chemostratigraphy*: In June, 2024, PhD student, Cole FARNAM, completed and defended a dissertation on the latest Hirnantian to early Rhuddanian in eastern North America. This dissertation includes chapters on chemostratigraphy and sequence stratigraphy of the latest Ordovician Manitoulin Formation in Ontario, and the Whippoorwill Formation of southern Ohio and southeastern Indiana. Cole also reported on the paleoecology of an exceptionally preserved fauna (“Centerville Lagerstätte”) from a newly discovered site in southern Indiana as part of his dissertation. Collaboration continues with Dr. Jin JISUO, (University of Western Ontario), who is describing the brachiopods, and Dr. Robert ELIAS (University of Manitoba) who is studying the rugose corals. Carlton is presently working with MS student, Lincoln SHOEMAKER, discoverer of the Lagerstätte, who is studying the well-preserved echinoderm fauna including at least four species of crinoids, as well as ophiuroids and an asteroid. The new faunal assemblage is completely different from the immediately underlying Cincinnati (uppermost Katian). It resembles the Edgewood and latest Katian early Silurian Manitoulin and Cabot Head faunas of New York and Ontario, Canada. This unique occurrence will provide important insights into the post-extinction recovery in this critical interval.
- C) *Collaborative Research on Lower Ordovician, Ibexian Series, Great Basin Faunal Turnover and Sequence Stratigraphy*: In the summer of 2024, Carlton embarked on new project, with Dr. Ben DATTILO (Purdue University, Fort Wayne, IND) with assistance from graduate student, Ian FORSYTHE. They are collaborating with Dr. Jonathan ADRAIN (University of Iowa), Dr. Steve WESTROP (Emeritus, University of Oklahoma), and Dr. Shannan PETERS (University of Wisconsin) to provide a sequence stratigraphic framework for interpreting an extraordinary and well-documented pattern of stasis and abrupt turnover in trilobite faunas in the Early Ordovician (Ibexian local series) of the Great Basin in western Utah. There are about 46 such turnover events in the ~18 million-year Tremadocian-Dapingian interval, suggesting a possible link to regular, long-term eccentricity cycles. Carlton and his colleagues are examining these patterns carefully to test whether or not the sharp turnovers are simply an artifact of sequence stratigraphy (see for example S. Holland, 2020, *Annual Review of Earth and Planetary Sciences*), as opposed to a biological pattern. In the summer of 2024, they examined three major measured reference sections (~50 m) in detail to identify critical contacts reflecting



sequence boundaries and flooding surfaces. The turnover levels, already identified by ADRAIN and colleagues do not occur at sequence boundaries or prominent erosion surfaces but appear instead to be related (at least in some cases) to condensed sections particularly those associated with small algal bioherms, but much work remains to be done. They intend to continue this process in 2025, with the goal of further establishing links between stratigraphic patterns and turnover events. If these packages of concurrent stasis and rapid turnovers can be established as a real biological pattern, this will provide an extremely well supported case for relatively short (<0.5 Myr) and perhaps cyclic blocks of concurrent stasis and provide insights into driving mechanisms.

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### **Petr BUDIL (Czech Republic)**

Together with colleagues, Petr participated in the submission and subsequent correction of a large manuscript on the important echinoderm Lagerstätte at Blýskava near Chrastenice. A palaeontological evaluation of the rediscovered Upper Ordovician fauna from the so-called Smetán Breccia was prepared and submitted for publication, PB was a member of the team of authors. Together with O. FATKA and M. VALENT, two papers on Ordovician hyoliths were submitted and published in 2024 and early 2025.

### **Petr Budil**

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### **Yves CANDELA (Scotland)**

Yves is continuing the study of Ordovician and Silurian brachiopods from Belgium in collaboration with Bernard MOTTEQUIN (Royal Belgian Institute of Natural Sciences - RBINS, Brussels) and David HARPER (Durham University, UK). The fourth paper in preparation last year is now published in RIPS. The work on the brachiopod faunas from the Fezouata Shale (with David HARPER [Durham University] and Michal MERGL [University of West Bohemia, Pilsen]) is now published in *Papers in Palaeontology*.

Yves is also continuing working on Ordovician and Silurian brachiopods with Bing HUANG: this resulted in the publication of two papers in 2024.

On-going work includes collaboration with Zhen GUO (China University of Geosciences, Wuhan, P.R. of China) and David HARPER on the rise and fall of the Plectambonitoidea. A paper is under review and will be included in the Special Volume celebrating Prof. Mike BENTON's career.

As curator of invertebrate palaeobiology at the National Museum of Scotland, most of Yves' time is dedicated to the curation and care of the invertebrate palaeontology collection, as well as welcoming research visitors.

Yves is still editor of the *Earth and Environmental Science Transactions of the Royal Society of Edinburgh* (EESTRSE), editor of the *Scottish Journal of Geology*, and Secretary of

the *Groupe Français du Paléozoïque*. A special volume to honour the late Prof. Euan CLARKSON's superb career is in preparation with EESTRSE; it is co-edited by CANDELA, Y., HARPER, D.A.T. and OWEN, A.W. The volume is scheduled for the end of 2025.

IGCP project 735 "Rocks and the Rise of Ordovician Life: Filling knowledge gaps in the Early Palaeozoic Biodiversification" led by Bertrand LEFEBVRE (France) and also comprising Mansoureh GHOBADI POUR (Iran), Khadija EL HARIRI (Morocco), Beatriz WAISFELD (Argentina), Oive TINN (Estonia), Wenhui WANG (China), Elena RAEVSKAYA (Russia) and Yves is in its fifth year now and has attracted so far 227 colleagues representing 45 countries. The full list of publications mentioning IGCP735 is available on our website, and are relevant to *Ordovician News*. If you are interested in joining this project, please check our website: <https://rocksnrol.wordpress.com/> or drop us a line directly. Do not forget to send us a line when a paper acknowledging the project is published; we will add it on our website to our list of papers. The website also lists future meetings in which IGCP735 is organising or involved.

### **Yves Candela**

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### **Marcelo G. CARRERA (Argentina)**

Marcelo is actively working on the evolutionary history of Paleozoic sponges and bryozoans (taxonomy, paleoecology and paleobiogeographic significance). In particular, he is currently studying new findings related to Lower Ordovician reefs (new sponge components) from western Argentina. Also he is participating in the study of Ordovician gastropods as part of a supervised PhD Thesis.

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### **Zhongyang CHEN (China)**

Zhongyang is working on the Early Palaeozoic conodonts and stratigraphy. His research interest is currently focused on the Early Palaeozoic conodonts in China and other tropical Gondwanan regions, especially biostratigraphy and biogeography.

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### Helena COUTO (Portugal)

Helena is working on the study of Paleozoic stratigraphy, paleontology and on associated gold and antimony mineralizations in Dúrico-Beirã area (North Portugal). These studies aim contributing for a better knowledge of the Paleozoic stratigraphy and paleontology of the Valongo Anticline and to define prospecting guides for gold and antimony deposits.

#### Helena Couto

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### G. Susana DE LA PUENTE (Argentina)

Susana continues working on projects mainly focusing on stratigraphy and chitinozoans from Argentina, in collaboration with paleontologists and sedimentologists. She has presented preliminary results on Ordovician chitinozoans from a new section of the Central Andean Basin in the northwest of Argentina. She is currently studying new material from the Precordillera sections. Susana has advised two undergraduate students during 2024. She was in charge of teaching a short postgraduate course on Palynology for the III Chilean Palaeontological Congress at the University of Atacama in Chile. She is in charge of organizing the postgraduate courses for the Doctorate in Geosciences (Doctorado en Geociencias) at the university (Argentine).

#### G. Susana de la Puente

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### Gisella M. DELLA COSTA (Argentina)

Gisella is a biologist and professor of the Philosophy of Science, graduated from the National University of Córdoba (UNC), Argentina. She is currently completing her PhD thesis in Biology, focusing on the biostratigraphy and taxonomy of Ordovician conodonts from the Argentine Precordillera. Her main research interests are centred on a comprehensive understanding of the conodont group, with a particular focus on biostratigraphy and functional analysis of the conodont apparatus, including palaeoecological, palaeoenvironmental, and evolutionary aspects. She aims to enhance the quality of conodont studies by increasing sampling efforts and reviewing identified conodont species using advanced statistical methods to minimise the subjectivity of taxonomists in species identification.



### **Gisella M. Della Costa**

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### **André DESROCHERS (Canada)**

André currently serves as the Scientific Director at the Anticosti UNESCO World Heritage Site and as an Adjunct Professor at the University of Ottawa. The Anticosti NPO has recently launched a research incubator designed to support high-resolution stratigraphic studies. These studies integrate carbonate sedimentology, sequence stratigraphy, biostratigraphy, and chemostratigraphy to address various aspects of the End Ordovician mass extinction.

Selected collaborative projects in progress:

- *Upper Ordovician–Lower Silurian Strata of Anticosti Island*: Utilizing Anticosti Island as a natural laboratory to unravel chitinozoan paleoecology and to track global Ordovician and Silurian bioevents (Collaboration with Thijs VANDENBROUCKE and several of his graduate students).
- *Stratigraphy and Timing of the End Ordovician Mass Extinction*: Investigating the detailed stratigraphic record and the precise timing of extinction events (Collaboration with Joshua ZIMM, Steve HOLLAND, and Seth FINNEGAN).
- *Reconstructing the late Ordovician evolution of tropical continental weathering*: Studying the evolution of terrestrial weathering and associated nutrient fluxes across the Hirnantian glaciation (Collaboration with Germain BAYON and Jean-François GHIENNE).

### **André Desrochers**

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### **Jan Ove R. EBBESTAD (Sweden)**

Jan Ove continues working on Ordovician gastropods and other molluscs, as well as trilobites, from Baltica, Avalonia, Laurentia and peri-Gondwana settings. During 2024 I have been dabbling quite a bit with Cambrian projects, but with some time also for the Ordovician. A study led by Paul Johnston on the Late Ordovician bivalve *Shaninopsis* was finished. Together with Anette HÖGSTROM (Tromsø) a new machaeridian has been studied and a manuscript submitted. A new project on the Late Ordovician Jonstorp fauna of Sweden was initiated.

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## Cole EDWARDS (USA)

Cole continues to work on Ordovician stable and radiogenic isotope stratigraphy. Collaborations with Matt SALTZMAN (The Ohio State University) continue, along with his former Ph.D. students (Christopher CONWELL and Datu ADIATMA), on conodont biostratigraphy and radiogenic isotope chemostratigraphy of the Middle–Late Ordovician. Datu ADIATMA recently published a paper on Lithium isotope stratigraphy of the Ordovician published in *Earth and Planetary Science Letters*. We also published a paper (with Charlie DIAMOND and Tim LYONS of UC Riverside) in *Palaeo3* on exploring whether Middle Ordovician biodiversification was supported with additional geochemical evidence – in this instance using the iodine proxy for locally oxygenated surface waters. These papers have reinvigorated efforts to contextualize Ordovician-based Sr records using conodonts vs. brachiopods, which should be submitted for publication by this time next year. Collaborative work with Sarah CARMICHAEL (Appalachian State University), Phoebe COHEN (Williams College), and Diana BOYER (Winthrop University) on Devonian extinction and anoxia is wrapping up on our first grant, and work with Xiao-Ming LIU (University of North Carolina Chapel Hill) continues to produce a similar lithium isotopic record for the Devonian using what we’ve learned in the Ordovician this year.

### Cole Edwards

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## Robert ELIAS (Canada)

Robert is studying Ordovician corals from limestone beds beneath volcanic ash layers in west-central Vermont, as part of a multidisciplinary project with Charles MITCHELL (USA) and others. He is also working on corals from latest Ordovician to earliest Silurian strata in the Cincinnati Arch region, with Carlton BRETT and Cole FARNAM (USA).

### Robert Elias

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## Andrej ERNST (Germany)

Andrej continues study of Baltic Ordovician bryozoans. About 2,000 thin sections were prepared, from material collected in Estonia, Sweden, and Norway. The thin sections contain bryozoans of exceptional diversity and preservation.

### Andrej Ernst

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### Frank R. ETTENSOHN (USA)

Frank continues his work with Chinese colleagues from Yunnan University in understanding the nature of Upper Ordovician platform carbonates on the Yangtse Platform of south China. He also continues his work on the Upper Ordovician Lexington Limestone and is working with graduate students and colleagues from the Kentucky Geological Survey on the three-dimensional mapping of facies in the unit. It is our hope to use 3-D mapping to further understand likely structural control on facies development throughout the unit.

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### David EVANS (England)

David continues to work on completing a monograph of the Late Ordovician cephalopods of England and Wales, and having retired, is now able to concentrate on and develop new research. Currently he is collaborating with Marcella CICHOWOLSKI (Argentina) on the cephalopod faunas of the Central Andean Basin, with a manuscript on a small but significant middle Tremadocian assemblage in preparation. He is also collaborating with Martina AUBRECHTOVÁ (Czechia) and Vojtěch TUREK (Czechia) on a revision of the Ordovician cephalopods of the Prague Basin.

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### Xiang FANG (China)

Associate Professor in NIGPAS, Nanjing, Xiang is still working on the Early Palaeozoic cephalopods and relative stratigraphy, as well as exceptionally preserved fauna in Ordovician and Silurian. Currently, his research interest is focused on the Early Palaeozoic cephalopods in China and other tropical Gondwanan regions, especially on their palaeobiological and macroevolutionary patterns.

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## Annalisa FERRETTI (Italy)

Annalisa continues her work on Ordovician conodont faunas from Europe and elsewhere, in collaborations with other conodont specialists. Recent papers have focused on the effect of diagenesis on bioapatite mineralogy and crystallization patterns over geological time.

Malferrari *et al.* (2024) investigate the Rare Earth Element (REE) and other High-Field-Strength Element (HFSE) composition of euhedral crystals formed on the surface of Late Ordovician (*Amorphognathus ordovicicus* Zone) conodont elements from two localities in Sardinia and the Carnic Alps (Italy) compared with that of crystal-free surfaces in order to decipher any possible relation to fossilization/diagenesis.

A global reassessment of conodonts in biostratigraphy has been recently published and is available in open access (Corradini *et al.*, 2024). A summary of the present knowledge on conodonts is there presented, mainly focused on their stratigraphic applications. Biozonation schemes in use are discussed and the importance of these fossils in chronostratigraphic correlation is stressed.

Annalisa has co-edited with Guillermo ALBANESI and Xavier CROSTA the Thematic Issue of *Marine Micropaleontology* “Beyond biostratigraphy: Conodont matters in evolving planetary scenarios”, resulting from the homonymous Session at the 5<sup>th</sup> International Conodont Symposium “ICOS 5” held in Wuhan, China (June 24-27, 2022). The Issue includes several Ordovician contributions and a preface (Ferretti *et al.*, 2024) introducing the significance of the Special Issue and its contents.

Finally, Annalisa is involved in the guest-editing (with Marco BALINI, David A.T. HARPER and Thomas SERVAIS) of the Thematic Issue of *Palaeogeography, Palaeoclimatology, Palaeocology* “From rock to time: evolutionary lineages and the calibration of the Chronostratigraphic Scale”, resulting from the General Plenary Session at the 4<sup>th</sup> International Congress on Stratigraphy STRATI 2023 held in Lille, France (July 11-13, 2023).

### Annalisa Ferretti

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## Barry FORDHAM (Australia)

Barry hopes to get back to a small collection of Ordovician conodonts one day ...

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## Mansoureh GHOBADI POUR (Iran)

Mansoureh completed a review of the Tremadocian trilobites of Alborz Mountains in northern Iran, and a revision of the Late Ordovician brachiopods from the Kitab Natural Reserve in Uzbekistan (jointly with Leonid POPOV and some Uzbek colleagues), which are now about to be published in *Australasian Palaeontological Memoirs*. Her research on the Furongian to Tremadocian trilobites from North Tien Shan (Kendyktas) and Malyi Karatau is ongoing.

### **Mansoureh Ghobadi Pour**

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## Jessica Carolina GÓMEZ (Argentina)

During the last year (2024), Jessica has been working as a Postdoctoral Fellow at the Laboratory of Palynostratigraphy and Paleobotany (LPP) at CICYTTP under the direction of Dr. Mercedes DI PASQUO (CICYTTP-CONICET, ENTRE RÍOS-UADER) and Dr. Jimena TROTTEYN (CIGEOBIO-CONICET, San Juan-UNSJ). This year, they ventured into the palynostratigraphic and palynofacial study in the Ordovician-Silurian transition of the Precordillera in the Province of San Juan, emphasizing its importance in paleogeographic, paleoenvironmental, and paleobiogeographic reconstructions in Gondwana.

Jessica has participated in projects related to the Ordovician-Silurian boundary: a) "High-resolution stratigraphy and events in the Ordovician-Silurian transition of the San Juan Precordillera, Argentina: correlations and significance in the evolution of the western margin of Gondwana. Part 2", directed by Dr. Silvio PERALTA at CIGEOBIO-CONICET (Code: 21/E1224); b) "Ni and Hg isotope chemostratigraphy as indicators of coeval volcanism in the Cretaceous-Paleogene, Permian-Triassic, and Ordovician-Silurian transitions", directed by Dr. Alcides SIAL at NEG-LABISE in Brazil. The results of these projects have contributed to the reconstruction of the succession of events in the Ordovician-Silurian Transition.

During 2024, studies in the Central and Eastern Precordillera of San Juan Province provided: (a) a palynomorph assemblage consisting of acritarch, chitinozoan, and cryptosporan species from the basal strata of the La Chilca Formation (Hirnantian-Wenlock) in the Central Precordillera; (b) an evaluation of the preservation of chitinozoans of the Katian?–Hirnantian succession, eastern Precordillera of Argentina; and (c) an analysis of C, N, Hg isotopes and elemental chemostratigraphy across the Ordovician–Silurian transition in the Argentine Precordillera.

### **Jessica Carolina Gómez**

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## Volodymyr GRYTSENKO (Ukraine)

Volodymyr is head of the Geological Department and curator of invertebrate palaeontology at the National Museum of Natural History of the National Academy of Science of Ukraine. He is continuing the study of Ordovician and Silurian cnidarians from the western slope of the Ukrainian Shield (open for collaboration with colleagues). He presented a poster at the 14<sup>th</sup> ISOS, Estonia annual meeting, which took place in Tallinn (Estonia) in July 2023.

### Volodymyr Grytsenko

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## Juan Carlos GUTIÉRREZ-MARCO (Spain)

Juan Carlos continues his usual activities focused on the Ordovician (and some Silurian) fossils of Peru, Colombia, Morocco, and the Iberian Peninsula. In addition to the articles already listed in this issue, his most immediate publications include: the discovery of an emucaridid survivor in the Upper Ordovician Tafilalt biota of Morocco (with D. GARCÍA-BELLIDO); the nature and identification of ‘feather-like’ fossils in the Palaeozoic, including the first representatives of *Webbyites* in the Lower and Middle Ordovician of Spain (with J. MALETZ and some Chinese colleagues); the discovery of Middle Ordovician scolecodonts from Peru (with P. TONAROVA, O. HINTS, and J. CARLOROSI); the description of the first Upper Ordovician cornulitid tubeworms from NW Spain (with O. VINN and others); the finding of *Pliomeridius* trilobites in the Ordovician of Peru and their palaeobiogeographic significance (with B. WAISFELD, E. VACCARI, I. RÁBANO, and others); a study of the first Furongian and Ordovician trilobites from the Peruvian Altiplano (with F. TORTELLO and I. RÁBANO); and the identification of an Ordovician fossil used as an amulet in a highly unique archaeological context in Spain.

Together with J. MALETZ, and in advanced stages of research, he is also working on various projects involving Ordovician graptolites from the Cabrières biota of the Montagne Noire (southern France), the Fezouata biota of the Moroccan Anti-Atlas, and the Lower and Middle Ordovician of Colombia (the latter in collaboration with M. MORENO and A. GÓMEZ from the University of Caldas in Manizales). Additionally, there are ongoing ichnological studies of the Lower Ordovician of the Central Iberian Zone (the Armorican Quartzite in the Montes de Toledo region), in collaboration with Dirk KNAUST, and some future papers on Moroccan and Spanish trilobites, brachiopods and echinoderms (with J. COLMENAR, S. PEREIRA, S. ROMERO, S. ZAMORA, and others).

For the current year (2025), he is also the organiser of the annual business meeting of the Silurian Subcommittee, which will take place in September in the city of Seville, featuring a field trip to the Ordovician-Silurian of the Valle Syncline. This event will coincide with the Golden Spike ceremony marking the new GSSP for the base of the Telychian Stage (Llandovery Series).

### Juan Carlos Gutiérrez-Marco

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## David A.T. HARPER (Scotland)

Research continues, on a range of Ordovician brachiopod and other faunas. Collaboration continues with Yves CANDELA and Michal MERGL investigating the Lower Ordovician brachiopod fauna of the Fezouata Lagerstätte (Morocco) and a monographic study of these faunas has been published in *Papers in Palaeontology*. With Yves CANDELA research continues on the brachiopods faunas of southern France including the newly discovered Cabrières biota. Together with Bernard MOTTEQUIN, Yves CANDELA and Thomas SERVAIS research continues on Ordovician brachiopods from Belgium (those from the Oxhe inlier are in press, Candela *et al. Rivista Italiana di Paleontologia e Stratigrafia*) are under study and DH has contributed to a monograph on the highest Ordovician and lower Silurian geology of the Condroz Inlier, Belgium (Mortier *et al.*). Investigation of the diversity, disparity and phylogeny of plectambonitoid brachiopods (with Yves CANDELA and Zhen GUO) is in revision for *Palaeontology*, while a similar study on the strophomenoid brachiopods continues. A similar study is planned for the orthide brachiopods. Collaboration with ZHANG Yuchen together with RONG Jiayu and ZHAN Renbin has concluded on the Katian brachiopod faunas from Tarim and South China; the large monograph (in Chinese and English) is in press. A manuscript on Irish Middle Ordovician conodonts led by Svend STOUGE together with the late Matthew PARKES has been published in a volume to celebrate the life of George SEVASTOPULO in the *Irish Journal of Earth Sciences*. Finally, the second edition of *Paleontological Data Analysis* with Øyvind HAMMER was published in hard copy in early 2024 containing some Ordovician case histories.

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## Susana HEREDIA (Argentina)

Susana keeps working on several projects. The PICT project (Agencia de Promocion Cientifica de Argentina) related to the Ordovician clays as indicators as paleoclimate change, using conodonts as precise timeline fossils, is now finished. All data have been obtained, and will hopefully soon yield some answers. Susana is also participating to another project on Ordovician Famatinan conodonts funded by CONICET and directed by Ana MESTRE. Susana is finally also involved in the study of Lower Ordovician Precordilleran conodonts. She expects to retire this year, but will continue working in CONICET.

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## Linda HINTS (Estonia)

Being retired and free from official obligations, Linda has been trying to realize previously undone or unfinished works in recent years. The latest ongoing project with colleagues Peep MÄNNIK, Jaak NÕLVAK, Helje PÄRNASTE, Oliver LEHNERT and Michael JOACHIMSKI is related to the study of palaeontological material from previously collected samples from some boreholes in the St. Petersburg region. The main attention has been paid to the Sandbian-Katian interval. The initial results are interesting, sometimes contradictory, in the correlation of local stratigraphic units with regional stages. The ultimate goal is to monitor changes of Late Ordovician biota between the Moscow and Baltic basins.

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## Olle HINTS (Estonia)

Olle is continuing studies on Ordovician–Silurian microfossils, geochemistry and Baltic regional geology and stratigraphy. In collaboration with Jaak Nõlvak and Yan Liang, he is studying chitinozoans and other organic-walled microfossils from the Ordovician worldwide. In collaboration with Petra TONAROVÁ and Mats E. ERIKSSON, Olle is studying Palaeozoic scolecodonts to provide new insights into the taxonomy, palaeobiogeography and diversification history of jaw-bearing polychaetes. At present, the Ordovician collections from Baltoscandia, South America and Prague Basin are being examined. Two palaeontological papers were published, and several are in preparation.

Olle is involved in studies on geochemistry and chemostratigraphy together with Peep MÄNNIK, Tõnu MEIDLA, Leho AINSAAR, Aivo LEPLAND and numerous other colleagues across the world. A national research project on Ordovician climate history is targeting regional paleotemperature trends and biotic turnovers. In 2024, collaboration with Nithya THIAGARAJAN and John EILER resulted in an intriguing model for Ordovician seawater composition and paleotemperatures, based on clumped isotopes and carbonate bulk-rock oxygen isotope records. Together with Peep MÄNNIK, Alicja WUDARSKA, Michael WIEDENBECK and other colleagues, work is in progress on oxygen isotope records from Baltic Ordovician conodonts based on the SIMS approach.

Olle is responsible for developing the national geological collection and related e-services as part of Estonia's research infrastructure (various data are accessible at <https://geocollections.info>).

In 2024, Olle helped to host the Baltic Stratigraphical Conference in Estonia with ca 40 participants from 10 countries; several presentations focused on the regional Ordovician geology (<https://stratigraafia.info/11bsc>).

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## Juwan JEON (South Korea)

Juwan is a post-doctoral researcher at Korea University (Seoul, South Korea), concurrently fulfilling his mandatory military duty as a South Korean citizen but freely continuing his work on Ordovician and Silurian stromatoporoids. Collaborations with Zhong-Yang CHEN, Sehyun CHO, Suk-Joo CHOH, Jeong-Hyun LEE, Wen-Jie LI, Qi-Jian LI, Stephen KERSHAW, Jino PARK, Ursula TOOM, Mongkol UDCHACHON, Ren-Bin ZHAN, Yuan-Dong ZHANG, and Yong-Yi ZHEN (in alphabetical order of surnames) continue on stromatoporoids around the world.

This year, he and Ursula TOOM completed their study of an Estonian aulaceratid stromatoporoid, published in the *Estonian Journal of Earth Sciences*. This report represents the first record of an aulaceratid stromatoporoid in Baltica, where it had not been known previously but had been reported in peri-Gondwana, Australian terranes, Laurentia, and Siberia. Part of his dissertation about the late Hirnantian stromatoporoids from South China was published in the *Journal of Systematic Palaeontology*. A work in collaboration with Andrei DRONOV, published in *Palaeoworld*, shows the subordinate role of stromatoporoids in reef construction in the upper Darriwilian of Siberia. Studies on stromatoporoids from Qinghai Province of China, eastern Kazakhstan, Thailand, and Estonia are ongoing projects.

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## Petr KRAFT (Czech Republic)

Petr continues his studies on various aspects of Ordovician fossil associations mainly from the Prague Basin with emphasis on graptolites. He is also currently involved in studies of taphonomy, and unusual fossils and interactions, primarily in the Darriwilian. In the field, he focuses on collecting graptolites at new and classic localities that can contribute to improving the graptolite stratigraphy from the Floian to the lower Katian.

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## Lukáš LAIBL (Czech Republic)

In 2024, Lukas continued his work on the morphology, evolution, and development of various arthropods from the Cambrian and Ordovician strata worldwide. With his colleagues, he investigated two Ordovician Konservat Lagerstätten – the Cabrières Biota from France and the Fezouata Shale from Morocco. In November, he co-organised the 3<sup>rd</sup> virtual meeting of IGCP 735 in Prague. Lukáš also did a considerable amount of science communication, including the publication of a popular science book about palaeontology for kids.



## **Lukáš Laibl**

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## **Ed LANDING (USA)**

Now retired since 2016, Ed is completing a long overdue summary of conodont biostratigraphy and carbon isotope stratigraphy of the Providence Island Formation (lower Middle Ordovician, lower Dapingian) in eastern New York and adjacent Vermont. The Providence Island (and synonymous units: Carillon Formation, southern Quebec; Bridport Formation, western Vermont) is an unconformity bounded depositional sequence that forms the top of the Beekmantown Group in NE Laurentia. Though comprised of restricted marine, locally evaporitic and planar stromatolitic facies, the Providence Island has a surprisingly abundant and diverse conodont fauna. The carbon isotope stratigraphy has been done by Bosiljka Glumac (Smith College, Northampton, Massachusetts).

## **Ed Landing**

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## **Bertrand LEFEBVRE (France)**

Bertrand continues his work on the systematics, palaeoecology and palaeobiogeography of Palaeozoic echinoderms. Last year, he supervised Enzo BIROLINI's undergraduate internship on Late Ordovician skeletal remains from Denmark and southern Sweden originally assigned by Assar HADDING (1913) to the genus *Anatifopsis* (then considered a crustacean, now placed within stylophoran echinoderms). Their reexamination, in collaboration with Luke PARRY (Oxford), allowed them to be assigned to palaeoscolecsids.

With Romain VAUCHER (Geneva), Bertrand co-supervised Soline MICHEL's undergraduate internship on the palaeoecology of Floian assemblages of the Montagne Noire (southern France). Soline's work provided a detailed log and an updated sedimentary interpretation of the Cluse de l'Orb, Foulon and Landeyran formations.

Bertrand also participated with Sabrina RENAUD (Lyon) in supervising the undergraduate internship of Camille VIDAL-MARTY, who analyzed morphological disparity and size differences in the late Darriwilian mitrate stylophoran *Mitrocystella incipiens*, based on material from the Czech Republic, France, Portugal, and Spain.

With Pauline GUENSER (Lyon), Bertrand co-supervised the MSc intership of Léa TREMEAU (Dijon), who studied biases in biodiversity patterns of Cambro-Ordovician echinoderms.

With Martina NOHEJLOVÁ (Prague), Bertrand also supervises Christophe DUPICHAUD's PhD thesis on the anatomy and phylogeny of Cambro-Ordovician echinoderms. With Christophe, Bertrand carried out field work in the Upper Ordovician of the Prague Basin, as part of an ongoing Czech-French Barrande project (2023–2024) with colleagues of the Czech Geological Survey (Martina NOHEJLOVÁ and Marika POLECHOVÁ) and Ondřej ZICHA. Also with Christophe, Bertrand supervised Malo MEYRUEY's undergraduate internship on the morphological disparity and functional morphology of folded respiratory structures in glyptocystid rhombiferans and scotiaecystid cornutes.

In 2024, Bertrand participated in several field campaigns in the Lower Ordovician of the Montagne Noire with Eric and Sylvie MONCERET, Daniel VIZCAINO, as well as colleagues from Brest (Romain GOUGEON, Muriel VIDAL) and Lausanne universities (Allison DALEY, Pierre GUERIAU, Gaëtan POTIN, Farid SALEH), to collect more data on the late Floian Cabrières Biota.

Since 2022, Bertrand is leading a four-year project funded by the French Research Agency (ANR), alongside colleagues from Dijon (Alexandre POHL), Lille (Thomas SERVAIS) and Wimereux (Grégory BEAUGRAND). This project, entitled 'Evolution of the Cambrian-Ordovician Biodiversification Onset Over Space and Time' (ECO-BOOST), aims to combine empirical palaeontological data with palaeoclimate and (macro-)ecological modelling, in order to analyze the onset of Cambro-Ordovician radiations through time and space.

Finally, with Yves CANDELA, Khadija EL HARIRI, Mansoureh GHOBADI POUR, Elena RAEVSKAYA, Oive TINN, Beatriz WAISFELD and Wenhui WANG, Bertrand is one of the co-leaders of the IGCP project 735 'Rocks and the Rise of Ordovician Life: Filling knowledge gaps in the Early Palaeozoic Biodiversification' (Rocks n' ROL).

### **Bertrand Lefebvre**

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### **Oliver LEHNERT (Germany)**

Oliver is continuing his work on Cambrian through Silurian conodonts from different palaeoplates with respect to palaeoclimate and palaeogeography, bio- and chemostratigraphic correlations and a main focus on Ordovician successions. Together with colleagues from China (e.g. Rongchang WU, Guanzhou YAN, Qijian LI, Xiaocong LUAN), Estonia (e.g. Peep MÄNNIK, Jaak NÕLVAK), Czech Republic (Jiri FRÝDA), Sweden (Mikael CALNER), Argentina (e.g. Emilio VACCARI, Fernando CAÑAS, Gustavo VOLDMAN, Marcelo CARRERA), Germany (e.g. Michael JOACHIMSKI, Guido MEINHOLD), and the USA (e.g. John REPETSKI, Rob RIPPERDAN) he is working on joint studies treating the Early Palaeozoic evolution of sedimentary basins on different palaeocontinents with respect to sea-level changes and global palaeoclimate changes.

### **Oliver Lehnert**

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### **Stephen LESLIE (USA)**

Stephen is primarily working on Middle and Late Ordovician, and a bit on early Silurian, conodont biostratigraphy and integrating the biostratigraphy with studies of Ordovician paleoclimate change. Work continues with Dan GOLDMAN integrating graptolite and conodont biostratigraphy in dark shale successions. Stephen continues to work with Antun HUSINEC on Late Ordovician to Early Silurian conodont biostratigraphy and carbon isotope

stratigraphy in the Williston Basin, and began work with Justin STRAUSS and his lab on Late Ordovician to early Silurian conodonts from the Yukon.

### **Stephen A. Leslie**

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### **Lixia LI (China)**

Lixia continues to work on the Paleozoic sponges and graptolites from China. Her research activities in 2024 were still mainly on taxonomy and macroevolution of sponges from Ordovician-Silurian boundary sections in South China. There is a good progress in the study of sponge spicules before the Late Ordovician Mass Extinction and a Late Ordovician sponge spicule assemblage from the Yangtze Platform, South China was published in *Journal of Asian Earth Sciences*. She carried out a project about sponge biodiversification during the Ordovician-Silurian boundary interval in South China and its implication, cooperated with Prof. Joachim REITNER (Göttingen University). Furthermore, she is also working on the Early-Middle Ordovician graptolites from China, mainly focusing on graptolite taxonomy and biostratigraphy.

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### **Ming LI (China)**

Ming continues her work on Early Ordovician (Tremadocian) graptolite phylogeny and biostratigraphy. Last year, her main working areas were North China and South China, with a focus on graptolite taxonomy and stratigraphic division in the Tremadocian.

### **Ming Li**

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### Yan LIANG (China)

Yan continues her work on Ordovician chitinozoans, primarily on the taxonomy, biostratigraphy, morphological function and biological affinity. During 2024, she attended the IPC-IOPC in Prague, Czech Republic and the IGC in Busan, Korea. It has always been an inspiring experience for her to have the chance to attend meetings, talk with different people, share their recent research, and find new research issues. After the meeting, she collaborated with Dr Petra TONAROVÁ, discussing chitinozoans from Prague and northern India. And then had a short visit to Prof. Olle HINTS and Jaak NÕLVAK, picking more specimens for chitinozoan morphology studies. Hopefully, they can get something interesting published this year.

#### Yan Liang

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### Thibaud LIEFFROY (Estonia)

Thibaud is continuing his PhD in Estonia, under the supervision of Olle HINTS and Peep MÄNNIK in Tallinn University of Technology (TalTech). This work aims to fill gaps of Ordovician Baltoscandian biostratigraphy and use conodonts as geochemical archives to deciphering (1) Ordovician climate history in this region and (2) environmental and ecological trends across the Baltoscandian basin. Thibaud is writing an article presenting Ordovician conodont biostratigraphy from the Latvian drill-core “Aizpute-41”, which may yield significant environmental insights. Moreover, he is collaborating with Alicja WUDARSKA and Michael WIEDENBECK from the GFZ Helmholtz Centre for Geosciences (Potsdam, Germany) with the aim to provide phosphatic  $\delta^{18}\text{O}$  from Aizpute’s specimens, leading to another article presenting further pieces of information about the Ordovician climatic variations on Baltoscandia continent.

#### Thibaud Lieffroy

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### Fernando Enrique LOPEZ (Argentina)

Fernando is a geologist, professor, and PhD student at the Universidad Nacional de San Juan (UNSJ), Argentina. His research focuses on the Ordovician and Silurian graptolite biostratigraphy of the Precordillera. His aim is to improve the biostratigraphic framework of South America, enhance temporal correlations, fill gaps in the fossil record, and introduce new graptolite faunas and taxa in the region.

He is currently completing his PhD thesis in biostratigraphy and taxonomy of Ordovician graptolites from the Argentine Western and Central precordilleras, under the guidance of Dr. Gladys ORTEGA, Dr. Aldo L. BANCHIG, and Dr. Guillermo L. ALBANESI. This study examines a diverse and previously poorly-known graptolite fauna, contributing to an enhanced biostratigraphic understanding of the Precordillera during that time period. The

findings form part of a paper currently in preparation. Additionally, he is investigating Silurian graptolite faunas from the Precordillera, with some papers already published on formations such as La Chilca, Los Espejos, and Rinconada, and others in progress.

### **Fernando Enrique Lopez**

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### **Monika LUPTÁKOVÁ (Czech Republic)**

Monika is a PhD student at the Charles University. She continues working on paleoecology of the Ordovician dendroid graptolites from the Prague Basin, the collection of B.-D. ERDTMANN which originated from Newfoundland and fossil associations of the Dobrotivá Formation (Prague Basin, Czech Republic) with emphasis on dendroid graptolites.

### **Monika Luptáková**

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### **Jörg MALETZ (Germany)**

Jörg is working on Cambrian to Silurian graptolites. Research on the graptolites of the Miaolingian to Furongian (Upper Cambrian) with ZHANG Yuandong and ZHU Xuejian (NIGPAS, Nanjing, China) provides important new information for the construction of early graptolite tubaria and thecal differentiation. Additional data come from Ordovician glacial boulders of North German origin (collected by Ronald KLAFAK, Rostock, Germany), bearing well preserved acanthograptid and dendroid graptolites. Work on Ordovician faunas from Morocco, Spain, Portugal and France is under way with Juan Carlos GUTIÉRREZ-MARCO (Madrid, Spain). Additional investigations with Blanca TORO and Nexxys HERRERA SÁNCHEZ (Cordoba, Argentina) on Ordovician faunas from Argentina are in progress.

### **Jörg Maletz**

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### Peep MÄNNIK (Estonia)

Peep is working on evolution, taxonomy and palaeoecology of conodonts, conodont-based high-resolution stratigraphy, bioevents and palaeogeography. He is also interested in sequence stratigraphy, palaeoclimatology and evolution of sedimentary basins. Studies under the project PRG1701 “From Greenhouse to Icehouse: Reconstructing Ordovician Climate Transitions and Biotic Responses in Baltica” are in progress. Also, joint studies together with colleagues from Estonia, Germany, Poland, Sweden, U.K. and USA on evolution and high-resolution stratigraphy of the Early Palaeozoic faunas and sedimentary basins on different palaeocontinents continue.

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### Alexander (Sandy) D. McCRACKEN (Canada)

Sandy is periodically working on good Ordovician-Silurian collections from Hudson Bay and Moose River basins, Ontario and Manitoba. Also has some Arctic Island Ordovician-Silurian conodonts to pick and review, but, he expects to end this work this year. Sandy retired in September 2017 and he is a part-time volunteer with the GSC Calgary office. He works at his Nanaimo, BC home, having moved his microscope and some samples with him. He is in online contact with the Calgary office monthly or so; regular mail does not get forwarded so please send only emails or email attachments to his personal email address.

#### **Alexander (Sandy) D. McCracken**

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### Patrick McLAUGHLIN (USA)

Patrick is Principal Research Scientist at the Illinois State Geological Survey, University of Illinois. He heads the Basin Analysis Laboratory which contains facilities for stable isotope analysis, biostratigraphy, petrography, and elemental analysis. During 2024 his Ordovician research continued to focus on Katian and Hirnantian strata of the US midcontinent basin. These strata contain multiple sedimentary ore deposits enriched in critical minerals that he continues to investigate with Poul EMSBO, Thijs VANDENBROUCKE, Tim PATON, Carl BRETT and a number of students.

#### **Patrick I. McLaughlin**

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## Tõnu MEIDLA (Estonia)

Tõnu is holding the position of Professor of Palaeontology and Stratigraphy at the University of Tartu (Institute of Ecology and Earth Sciences) and is working on different aspects of litho- and biostratigraphy, ostracods and stable isotopes in the Ordovician of Estonia, Latvia and Lithuania (together with L. AINSAAR, A. LEPLAND, O. TINN, O. HINTS, P. MÄNNIK, T. PAISTE, S. PETRUKONĒ and S. RADZEVIČIUS). Tõnu is also acting as vice chair of the Estonian Commission on Stratigraphy, and he was involved in organising the XI Baltic Stratigraphical Conference on August 19-21, 2024 that took place in Tartu and Arbavere, Estonia, and he guided the mid-conference excursion and the four-day post-conference excursion.

### Tõnu Meidla

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## Michael J. MELCHIN (Canada)

Michael has recently retired but is still active in research. He is currently working with Charles MITCHELL (USA) and colleagues on quantitative analyses of global graptolite diversity, paleoecology and biogeography through the late Katian to early Silurian. Michael is also working with Qing CHEN and Xu CHEN (China) on a systematic study of Late Ordovician graptolites in South China, with Zongyuan SUN (China) on bio- and chemostratigraphic study of Late Ordovician-early Silurian successions in the subsurface of South China, with Charles MITCHELL, Dan GOLDMAN (USA) and Jason LOXTON (Canada) on systematics and biostratigraphy of Late Ordovician graptolites from Yukon (Canada), and his own projects on Late Ordovician graptolites from Scotland and Arctic Canada.

### Michael Melchin

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## Michal MERGL (Czech Republic)

Michal is currently working on lingulate brachiopods from the early Floian of the Prague Basin. He mostly carried out the field work in 2024 but could not manage chemical extraction of fossil by acids due to the temporary move of his department to another building (until 2027). He is just retired but retains the professor position in the department for some teaching and research. He cooperates mostly with Petr KRAFT on study of some unusually preserved fossils of a currently observed taphonomic window near the Dapingian/Darriwilian boundary in Bohemia.

### Michal Mergl

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## Ana MESTRE (Argentina)

Ana is working on different topics related to biostratigraphy and taxonomy of the Lower – Middle Ordovician conodonts, as well as the sedimentology, stratigraphy, and evolution of the Ordovician and Silurian Precordillera and Famatina basins. She continues working on conodont biostratigraphy and the U-Pb zircon dates from K-bentonite of Lower-Middle Ordovician from the Precordillera in collaboration with Drs. Anders LINDSKOG (Kristianstad University), André Navin PAUL (University of Frankfurt) and Urs SCHALTEGGER (University of Geneva).

She also continues to collaborate on a multi-year project about the minerals of the clay group of the Ordovician-Silurian sedimentary succession from the Precordillera, which is developed in collaboration with Drs. Susana HEREDIA (CONICET – UNSJ), Juan Pablo MILANA (CONICET – UNSJ), Daniel POIRÉ (CONICET – CIG), Estefania ASURMENDI (CONICET – UNRC), and Josefina CARLOROSI (CONICET – UNSUGEO).

Lower-Middle Ordovician conodonts and trilobites continue to be studied together with Drs. Josefina CARLOROSI (CONICET – UNSUGEO), Daniela MONTI (CONICET – IEGEBA), and Franco TORTELLO (CONICET – UNLP), through a collaborative project about the comparison and correlation of the Ordovician fauna from Argentine Precordillera, Famatina, and Eastern Cordillera.

A post-doctoral plan is developed by Florencia MORENO under her co-direction on microfacies, biostratigraphy, and biodiversity of Lower-Middle Ordovician conodonts from the Precordillera.

### Ana Mestre

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## Diego Fernando MUÑOZ (Argentina)

Diego is a researcher at the Instituto de Geología de Costas y del Cuaternario "Dr. Enrique Jorge Schnack" (IGCYC - Universidad Nacional de Mar del Plata and CIC-PBA) and continues to investigate Palaeozoic deposits in Argentina and other Gondwana regions. He is mainly devoted to studying marine siliciclastic trace fossils, particularly cruzianids. He is particularly interested in the relationship between trace fossil occurrences and their probable producers and in studying the ichnological record from a palaeobiological perspective. He participates in the creation of a new Paleontological Collection at the National University of Mar del Plata (a probable acronym for ichnological material: IGCyC-Icn), which is expected to house Ordovician material. He published an abstract showing the potential use of actualistic taphonomy to understand Lower Ordovician brachiopods shell beds. Dealing with trace fossils, he published some abstracts about different aspects of the Ordovician animal-substrate interactions in different areas (NW Argentina, central Brazil, and northern France).

### Diego F. Muñoz

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## Elise NARDIN (France)

Elise is currently working on echinoderm blastozoans focusing on systematics, palaeoecology, and phylogeny. She collaborates with Bertrand LEFEBVRE, Martina NOHEJLOVÁ, Chris PAUL, Christophe DUPICHAUD, Yamouna MAKLOUF, and Samuel ZAMORA, on the systematics, morphology, and phylogeny of ‘cystoids’ and eocrinoids. She is also interested in the paleogeographic and ecological dynamics of Cambrian-Ordovician echinoderms in collaboration with Bertrand LEFEBVRE, Martina NOHEJLOVÁ, and Gilles ESCARGUEL. Undergoing projects also focus on quantitative assessment of reef palaeoecology, and environmental evolution of the subpolar peri-Gondwanan margin.

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## Martina NOHEJLOVÁ (Czech Republic)

Martina continues her work on Ordovician echinoderms (eocrinoids, solutans, stylophorans) focusing mainly on systematics, palaeoecology, palaeobiogeography and phylogeny. In the last year she has collaborated mainly with Bertrand LEFEBVRE (e.g. Barrande project), Elise NARDIN, Farid SALEH, Chris PAUL and Rich MOOI. She is co-supervisor of the PhD thesis of Christophe DUPICHAUD. She supervised the Master Internship of the French student Vincent de OLIVEIRA SANTOS on the morphological redescription of the echinoderm *Lagynocystis pyramidalis*. Martina was the main organiser of the 3rd virtual annual IGCP 735 meeting in Prague.

### Martina Nohejlová

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## Alan OWEN (United Kingdom)

A paper with colleagues in Wales on a new Upper Ordovician species of the trilobite *Staurocephalus* has been published (Leidi *et al.*, 2025) and work continues on the description of the trilobite fauna of the upper Katian Slade and Redhill Mudstones of South Wales with Lucy McCOBB (National Museum of Wales, Cardiff) and Patrick McDERMOTT (Carmarthen, Wales). Some progress has now been made on completing the extensive work by the late Keith INGHAM on the deep water Katian trilobite faunas of the Girvan district, south-west Scotland.

### Alan W. Owen

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### Ian PERCIVAL (Australia)

Ian is an Honorary Research Associate at the Geological Survey of New South Wales. 2024 was a year of catching up on legacy projects. He continued a productive collaboration with Dr Yong Yi ZHEN at the Geological Survey of NSW, completing further papers on Ordovician conodont biostratigraphy of central and Western Australia. Ian also continues cooperative studies on Ordovician corals of eastern Australia with Yong Yi and Dr Guangxu WANG (NIGPAS, Nanjing). During 2024 he co-edited the latest volume (*Cambro-Ordovician Studies VII*) of the *Australasian Palaeontological Memoirs* series, to be published in the early part of 2025, and continues as Associate Editor-in-Chief of *Palaeoworld*, based in Nanjing.

#### **Ian Percival**

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### Gian Luigi PILLOLA (Italy)

Gian Luigi still occasionally manages to produce works regarding the Ordovician. In 2024 an article was published on cornulitid tubeworms from SW Sardinia and the Pyrenees, in collaboration with Olev Vinn's research group.

#### **Gian Luigi Pillola**

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### Marika POLECHOVÁ (Czech Republic)

Marika continues her research on Ordovician bivalves, focusing on systematics, palaeoecology, palaeobiogeography, and phylogeny. Her study material primarily comes from the Czech Republic, France, and Austria. She has been working on Early Ordovician bivalves from Montagne Noire (France) and Late Ordovician bivalves from Semtín breccia (Czech Republic), the latter collection housed at GeoSphere Austria. She also co-organized the 3<sup>rd</sup> Virtual meeting of IGCP 735 in Prague.

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### Leonid POPOV (United Kingdom)

Leonid has been retired for several years but still keeps an honorary position at the National Museum Wales. He continues his taxonomic study of brachiopods, focusing on the Late Ordovician brachiopods of the Ishim Region in northern Central Kazakhstan and the Early Ordovician brachiopods of the South Urals. Additionally, he is working on several other projects dedicated to the Early Ordovician atrypides in collaboration with RONG Jiayu and ZHANG Yuchen.

#### **Leonid E. Popov**

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### Sigitas RADZEVIČIUS (Lithuania)

Sigitas is working on different aspects of lithostratigraphy, graptolites, and chemostratigraphy in the Ordovician of Lithuania. However, most of his current interest is focused on the Ordovician geological sections in West Lithuania (Livonian Basin).

#### **Sigitas Radzevičius**

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### Enrique Alberto RANDOLFE (Argentina)

Enrique continued his postdoctoral project under the direction of Dr. Juan José RUSTÁN and Dr. Diego BALSEIRO, focused on resolving the basal relationships of Dalmanitidae with other members of the Infraorder Dalmanitiformes. One of the long-term objectives is to study the changes in the disparity of this infraorder in the Ordovician-Devonian interval using geometric morphometrics. In collaboration with researchers from the University of Campinas and the University of Brasilia, he described the first Ordovician dalmanitid from the Hirnantian of the Parana basin, Brazil.

#### **Enrique Alberto Randolfe**

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### John E. REPETSKI (USA)

As retired Emeritus, John continues to work on conodonts and biostratigraphy of late Cambrian and Ordovician conodonts and biostratigraphy. Currently, with colleagues J.F. TAYLOR, J.D. LOCH, J.F. MILLER, Justin STRAUSS and others on the Cambrian / Ordovician boundary interval in the U.S. Cordillera. Also, histological and morphological studies with colleagues D. MURDOCK, P. SMITH, and others. With Rob RAINE and Paul SMITH, a large MS on the Cambrian-Ordovician of northern Scotland was published in late 2024. A MS on stratigraphy and correlation of Cambrian and Lower Ordovician rocks of eastern Nevada, USA, with MILLER and others, appeared in 2024. With Randy ORNDORFF and Steve LESLIE, work continues on Ordovician successions in the Appalachians in support for several USGS mapping projects. Continuing work on conodonts from some impact structures. John is also working on issues relating to the Floian/Dapingian interval.

Currently splitting work between home and office.

#### **John E. Repetski**

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### Sara ROMERO (Spain)

Sara is continuing with a predoctoral contract at the Complutense University of Madrid (Spain). Her PhD thesis focuses on the study of trilobites from the Middle and Upper Ordovician of the Iberian Range (Spain), supervised by Juan Carlos GUTIÉRREZ-MARCO, Sofia PEREIRA, and Fernando GARCÍA JORAL. Additionally, her research also includes the study of other Ordovician trilobite and brachiopod assemblages from SW Europe and Morocco in collaboration with Juan Carlos GUTIÉRREZ-MARCO, Isabel RÁBANO, Sofia PEREIRA, and Jorge COLMENAR.

#### **Sara Romero**

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### Claudia V. RUBINSTEIN (Argentina)

Claudia continues her work on marine and terrestrial palynomorphs from the early to middle Paleozoic, primarily focusing on biostratigraphy, biodiversity, paleobiogeography, and paleoenvironments. Her investigations in the Paleozoic of the Central Andean Basin and the Precordillera in Argentina, in collaboration with Blanca Toro (CICTERRA - Córdoba), centre on high-resolution biostratigraphy, integrating graptolite, palynomorph, and conodont data. Studies on the Ordovician of the Llanos Basin in Colombia, particularly at the Cambrian/Ordovician boundary, are ongoing in collaboration with colleagues from the Colombian Institute of Petroleum (Bucaramanga). Research on Ordovician palynomorphs in



Sweden, in cooperation with Vivi VAJDA (Swedish Museum of Natural History), continues, mainly focusing on the FAD and radiation of acritarchs and miospores.

### **Claudia V. Rubinstein**

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### **Ehimar Kristal RUEDA (Argentina)**

Kristal is currently working on her Ph.D. thesis on the biostratigraphy of Lower Ordovician conodonts and graptolites from the Cordillera Oriental in northwestern Argentina. Her research also includes taxonomy, paleobiogeography, and paleoecology of these fossils.

### **E. Kristal Rueda**

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### **Firuz A. SALIMOVA (Uzbekistan)**

Firuz continues her work on the tabulate corals and Ordovician-Carboniferous biostratigraphy of the Zeravshan-Hissar mountainous region and Kuldzhuktau, Tamdytau, Aristantau, Sangruntau mountains (Kyzylkum desert). In cooperation with colleagues, she completed work on the 1:50 000 scale geological map of a south-eastern part of the Kuldzhuktau Mountains, which is now in press. With some colleagues she also takes part in a research project on the Phanerozoic biostratigraphy of the Kuldzhuktau Mountains (Central Kyzylkum), which is now in advanced stage and almost ready for publication.

### **Firuz A. Salimova**

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### **Matthew SALTZMAN (USA)**

Matthew is working on Ordovician isotope stratigraphy. This year former Ohio State PhD student Datu ADIATMA published papers in *Earth and Planetary Science Letters*: 1) on Ca isotopes from Meiklejohn Peak, Nevada that examines carbonate diagenesis through the MDICE interval; and 2) Ordovician Li isotopes from a compilation of sections in North America which show a shift related to changes in silicate weathering rates and intensity. Charlie DIAMOND published a paper in *Palaeogeography, Palaeoclimatology, Palaeoecology* on the MDICE at Meiklejohn Peak (a project he began as an undergraduate at Ohio State and completed during his PhD at UC-Riverside) that included S-isotope and I/Ca ratios to address redox changes in the Middle Ordovician. Work also continues towards publishing Ca isotope and Sr isotope data sets from sections in Sweden and the US (Clear

Spring, MD) with former PhD student Chris CONWELL and collaborators; and Nd data from Appalachian sections in the US with former PhD student Datu ADIATMA.

### **Matthew R. Saltzman**

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### **Thomas SERVAIS (France)**

Thomas continues working on early Palaeozoic acritarchs, and, connected to this, on the 'Plankton Revolution' and the evolution of the marine microphytoplankton. The year 2024 was very calm in terms of publications. However, international collaboration and supervision of MSc and PhD students are numerous with several papers in progress. A revision of netromorph acritarchs has just been published with the PhD student Eiver MANZANO (Lille) as leading author. Another paper on the enigmatic acritarch *Corollasphaeridium* (a loricate protist?) will soon be published with Tom GREEN and Tom HARVEY (Leicester University) and other colleagues. Projects with Chinese colleagues from Nanjing, Changsha, Wuhan and Taiyuan include investigations from the Yangtze Platform, but also from the Cambrian-Ordovician boundary section (SABS) in Dayangsha and other areas in China. Regional studies on the Ordovician of Belgium and France continue with a number of collaborations on acritarchs, chitinozoans, trilobites, brachiopods, etc. from the Ardennes and the Brabant Massif (Belgium), but also from different Ordovician sections in France, including the Cabrières Lagerstätte in the Montagne Noire. Two ANR-funded research projects continue, the first with Bertrand LEFEBVRE (PI) and coworkers on the spatialization (including the understanding of the latitudinal diversity gradient) of the early Palaeozoic radiation, the second being focused on the research of acritarchs as the ancestors of dinoflagellate cysts.

### **Thomas Servais**

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### **Birendra SINGH (India)**

Birendra is working on Cambrian to Ordovician successions of Northwest Himalaya (Tethyan and Lesser Himalaya), India, particularly on trilobites, brachiopods, and trace fossils. Research on the Ordovician succession of the Spiti and Kinnaur regions provides new data on age and fossil content. Based on typical *Cruziana* stratigraphy, the lower age limit of the Ordovician Takche (Pin) Formation is constrained (Singh *et al.*, 2024). A locality in the Tidong valley (Kinnaur) in the northwest Himalayas is explored after a gap of four decades, and Late Ordovician gastropods (*Holopea*?, *Hormotoma*, *Poleumita*, *Gyronema rupestre*), cephalopods (*Discoceras*, unidentified nautiloids), and rare *Tentaculites* were described (Negi *et al.*, 2024). Additional investigations on Ordovician and Silurian faunas from the Kali Valley and Tidong valleys are in progress. Preliminary findings suggest a remarkable

diversity of marine life, which may provide insights into the evolutionary responses to environmental changes occurring at the time.

### **Birendra P. Singh (India)**

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### **Matthias SINNESAEEL (Ireland)**

Matthias started a tenure-track Assistant Professor position at Trinity College Dublin (Ireland) in March 2024. Matthias stays interested in better understanding Ordovician (and more generally speaking Palaeozoic) palaeoclimate and stratigraphy - especially cyclostratigraphy and astrochronology. He is looking forward to discover Irish geology, in particular the Ordovician outcrops around Portrane, and is open for future collaborations.

### **Matthias Sinnesael**

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### **Patrick Mark SMITH (Australia)**

Patrick has a wide range of research streams focused on the biostratigraphy of Cambrian and Ordovician trilobites, brachiopods and other fossil groups from Australia. Currently his work is exploring the biostratigraphy of western New South Wales and Western Australia in partnership with Yong Yi ZHEN, Ian PERCIVAL at the NSW Geological Survey, Heidi ALLEN at the Western Australian Geological Survey, and John LAURIE at Geoscience Australia respectively. This includes papers describing the Late Cambrian and Ordovician trilobite/conodont faunas from the upper Goyder Formation (NT), Florina Formation (NT), Nootumbulla Sandstone (NSW), Bynguano Quartzite (NSW), Scropes Range Formation (NSW), Oakdale Formation (NSW), and Mithaka Formation (QLD). Patrick has also recently been involved in several publications on other arthropod groups (including: crustaceans, and eurypterids) as well as trilobite injuries, with Russell BICKNELL at the American Museum of Natural History.

### **Patrick Mark Smith**

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### Colin D. SPROAT (Canada)

Colin continues his work studying the early atrypide brachiopods from the Late Ordovician. His current work is focusing on a long-understudied fauna from the Mackenzie Mountains with his graduate student, Jessica McLEOD that includes several lineages of early atrypides and some early rhynchonellides that have never been described. He also continues his work with Brian PRATT on the Upper Ordovician succession in southern Manitoba (central Canada) that aims to better understand how grainstones are deposited in the middle of the epicontinental sea that covered Laurentia during the Late Ordovician. He and Yuchen ZHANG at the Nanjing Institute of Geology and Palaeontology have finally published their study of a paleogeographically important Katian brachiopod fauna from the Tarim microplate (now northwestern China) dating back to his time as a postdoctoral fellow at the institute.

#### Colin D. Sproat

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### Sarah STEWART (United Kingdom)

Sarah is working on mollusc collections and historical vertebrate collections in the museum.

#### Sarah Stewart

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### Alycia L. STIGALL (USA)

2024 was a productive year for her research group. Alycia and her students have been continuing to explore various aspects of diversification, paleoecology, and biogeography using (mostly) articulated brachiopods. Mariana VILELA DE ANDRADE and Noel HERNANDEZ GOMEZ both graduated with their MS degrees, and hope to have papers coming out this year documenting their work on systematics and biogeography of azygyid brachiopods of Laurentia (for Mariana) and niche stability during invasion events (for Noel) published in 2025. Mariana has now started a PhD in Alycia's lab and along with second year PhD student, Shymah Beegam KUNDLADI, will be focusing on paleoecological issues. Katherine JORDAN-BURMEISTER also joined as a post-doc and has further increased the quantitative skills in the lab. Alycia is continuing projects with Ian FORSYTHE and Carl BRETT on the Late Ordovician of the Cincinnati and Nashville regions, as well as working on Middle Ordovician projects as well as ecosystem engineering through time other collaborators. Last year, it was really fantastic to be able to connect with our global Ordovician community in at the IGCP 735 meeting Argentina and online in Prague. Alycia looks forward to continuing to collaborate and engage with the community as part of SOS executive team in 2025.

## Alycia Stigall

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## Svend STOUGE (Denmark)

Svend continues working on conodont biostratigraphy and isotope geochemistry. At the moment the following topics are in focus: (1) Lower and Middle Ordovician conodonts from Svalbard (with colleagues); (2) Integration of Cambrian to earliest Ordovician conodonts with trilobite and graptolite zonations based on sections from Baltica and Newfoundland, Canada (with colleagues); (3) Biostratigraphy of Middle Ordovician conodonts from central East Greenland (in cooperation with GEUS) and (4) Komstad Limestone (Middle Ordovician) from Bornholm and Scania. A monograph of the Dapingian conodonts from South China (Yichang) is getting closer to its completion.

## Svend Stouge

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## Peng TANG (China)

Peng keeps working on Ordovician and Silurian chitinozoans and high resolution stratigraphic correlation in Tarim and eastern China. Together with his group members, he has studied chitinozoans, conodonts, brachiopods, corals, bryozoans, stromatoporoids, etc., and located the Ordovician-Silurian boundary in the Xikeer Bed in Kalpin, northwestern Tarim Basin in 2023. They have found *Cathaysiorthis yushanensis* and *Leptaena rugosa*, which belong to the Edgewood-Cathay (EC) Fauna, the first brachiopod assemblage to have inhabited shallow marine environments after the Late Ordovician Mass Extinction (LOME) in northwestern margin of the Tarim Basin, Xinjiang, NW China in 2023. The newly established unit, i.e. the Xikeer Bed, contains the EC Fauna and ranges from uppermost Hirnantian (Upper Ordovician) to lowermost Rhuddanian (Llandovery, Silurian). Furthermore, stratigraphic framework of Late Ordovician in northwestern Tarim Basin has been modified by establishing and modifying Upper Ordovician formations. Based on these works, a special issue in *Journal of Stratigraphy* has been compiled including about nine papers summarizing the Upper Ordovician stratigraphic sequence, related various fossil groups, sedimentary setting and tectonic background in the particular region.

## Peng Tang

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## John TAYLOR (USA)

John continues to work in Emeritus status on numerous biostratigraphic projects that involve Ordovician trilobites and agnostoid arthropods from various areas of North America. This past year saw publication of a Zootaxa monograph on late Cambrian and early Ordovician faunas from the deep marine facies of the Windfall Formation in Nevada, USA, coauthored by fellow trilobitologist James LOCH and conodont specialist John REPETSKI. Although the arthropod species described in that paper are all Cambrian, most represent genera that range upward into the Tremadocian. That, along with the included treatment of some Ordovician conodont faunas, lends relevance to the paper for Ordovician workers. Another paper that grazes the base of the Ordovician System was completed in 2024 and submitted as a contribution to Australasian Palaeontological Memoir 57, Cambro-Ordovician Studies VII (In Press). That paper utilizes uppermost Cambrian trilobites and conodonts (again, dealt with by John REPETSKI) to tightly constrain the position of the Cambrian-Ordovician boundary in the shelfbreak to uppermost slope deposits of the Jones Ridge Limestone, in easternmost Alaska. The faunas also precisely date a previously unrecognized, thin, uppermost Cambrian negative Carbon isotopic excursion (designated the BINE for Basal Ibexian Negative Excursion) recognized in the isotopic profile constructed by co-author Justin STRAUSS. Hopefully work will resume later this year on a manuscript on Tremadocian faunas, sedimentology, and Carbon isotope stratigraphy of the Laurentian Skullrockian-Stairsian Stage boundary interval in the El Paso Group of the southwestern USA with Paul MYROW and Rob RIPPERDAN that was planned as a contribution to Cambro-Ordovician Studies VII but was displaced by the paper reporting the BINE. Intensive review of literature on *Symphysurina* conducted in writing the BINE manuscript also has John poised to describe quite a few new species of that trilobite genus collected in earlier studies from basal Tremadocian units in Alaska, Pennsylvania, Texas, Wyoming, and elsewhere. Many of the associated species of hystricurid genera such as *Tulepyge* and *Hintzecurus* are also new and await description.

### John F. Taylor

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## Petra TONAROVÁ (Czech Republic)

Petra works for the Czech Geological Survey and continues researching the Ordovician to Devonian of the Prague Basin, with a focus on scolecodonts. She continues to cooperate closely with TalTech University (Tallinn) on research of microfossils from various regions. The results were published in Tonarová *et al.* (2024a) describing a unique Late Ordovician scolecodonts and chitinozoans from the Spiti region, India. The type material was studied using submicron CT (CEITEC Micro & Nano X-ray CT Laboratory, Brno). The research was also presented at two international meetings (abstracts Tonarová *et al.* 2024b, c).

### Petra Tonarová

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## Ursula TOOM (Estonia)

Ursula continues studies on bioerosion and trace fossils of Baltica. Joint studies together with colleagues from Estonia, Korea, Czech, Poland, Finland, Germany, Sweden, the U.K., and the USA on the evolution and taxonomy of the Early Palaeozoic faunas are going on, including cooperation on Late Ordovician stromatoporoids with Juwan JEON. With Luis A. BUATOIS and Ogechukwu A. MOGHALU, she continues to work on the trace fossils of Ordovician-Silurian boundary beds. Ursula is responsible for the geological collection at Tallinn University of Technology.

### Ursula Toom

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## Thijs VANDENBROUCKE (Belgium)

Thijs remains interested in reconstructing the Ordovician palaeoclimate and palaeo-environment. Nick VAN FAALS is pursuing a PhD project on chitinozoan ecology and will partly be working on Ordovician sections, with a current focus on Anticosti Island. Himadri HALDAR continues his PhD project and focuses on stable carbon isotope geochemistry in the Ordovician and Silurian. PhD student Cristiana ESTEVES continues her research project on the chitinozoan biostratigraphy of the Katian of the Midwest USA. MSc students Kaatje PEIRS and Lena LARDINOIS are finishing their projects on Katian shales and phosphorites in Illinois and Oklahoma respectively. All these represent specific aspects of interrelated projects in collaboration with Poul EMSBO (USGS), Patrick McLAUGHLIN (Illinois Geol. Survey), Appy SLUIJS (Utrecht), Mark WILLIAMS (ULeicester), Jean-François GHIENNE (UStrasbourg) and André DESROCHERS (UOttawa). In addition, Hilja DU SEUILL has an MSc project on epibiosis in the Fezouata Shale. Mathilde BON is a joint PhD student between UGent and ULille, co-supervised by Kevin LEPOT, and investigates the organic geochemistry of, amongst others, Ordovician palynomorphs.

The other members of the lab, including PhD students Iris VANCOPPENOLE, Carolina KLOCK, Joana ROSIN, Synnove SAUGEN and Tim DE BACKER and MSc student Nick JESPER are pursuing projects that are not specifically focussed on the Ordovician.

### Thijs R. A. Vandenbroucke

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### Marco VECOLI (Saudi Arabia)

Marco continues to focus on taxonomy, paleoenvironmental and biological affinity of Upper Ordovician palynological assemblages from Saudi Arabia, including acritarchs, freshwater algae, chitinozoans and cryptospores. In addition, he is collaborating with Geoff CLAYTON on the development and application of the PDI method for estimation of thermal maturity of organic matter in pre-Devonian sediments, hence including Ordovician sections.

#### Marco Vecoli

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### Olev VINN (Estonia)

Olev is working on the evolution of symbiosis, predation, bioerosion, and encrustation in the Ordovician. He is also working on the palaeontology of problematic tubeworms from the Palaeozoic (e.g., cornulitids, tentaculitids, microconchids, *Sphenothallus*, etc.) and the evolution of tubeworm biomineralization. His other research interests include trace fossils of the Ordovician of Estonia and beyond. He is the editor of the *Journal of Paleontology* and welcomes all your papers on Ordovician paleontology.

#### Olev Vinn

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### Gustavo G. VOLDMAN (Argentina)

Gustavo continues working on taxonomy and biostratigraphy of Early Paleozoic conodonts and associated faunas mostly from the Argentine Precordillera and the Central Andean Basin, with N. Emilio VACARRI, Marcelo CARRERA, Matías MANGO, Aldo BANCHIG and Oliver LEHNERT. He also collaborates with Ali BAHRAMI from the University of Isfahan, Iran, in order to refine the Ordovician North and South Gondwana intercontinental correlations.

#### Gustavo G. Voldman

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### Guangxu WANG (China)

In 2024, a monograph on stauriid rugose corals was finalized and has now been submitted to *Fossils and Strata*, and a monographic paper co-authored with Yunong CUI from NIGPAS on the systematics and evolution of agetolitid tabulate corals has been accepted for publication in *Australasian Palaeontological Memoirs*. Guangxu is currently working chiefly with Ian PERCIVAL and Yong Yi ZHEN at the Geological Survey of NSW on a systematic revision of Late Ordovician heliolitine tabulate corals in eastern Australia.

### Guangxu Wang

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### Wenhui WANG (China)

Wenhui achieved her professor position in Central South University during the late 2024. In 2024, she continued her work on biostratigraphy and chemo-stratigraphy in the Ordovician and early Silurian. Since late 2023, Wenhui has been interested in some possible micro-predatory holes found on the surface of chitinozoan vesicles based on SEM photos. These samples were collected by Peng TANG and her during the past two decades. She is now hosting a research program supported by the National Science Foundation of China concerning this subject. In the coming two years, she will also work on the variation of predation intensity during the GOBE. Technically, Wenhui and her Ph.D student Shijia GAO used computational fluid dynamics (CFD) analysis to study plankton like graptolites and chitinozoans. They found that the evolution of graptolite tubarium structure was directed towards improved hydrodynamic properties, which means the hydrodynamics is a hidden natural selection power. This kind of simulation is tested in both Ordovician graptolite genera *Dicellograptus* and early Silurian *Demirastrites*. She and her group will continue this kind of work on early plankton evolution in the future.

### Wenhui Wang

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### Xiaofeng WANG (China)

His Ordovician group, composing mainly of STOUGE S., MALETZ J., WANG Chuangshan, YAN Chunbo and himself has been mainly dealing with two research works in last year as following. First, successfully holding the unveiling of the protection monument of the Xiaoyangqiao Standard Auxiliary Boundary Stratotype (SABS) for the base of the Ordovician System in June 23, 2024 during the Academic Exchange Meeting of Regional Standard Stratigraphic Section in China. This meeting was initiated by the Chinese Stratigraphic Committee and jointly organized by the Wuhan Geological Survey Center of the China Geological Survey and the People's Government of Jiangyuan District, Jilin Province. More than 100 experts, scholars from home and abroad with leaders from China Geological Survey and Baishan City and Jiangyuan District People Government, as well as local people witnessed the unveiling ceremony. All participants found that the erection of the Xiaoyangqiao SABS protection sign to be useful for conservation and visitation of the rare geological relics and for extending precise subdivision and correlation of the global Cambrian and Ordovician boundaries of different continent and facies region. Meanwhile it is a logo for developing rural geoscience culture and rural tourism. Residents from the local area and the surrounding area came to take a group photo in front of this sign. "One day of Xiaoyangqiao for 486 million years of Earth" as a local farmer said. Besides, WANG Chuanshang, WANG



Jianbo separately accomplished with Xiaofeng the compilation of the new edition of Ordovician and Silurian Stratigraphical Lexicon of China.

### **Xiaofeng Wang**

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### **Xin WEI (China)**

Xin is interested in the macroevolution, taxonomy, palaeoecology and biogeography of Ordovician trilobites, especially two major bioevents, *i.e.*, the Great Ordovician Biodiversification Event and Late Ordovician mass extinction. Now, Xin is working on survival and recovery patterns of trilobites after LOME, together with Prof. Zhan RENBIN (NIGPAS) and Prof. Zhou ZHIQIANG (Xi'an Institute of Geology and Mineral Resources). Recently, they have collected abundant trilobite samples from the Koumenzi Fm. (Katian, Upper Ordovician) in Qilian, northeastern Qinghai Province of China (North Qilian Mts), which will be investigated in the near future. The article 'The earliest known recovery trilobite faunas following the Late Ordovician mass extinction (LOME) in South China and their ecological distribution' has been accepted by the *Journal of Systematic Palaeontology*.

### **Xin Wei**

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### **Charles WELLMAN (UK)**

Charles continues his research on the earliest terrestrial vegetation (the earliest land plant flora and the microbiota that existed on the continents before the appearance of land plants). He is currently involved in collaborative work on Ordovician palynomorph assemblages from Oman, Saudi Arabia and South Africa (concentrating on glacial deposits associated with the End Ordovician Gondwanan ice sheet). In January 2024 Charles undertook further fieldwork on the Cape Supergroup in the northernmost part of the Cape Basin of South Africa (in collaboration with Cameron PENN-CLARKE and Claire BROWNING) and in September 2024 investigated Ordovician sequences (Castro Formation) in Northern Spain.

### **Charles Wellman**

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### Rongchang WU (China)

Rongchang is working on Ordovician conodonts and carbon chemostratigraphy. Currently, in collaboration with Mikael CALNER, Oliver LEHNERT and colleagues from NIGPAS, his research is focusing on Ordovician carbon isotope stratigraphy, cyclostratigraphy, and Ordovician palaeoclimate and palaeoenvironment based on the integrative study of geochemistry, palaeontology, sedimentology and stratigraphy.

#### **Rongchang Wu**

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### Graham YOUNG (Canada)

Graham is continuing as Curator Emeritus at the Manitoba Museum and as a Research Associate at the New Brunswick Museum (Saint John), and is now an Adjunct Professor at the University of New Brunswick (Fredericton). Studies of Paleozoic paleoecology and the diversity of Ordovician Cnidaria are ongoing. He continues to collaborate on studies of cnidarian medusae and other faunal elements from the Late Ordovician William Lake site (central Manitoba).

#### **Graham Young**

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### Renbin ZHAN (China)

In 2024, Renbin focused on case studies on the GOBE in China. Together with his colleagues and graduate students, he undertook more field work in South China (different localities with different palaeogeographic settings), Tarim (also several localities) and Qilian Mountains with an elevation about 4000 m. They measured Ordovician sections, and collected samples of various kinds (fossils and rocks). Fortunately, they have found a new Fossil Lagerstätten of Early Ordovician age in southeastern Guizhou, SW China. Hundreds of well-preserved specimens (such as worms, trilobites, non-trilobite arthropods, brachiopods, graptolites, echinoderms, etc.) were obtained. Palaeontological, sedimentological and geochemical studies are now going on in the labs and the offices.

Finished and published work in 2024 includes those listed in the bibliography as well as a monograph being published by Science Press (bilingual, 349 pages and 84 text-figures) that is dealing with the Late Ordovician (middle-late Katian) brachiopods from South China and Tarim. Besides, Renbin went to St. Catherine, Ontario Canada (late June last year) and Busan, South Korea (late August) for the 9<sup>th</sup> International Brachiopod Congress and the 37<sup>th</sup> International Geological Congress, respectively, where he gave talks and took part in various kinds of activities.

### Renbin Zhan

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### Shunxin ZHANG (Canada)

Shunxin has continued working in the Canadian Arctic area in 2024, but 100% from home without any fieldwork. She has mainly focused on a project about the number and age of the organic-rich intervals in the Upper Ordovician sequence in Foxe Basin, using conodont microfossils from southern Baffin Island as a tool. She also spent a lot of time in curating her conodont collections from the Canadian Arctic area.

### Shunxin Zhang

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### Yuandong ZHANG (China)

Yuandong is continuously working on:

- (1) Hirnantian Konservat-Lagerstätte in Anji County, Zhejiang Province, China—Anji Biota, in cooperation with Dr. Joseph BOTTING and Dr. Lucy MUIR of UK, financially supported by President's International Fellowship Initiatives (PIFI) program and recently by National Key Research and Development Program of China (Project "Biotic Turnovers during the Ordovician-Silurian Transition and Their Potential Impact on the Mass Accumulation of Organic Matter in Black Shale", 2023–2028). This sponge-dominated Konservat-Lagerstätte, discovered in late 2012, is typified by the abundant and highly diverse articulate sponges (over 100 species) often with soft tissues, in association with graptolites, nautiloids, arthropods, echinoderms, etc. The Anji Fauna is preserved within a 9-meter-thick black shale, and is of latest Hirnantian age as constrained by the associated graptolites. A preliminary study indicates that this extraordinarily diverse, sponge-dominated community thrived immediately in the aftermath of the Hirnantian Mass Extinction.
- (2) Rise of the Palaeozoic Evolutionary Fauna: a case study in South China. This work, financially supported by an initiative fund from CAS and a major project granted by the National Natural Science Foundation of China (NSFC, *Origination of Palaeozoic Evolutionary Fauna*, 2021-2025), is related to the IGCP Project 653 "The Onset of the GOBE", and now the ongoing IGCP735 "Rocks and Rise of Ordovician Life". This work brings together some world-class palaeontologists on Ordovician and Cambrian fossil groups, along with some sedimentologists and geochemists, including Thomas SERVAIS, Axel MUNNECKE, Timothy W. LYONS, Yongyi ZHEN, etc., to focus on the early occurrence records of graptolites, conodonts, chitinozoans, cephalopods, radiolarians, and the potential coincident changes of geochemical proxies for redox and oxygenations in South China.



- (3) Early Paleozoic paleobiogeography of the Korean Peninsula and China. This work has been focused on the bilateral international cooperation between South Korea (led by LEE Dong-Chan) and China (led by ZHANG Yuandong), aiming to explore the geographic relationship of the Korean Peninsula with North China and South China during the Early Palaeozoic from a biogeographic perspective, and has received grants from the NSF of China and the NRF of South Korea (2023-2025).

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### **Yong Yi ZHEN (Australia)**

Yong Yi has been working on several projects in 2024 documenting the geology and biostratigraphy of NSW, jointly with Ian PERCIVAL, Patrick SMITH (Australian Museum) and others. The major Ordovician research projects he completed in 2024 include a semi-monographic work (in press) documenting latest Cambrian and earliest Ordovician conodont faunas from far western NSW and refining the biostratigraphy in the study areas. He also continues the studies on the conodonts from the Early Ordovician Emanuel Formation of the Canning Basin, Western Australia. Yong Yi jointly with Patrick and others conducted a field trip in April in the Cobar region of NSW. In December 2024, Yong Yi visited Nanjing Institute of Geology and Palaeontology and collaborated with Prof. Yuandong ZHANG and others to study a rich Ordovician conodont collection from the Tarim Basin in northwestern China.

### **Yong Yi Zhen**

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## RECENT ORDOVICIAN RESEARCH PUBLICATIONS

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F

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