

VOICE FROM THE PAST

The Newsletter of Deep-time Earth and Life Transnational Alliance (DELTA)

IN THIS ISSUE

DELTA Editorial.....	1
Teaching in China.....	3
Research Issues.....	6
Research Roundup.....	9
News and Resources.....	13
Publication Highlights	14



DELTA

Back on track

The summer of 2023 was a bustling time for many paleontology and stratigraphy researchers, particularly those in China. Activities such as attending international conferences, visiting foreign universities and institutes, conducting international fieldwork and hosting foreign colleagues were all on the agenda for this summer.

In addition to participating the STRATI 2023 conference in Lille, France and conducting fieldwork in northern France, southern Belgium and Germany, I also attended the International Symposium on Foraminifera (FORAMS 2023) in Perugia, Italy. FORAMS 2023 had been postponed from FORAMS 2022 due to the pandemic. This symposium witnessed an unprecedented turnout, with over 330 participants on-site, presenting 223 oral presentations and 162 poster presentations across 25 scientific sessions. I was delighted to hear a lot of innovative ideas from leading experts in the field. The presentations were not only informative but also inspiring, pushing the boundaries of our understanding of these tiny marine creatures. I found the advances in foraminiferal biomineralization by Israeli colleagues and automated recognition by Norwegian colleagues particularly inspiring. I had the opportunity to engage in stimulating discussions with fellow attendees, exchanging ideas and perspectives on our research. It was truly a global gathering, with participants from diverse backgrounds and cultures, all united by our shared passion for foraminifera.

Over the past three years, digital innovation has successfully addressed numerous challenges, and it will continue to shape the future of education and research. My colleagues recently attended the Asian Palaeontological Congress in Tokyo, Japan. In contrary to the “in attendance conference” spirit of FORAMS 2023, the Tokyo APC arranged an online session to accommodate remote participants. This new format reflects the developments of the past three years and offers a glimpse of the future. As the world moves beyond

the pandemic, the integration of digital innovation with traditional academic practices will not only enhance the quality of education and the pace of discovery but also foster a more inclusive and globally connected academic community.

In China, the new school year begins in September, and universities are all busy with the arrival of new students. My office is located in a building near the dormitories of foreign students, and I see crowds of foreign students, mostly from western countries, walking by or queuing in the canteen. Over the past three years, both Chinese and foreign students have spent a significant amount of time studying online, and now they must be thrilled to be able to come together once again. Nanjing University currently comprises four campuses, Xianlin, Gulou, Pukou campuses in Nanjing and the brand-new Suzhou Campus Suzhou Campus (please see the figure on the right for campus location) , with 33 schools and departments and over 40,000 students. However, the number of international students stands at only 1691. According to the data I found on the university website, in 2015 NJU had more than 3000 international students. They will return to their previous numbers.



This year, not only have I had opportunities, but our students have also a number of opportunities to attend international conferences in Western countries. Zhengbo Lu and Die Wen attended the EGU conference in Vienna, Zhengbo attended the STRATI 2023 in Lille, France, and Xiaoli Ma participated in the IGCP710 meeting in Kraków of Poland. Academic visits within DELTA continued. Cooper Malanoski from Oxford is currently visiting Nanjing University. Zhengbo, Die and Hanhui Huang will be leaving for the UK very soon. I have just submitted an application for a visit to UCL from next spring to summer. International academic endeavors have returned to their normal course of progress. Hooray!

Last but not least, September holds a special day in China: Teachers' day on September 10th. Coinciding with the start of the new school, all students return to campus and gather to express their appreciation to teachers. Due to the long history and deep influence of Confucianism philosophy, being a teacher in China is a prestigious position that also carries significant responsibilities. Professors in China also fall into this category, and we receive much gratitude, along with cards and flowers, from our students. I would like to extend this appreciation to our colleagues in DELTA from the UK and Switzerland for their upcoming student co-training. Happy Teachers' Day!



Yukun Shi
2023.9.10

TEACHING IN CHINA

Teaching in China: A Personal View

Norman MacLeod

I first came to China in 2010 at the invitation of Yang Qun, who happened to be a fellow graduate student from my days as a PhD student in Texas. By then Dr. Yang had risen to be the Head of the Nanjing Institute for Geology, Paleontology and Stratigraphy (NIGPAS) and was interested in forming a strategic partnership with The Natural History Museum (NHM) where I was the Keeper of Palaeontology. Quite unexpectedly, that first week-long visit to NIGPAS turned into an annual – on occasion a multi-annual – commute to Nanjing, and from there to other Chinese cities (e.g., Beijing, Wuhan, Shanghai, Chengdu) where I was often asked to provide presentations in research seminars and special-topic short courses at various universities and research institutes. As any classroom teacher will know, however, it's one thing to step behind the lectern for a one-off presentation, but quite another to take on responsibility for delivery of a semester-long course as a regular faculty member. I was offered the opportunity to step up to the latter when I joined the faculty of Nanjing University's School of Earth Sciences and Engineering in 2019.

Earlier in my academic career I had been a faculty member, and taught courses to US undergraduate and graduate students, at the University of Michigan and Princeton University as well as having taught extensive modules to UK MSc students as part of a collaborative NHM-Imperial College program in London. So, following my appointment, I looked forward eagerly to the teaching experience I'd have in China. What would the students be like? How would they compare to those I had taught in the US and UK? Were the language and/or cultural barriers going to be a problem?¹ Would I be able to find a way to engage the students with the material? Would I get good student reviews? Would the stereotypes about Chinese students I had heard throughout my career, and read about in the academic media, accurate or exaggerated? All these were prominent questions for me in the run-up to my arrival at NJU, with uncertain answers.

What are Chinese students like?

In my previous US/UK experience I'd been struck by how similar students are at different institutions. I had taught classes at both middle-level and elite universities and, by and large, had found my classes to contain similar ranges of personality types, interests, degrees of motivation and levels of maturity. With certain exceptions, this observation held true for my NJU students as well. There were always a few who distinguished themselves who engaged with the information on offer seriously, and others who seemed either uninterested or overwhelmed by it; a few who were eager – or at least unafraid – to share their opinions and insights with the class, and others whose voices were never heard; some who give the impression of being

bored by what was going on in class and others who seem fully absorbed. In this sense the Chinese students in my classes seemed just like students anywhere. But several intriguing differences also existed.

For example, compared to US students (certainly) and UK students (mostly) Chinese students appeared to have little experience of life outside the classroom. They'd never had an after-school or summer job, never lived on their own, away from their families, outside an in loco parentis university dormitory, never made a significant, long-term, financial purchase (e.g., bought a car, rented an apartment). In short, they hadn't had much opportunity to develop many away-from-academics life skills relative to their western counterparts.

To a large extent this is a matter of cultural differences between western and Chinese societies. In western cultures (to varying degrees) students are expected to pursue extra-curricular activities as part of their strategy for gaining entry into elite educational institutions. In addition, many are forced to have held either part-time or full-time jobs during the school year by their economic circumstances. Through these experiences western students gain both the experience of operating in those capacities and the self-confidence that comes from having met those challenges successfully. In China, the only way to gain entry into a top university is to do well on the 高考 (gāo kǎo), which is the highly academic national college entrance examination. Accordingly, Chinese students spend virtually all their time preparing for this exam, which is very challenging. Preparation involves not only attending, and paying attention in, their regular classes, but also attending many after-school tutorial sessions designed specifically to ensure 高考 success. China has a long history – and by “long” I mean thousands of years – of relying on standardized examinations to identify students of outstanding potential. Throughout that history, those who have succeeded in meeting this formidable challenge can expect to receive opportunities that were not offered to others. Thus, the pressure on Chinese students, exerted by themselves as well as their parents, to do well is immense. For most Chinese students, little or no time is left to experience life outside a highly organized academic environment. Of course, Chinese students do acquire non-academic experiences and life skills in due course. But this aspect of their education is delayed, for the most part (it seems) until after they have left their formal educational programs rather than being acquired, at least in part, during those programs.

This lack of the same level of life experience on the part of Chinese students manifests itself in a variety of ways in Chinese classrooms. On the whole Chinese students seem less self-directed in their studies than western students. They need more direction in, and appear less comfortable taking personal responsibility for, their own training; preferring to be somewhat passive recipients of education, relying on their teachers to determine what's best for them.

¹ I spoke very little Chinese in 2019 and, even now, after 3 years of diligent, daily study, gauge my skills in this area as similar to that of a rather dull Chinese elementary-school student.

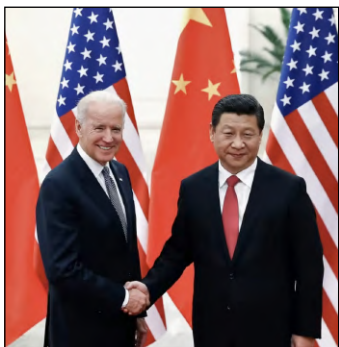
What about language and cultural barriers?

Contrary to my initial expectations, the fact that I give all my lectures in 英文 (English) appears to pose little problem for my Chinese students. I always try to remember to speak slowly and clearly in my lectures and encourage any student who doesn't understand what I've said to let me know they are having difficulty. Very rarely has any student requested clarification. Indeed, I have been told many NJU students are attracted to my courses specifically because my lectures are given in 英文.

Students in China are taught English from a very young age (instruction begins in primary school) and, while different students have different levels of comfort conversing with a native English speaker, my impression is that any reticence has more to do with the student's confidence in their 英文 skills than with the actual skill level itself. Whereas it's common to encounter (usually older) individuals in the various shops, cafés and cafeterias on campus, and certainly off campus, who are either unable, or unwilling, to communicate in 英文, I have yet to encounter any NJU student whom I could not talk to in 英文 and many who have developed a very high level of 英文 fluency.

Cultural matters, however, are more subtle. The differences between western and Chinese cultures are as distinct and, in many cases, unexpected as they are profound. But in my experience, rather than being a source of confusion, apprehension or misunderstanding, they are far more often a source of insight and amusement; on all sides. For example, Chinese culture takes much more note of symbols than western cultures: red means "good luck", yellow "prestige", and white "mourning"; the number 4 (四) is unlucky; bats and clouds are symbols of longevity and happiness, fish of wealth and abundance. But cultural differences go well beyond these simple and, in some senses, inconsequential associations.

Take, for example, the issue hair-color symbology. If you've seen pictures of members of the Standing Committee of the Chinese Communist Party you probably overlooked the fact that five of the seven current members have dark hair. Moreover, the two with various proportions of grey (Cai Qi, 68 and Li Xi, 61) are among the youngest



Joe Biden and Xi Jinping © Reuters

members of that group. Chinese males go grey over the same range of ages as western males. Among the male members of the current US Cabinet 12 out of 14 sport some degree of grey hair. A chance difference? Hardly!

In fact, many Chinese academic faculty members dye their hair to remove any trace of grey. The reason? In Chinese culture grey or white hair is a symbol of deterioration and diminished capacity rather than experience or wisdom, as it is in the west. Based on the Confucian precept of filial piety, older people are considered as deserving of respect and care by those younger than themselves. Thus, few Chinese politicians, or those in any position of authority, would consider it consistent with their standing in their

communities to advertise the fact they have reached the age where, according to custom, they should consider stepping back from their responsibilities rather than getting on with the job at hand.

Does retention of a rich and complex symbology make Chinese culture more hidebound or less progressive? I think not. Personally, I find the symbology of Chinese culture fascinating. But even those impatient for China to become "more like the west" must appreciate that, just as western cultural practices and symbols offer a deep source of solace and pride for western societies, so too does 中国文化 (Chinese culture) for the 中国人 (Chinese people).

Are Chinese student stereotypes correct?

With so many Chinese students enrolled at many western colleges and universities, recently a number of empirical investigations have been published that focus on the way Chinese students are stereotyped by their peers and by faculty in university environments, as well as the effect this stereotyping has on their university experience (e.g., Ruble & Zhang, 2013; Chen & Wen, 2021). Naturally, stereotypical attitudes about Chinese students fall into two categories, positive and negative. On the positive side, from a western perspective, Chinese students are regarded typically as being smart/intelligent, studious/hardworking, polite/nice, kind, fashionable and particularly good at science and math. On the negative side, they are regarded as being cliquey/exclusive, shy, loners, socially awkward, lacking assertiveness, discomfited by disagreement, having little practical experience, and exhibiting insufficiently developed critical-thinking skills. In particular, Chinese students are often criticized, and in some cases stigmatized, for desiring to share the community of other Chinese, often to the (apparent) exclusion of non-Chinese students. Are these stereotypes accurate reflections of Chinese students as a group? If so, where do these traits come from? If not, why have they become stereotypes?

After teaching Chinese students in China for several years now, perhaps I can offer some perspective on these assertions. Based on my experience, Chinese students are definitely diligent, dutiful, and cooperative. They understand the surest path to their personal advancement is through education and are quite serious about maximizing their educational opportunities. Chinese students also have the advantage of being able to compare the lives they've been able to live, and the opportunities they've been offered, with those of their parents and grandparents, most of whose lives and opportunities were very different. In many cases the students I teach at NJU are the first in their families to have attended university, much less entered a PhD program. The motivation this comparison yields, in addition to the support Chinese students receive from their families, cannot and should not be discounted in understanding the manner in which they approach their education.

Similarly, the imprint the Chinese educational system, and Chinese culture generally, has had on Chinese students should also be taken into consideration. The purpose of education is not to turn out individuals who are clones of one another, be that a copy of an "ideal" western student

or an “ideal” Chinese student. Western culture prizes the creative individual, the maverick and the iconoclast over the collective (family, community, nation state); indeed seemingly above all else. In this context, the economic concept of “creative destruction” comes to mind. Creative destruction is undeniably creative, but it is also undeniably destructive.

Chinese culture prizes the collective over the individual, the maverick and the iconoclast. Owing to its long and eventful history, Chinese culture fears the destruction that often accompanies creative revolutions; and rightly so given the scale of destructions that have occurred throughout its history. This existential preference for collective harmony is ingrained into the Chinese psyche just as deeply as prioritization of the individual is ingrained into the western psyche. To use a Chinese cultural metaphor the Chinese view of the roles of the individual and the collective represents the yang to the western view's ying. Given the success of western culture over the past 200 years it is perhaps inevitable that many in western societies regard their way as “right” and the Chinese way as “wrong”. But China can look back over its far longer history and regard the last 200 years, during which China was ill-served by many of its rulers, as being the exception rather than the rule. In the end, both approaches have their merits and demerits, both their successes and failures. What is needed generally is understanding and a commitment to embracing diversity. To cite a saying from one of Confucius' analects, 君子和而不同 (exemplary persons value harmony, but not conformity).

Coming back to the issue of Chinese student stereotypes, when I first began teaching Chinese students I too was concerned by their apparent reticence to share their personal views assertively, their obvious discomfort when I challenged some of their interpretations or disagreed with my fellow faculty members over the methods they had employed and/or interpretations they had offered, and with their (apparently) tendency to default to acceptance of whatever they read in a research report. I had been trained in the US and was used to a far more assertive and aggressive intellectual culture than I found at NJU (or in the UK for that matter). But over time both I, and my Paleo. Group colleagues, have seen progress in all these areas. In 2023 our students are, on the whole, more willing to express personal opinions; to be assertive, more willing to disagree with each other (and with us), more willing to question what they've read and less willing to turn to us for permission to follow their own ideas and try something new than they were in 2019. It's a process and the process is ongoing. But that's what education always is.

So, are the Chinese student stereotypes correct? Yes and no, but mostly no in my view. The idea of a “type” refers to an essence that can't be changed. That's not been my experience. Through their interactions with myself, and with professors Fan and Shi, our students are changing in ways that distinguish them from their Chinese counterparts. If this is the case, why has our experience been different from the experience of many western students who interact with, and professors who teach, Chinese students in western institutions (and who

participated in the Chen & Wen and the Ruble and Zhang investigations)? I believe this is down to the fact that we teach Chinese students in China, their 家国 (home country). Here, they don't feel like an embattled minority, surrounded by a society whose media often regards them with suspicion, that knows next to nothing about their culture or its history, that doesn't understand their goals, their obligations, their lives, but that talks obsessively about itself as if it is the only culture that matters; a culture that often writes and speaks about them as being passive automations devoid of the capacity for free thought. It doesn't surprise me – nor should it surprise you – that Chinese students in the west tend to group together. Aside from the cost of living in the west (living in China is much less expensive) and the natural collectivist tendencies that have historically stood at the core of Chinese culture, there's safety in numbers, especially when the surrounding environment can seem so hostile. Accordingly, my working hypothesis is that the progress I and my colleagues have been able to make in getting our students to be more independent-minded, self-confident and open to exploring new ideas on their own is down us being able to do that in an environment where our students feel safe and supported; free to make the connection between what they were yesterday and what they might become tomorrow. When people feel safe and secure change comes much more easily.



Norm, with his NJU colleagues and students

My recommendation for overcoming the stereotypes associated with Chinese students? It's simple really. Accept them. Don't try to make them into simulacra of your western students. Value their difference. Learn from it (you might be surprised). Treat it as a strength to be channeled into productive pathways, not a deviation that must be discarded. Don't make them feel like outsiders because of their backgrounds, preferences or appearance. Welcome them into your intellectual community and help them make the transition successfully. Read a book about China so you can get a feel for where they are coming from². Above all, nurture them as you would any student who comes to you with a desire to learn. Do this and your efforts will be repaid many times over. Mine certainly have.

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² I'd be happy to make recommendations.

Quantitative paleogeographical reconstructions and basin evolution of South China during the Ordovician

Linna Zhang^a

High-resolution, quantitative paleogeographical reconstruction based on geological big data and Geographic Information System is an important way to visualize regional and global paleogeographical features and their evolution processes, and to reveal the interaction of lithosphere, hydrosphere and biosphere. Ordovician sequences are widely exposed in South China with mostly continuous strata and abundant and diverse marine faunas. However, the lack of high-resolution, temporal-spatial paleogeographical maps of South China hinders a deep understanding of its paleogeographical pattern and dynamics. Based on the latest stratigraphical, paleontological and sedimentological results, the comprehensive data set from 807 Ordovician sections (including 78 key sections, 458 supportive sections and wells, 213 auxiliary sections, Fig. 1) in South China were collected from GBDB and Onestratigraphy databases (Fan et al., 2013; Xu et al., 2020), and standardized under a unified chronostratigraphical framework (Zhang et al., 2019). The lithofacies paleogeographical maps and stratigraphical thickness isopach maps of ten consecutive time intervals are quantitatively reconstructed with an average duration of ca. 4.1 Myr, and each map is supported by 300-666 sections.

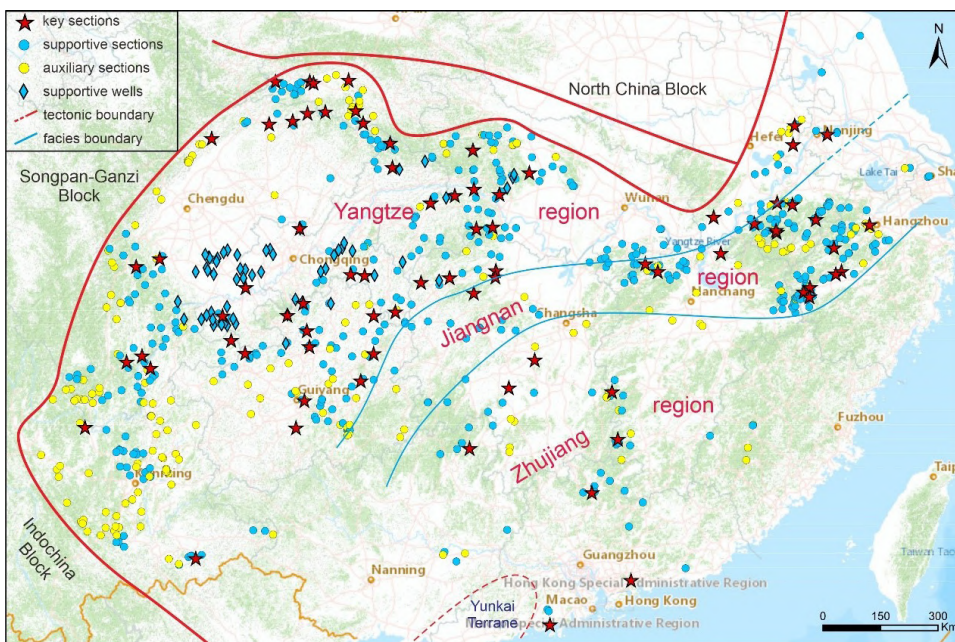


Figure 1. Geographic distribution of the Ordovician sections and wells in South China.

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Based on the reconstructed results, the time and process of major transformations of the Ordovician land-sea distribution and topography in South China were revealed in detail. In the southwest, the Sichuan-Yunnan Old Land was divided into several scattered and isolated old lands, including the Xichang, Central Yunnan, and Central Guizhou old lands from Tremadocian to early Darriwilian. From middle Darriwilian to middle Katian, these old lands merged together to form the large Yunnan-Guizhou-Guangxi Old Land. In the southeast, the Cathaysian Old Land appeared in Guangdong in early-middle Sandbian, advanced northwestwards to Jiangxi in late Sandbian to middle Katian, and finally merged with the Yunnan-Guizhou-Guangxi Old Land since late Katian, forming a unified old land covering the whole southern part of South China. The Guizhou-Guangxi, Huaiyu and Jiuling terranes were below the sea level in the earliest Ordovician, and then uplifted in different time. The Guizhou-Guangxi terrane began to uplift since the Darriwilian and was exposed above the sea level from late Sandbian. The Huaiyu and Jiuling terranes began to uplift since the late Sandbian, resulting in the sedimentary differentiation on the east and west sides of the Jiangnan region, and finally became old lands in late Katian.

The Ordovician paleogeographical pattern in South China changed from the “platform-slope-shelf” pattern in the early Early Ordovician to the “platform-slope-basin” pattern in the late Early Ordovician to early Late Ordovician, and to the “platform-depressions” pattern in the late Late Ordovician (Fig. 2). South China presented

a paleogeographical transition from the status that shallower in the northwest and deeper in the southeast in the Early and Middle Ordovician, to the status that land in the south and ocean in the north, and shallower in the south and deeper in the north in the late Late Ordovician. Meanwhile, the paleogeographical reconstructions demonstrated the associated evolution of the stabilization in the west and the intracontinental orogeny in the east of South China during the Ordovician. The transition timing of the Yangtze and Cathaysia blocks from separation to aggregation was identified in early Sandbian of the Late Ordovician. The Ordovician paleogeographical pattern and evolution of South China were driven by the superposition of regional tectonic movements and global factors, which showed differentiated effects. However, the regional tectonic movements were the dominant controlling factors.

Quantitative paleobiogeographic analysis of fusulinids from the Changning-Menglian Belt, western Yunnan, China

Hao Huang^a

Quantitative faunal comparisons could furnish more detailed and reliable constraints on the deep-time biogeographic pattern and, by extension, the geographic configuration. We present here a case study of how such quantitative analysis help refining the paleogeographic evolution of the Changning-Menglian Belt in western Yunnan, China, a well-known Tethyan suture in SE Asia (Fig. 1) (Huang et al., 2023). This belt has long been interpreted to preserve remnants of the vanished Paleotethys Ocean, including dismembered ophiolites, deep-marine radiolarites, and limestones of possible seamount origin.

Fusulinids, sensitive indices of both age and paleoenvironment, are abundant in these limestones. However, their paleobiogeographic affinity remains to be clarified. Despite early argument for certain Gondwana affinity, the view of a Cathaysian affinity has gained traction, based on similarities between taxonomic composition and biozonation. Furthermore, it has been argued that the diversity of fusulinids is still lower in this belt than in South China, reflecting isolated seamount setting (Ueno et al., 2010). One caveat is the extent to which the difference in diversity is affected by sampling bias, as studies of fusulinids in this belt are still limited compared to the voluminous research for the Cathaysian region.

To address this concern, we collected new Late Carboniferous-Middle Permian fusulinids from this belt and conducted statistical analyses based on a combination of our own and literature data. Indeed, the faunal succession in our collection confirmed that the fusulinids in this belt are closely similar to their counterparts in South China: ascendingly, the *Triticites* abundance zone and the *Sphaeroschwagerina sphaerica* range zone, the *Eoparafusulina* interval zone

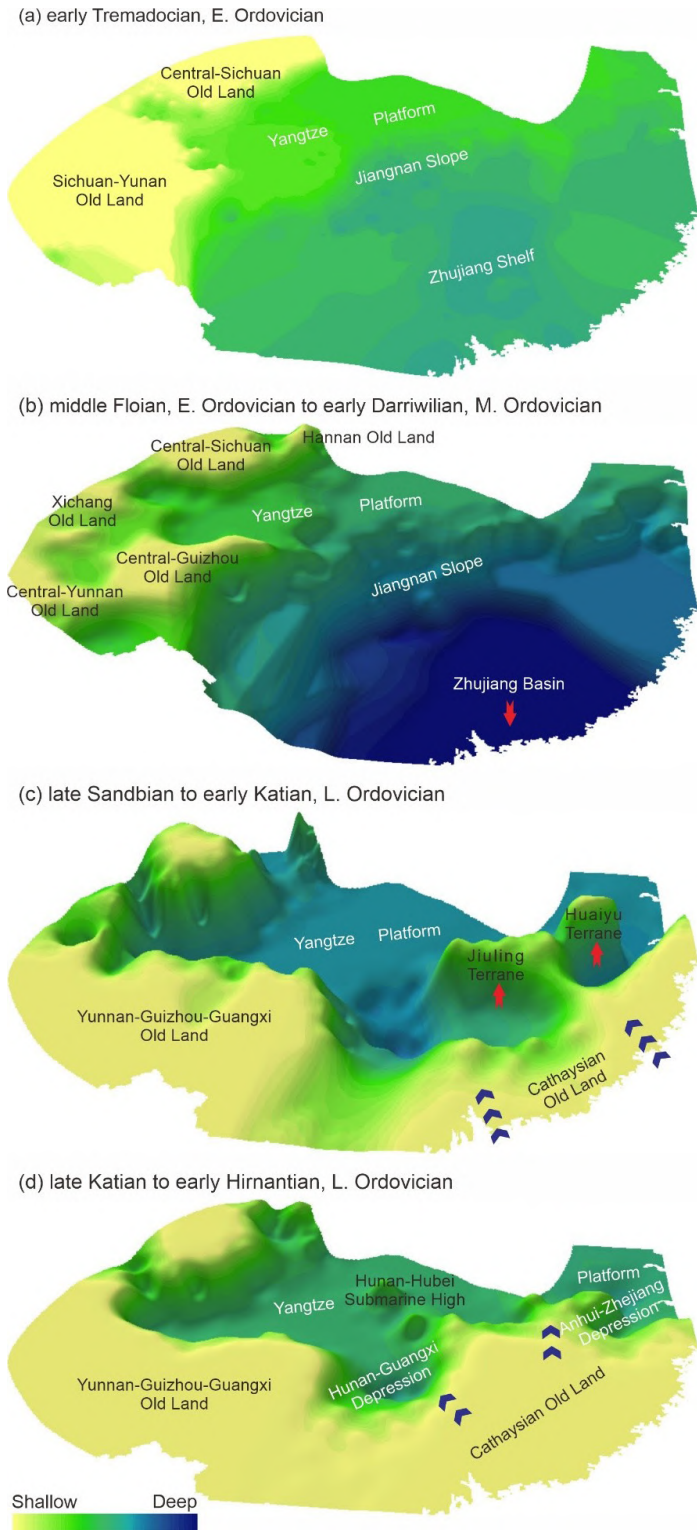


Figure 2. Evolution of paleogeographical pattern of South China in the Ordovician

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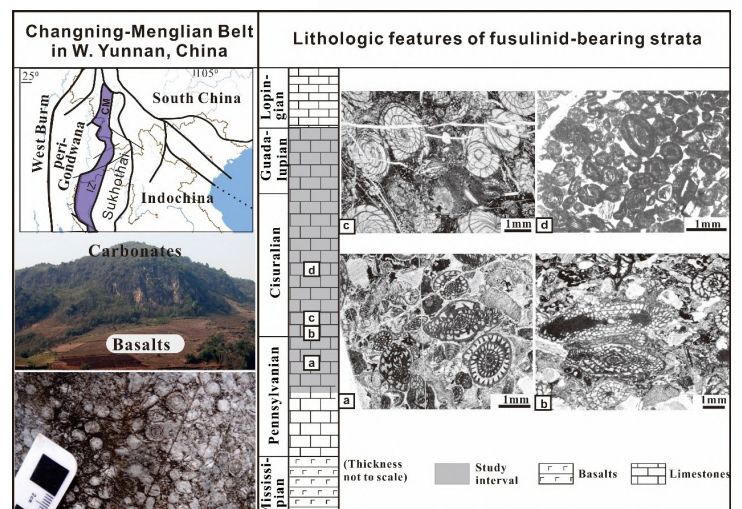


Figure 1. Geographic locality of the Changning-Menglian Belt in western Yunnan, and the fusulinid-bearing limestones in this belt.

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and the *Chalartoschwagerina solita* range zone and the *Neoschwagerina-Verbeekina* assemblage zone. On the other hand, these fusulinids contrast sharply with coeval fusulinids in the peri-Gondwana region, which are impoverished and dominated by *Eoparafusulina/Pseudofusulina*.

However, the quantitative comparison demonstrates robustly and more accurately that the fusulinids in this belt still differ from their counterparts in Cathaysian South China. For the Early Permian period, the relatively lower diversity is confirmed by the rarefaction analysis (Shimadzu, 2018) (Fig. 2). Meanwhile, the *Pseudoschwagerina*, diagnostic and abundant in South China, is peculiarly absent in this belt. For the Middle Permian, the cluster analysis reveals that this belt is more closely allied with the peri-Gondwana blocks in the eastern Cimmerian region and accommodate still less diversified fusulinids than South China does. Also considering that these limestones oftentimes overlie OIB-type basalts, our research implies that the studied fusulinids probably colonized marine environments far from the mid-latitude peri-Gondwana region, while detached from equatorial South China (Fig. 3). This interpretation is consistent with the previous view that these limestones were formed on seamount atolls within the vast Paleotethys Ocean.

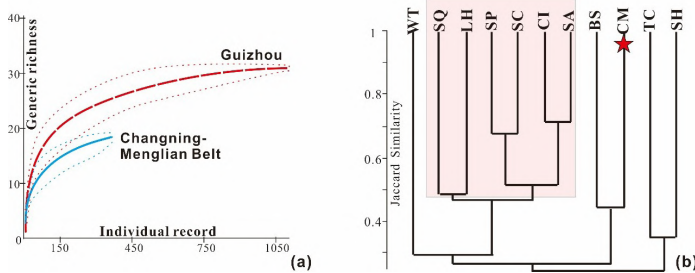


Figure 2. Quantitative comparison of fusulinid composition between the Changning-Menglian Belt and other Tethyan blocks. a. Rarefaction comparison of Early Permian generic diversity; b cluster analysis of Middle Permian generic composition.

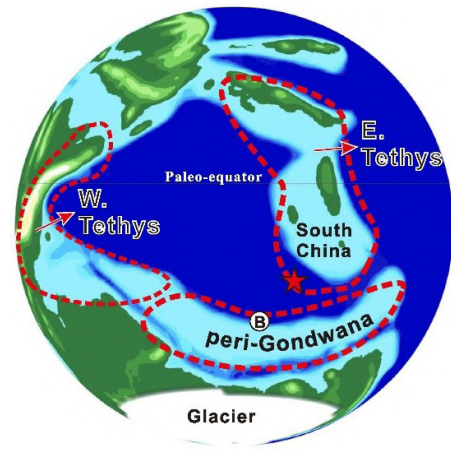


Figure 3. Early Permian paleogeography of the Tethyan region showing the reconstructed locality of the focal limestones in the Changning-Menglian Belt.

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RESEARCH ROUNDUP

Three Nanjing University students interviews: Expectations for and anxieties about upcoming UK journey

Ariana Xu

This year, three students – Hanhui Huang, Die Wen and Zhengbo Lu – from Nanjing University (NJU) went/will travel to the UK for further study and research collaborations. Prior to their UK trips, each agreed to be interviewed about their upcoming UK trips, especially their expectations, concerns and goals...

Die Wen



Die (Wendy) Wen is a third-year PhD student at NJU. After achieving her BSc degree in Geology at the China University of Geosciences Beijing (CUGB) in 2020, she decided to go straight to the PhD program supervised by Prof. Junxuan Fan. Wendy is working on a paleo-environment project. On September 26th, Wendy landed at London's Heathrow Airport to start her two-year UK residency.

Q: Which university are you planning to study/visit? Why? For how long?

W: I am planning to visit University College London (UCL) and the University of Oxford this time. Both of them are well known for expertise in teaching and research across a wide range of disciplines, including geology. Prof. Philip Mannion's research area and mine are closely related, and I've also read many papers written by Prof. Erin Saupe. As a result, when I was told that both of them are DELTA founding members I was very excited and looked forward to future communications. I am very pleased to take this opportunity to work with these professionals and seek future collaborations. I will stay in the UK for two years: one and a half at UCL and half a year in the Oxford.

Q: Is this your first time traveling/studying abroad for such a long period?

W: Yes, this is exactly the first time I studying abroad for so long. This April, Zhengbo and I attended the General Assembly 2023 of the European Geosciences Union in Austria, which was actually the first time I left China.

Q: Do you, or those close to you, have any anxieties about your visit (e.g., language, cultural, geopolitical

issues)? What were they?

W: Personally speaking, I do have some pre-departure anxieties because of too many unknowns ahead. For example, what if my stomach cannot adapt to the local food? What if I behave inappropriately due to the cultural differences? Will I be misunderstood? Will I be seen as rude? Will I break local regulations or customs because of my lack of knowledge or information? However, although these questions are haunting me, I am more excited about this adventure, meeting new people, traveling new cities, etc.

Q: What parts of UK culture are you excited to experience?

W: Its geography and climate. I was born and raised in Chengdu, Sichuan Province, an inland city in China. As a result, I rarely experienced any sea breeze in my hometown except traveling to a coastal place. The UK is surrounded by the Atlantic Ocean, the North Sea, the English Channel, and the Irish Sea, which should fully satisfy my anticipation of the sea wind. In addition, going on field trips and viewing local sections are prioritized on my to-do list.

Q: What skills/progress/goals are you planning to learn and/or develop during your visit? How?



W: I am grateful to DELTA and China Scholarship Council (CSC) for their support for this coming UK trip. As a result, besides my goals in the research area, I really hope to find collaboration opportunities and set up long-term relationships with these two DELTA members through the journey, so as to keep DELTA communications

and exchanges continuously running. Meanwhile, one of my goals is to develop my English proficiency.

Q: What will make this experience successful in your view?

W: Stay curious and be more inclusive.

Hanhui Huang



Hanhui Huang just achieved his Bachelor's degree in Biological Evolution and Environment at NJU this June, and has gone to the UK for further education this September. His principal research interest is Biodiversity in Deep-time, more specifically, he is interested in the discovery of the biological evolutionary patterns in Paleozoic biotas. Hanhui hopes to be a Paleobiologist in the future, conducting interdisciplinary researches in the fields of Paleobiology and Data Science.

Q: Which university are you planning to study/visit? Why? For how long?

H: I am planning to study at the University of Oxford for four years to get my PhD degree. My supervisor at Oxford, is Prof. Erin Saupe and her team has done a really great job in assessing and coping with temporal and spatial sampling bias. Those techniques can facilitate the study of evolutionary patterns, just like what I am trying to do.

Q: Is this your first time traveling/studying abroad?

H: Yes, this is my first time studying abroad. I've traveled abroad, but that was just for traveling.

Q: Since it is the first you go abroad for such a long time, do you, or those close to you, have any anxieties about your visit? What are they?

H: Definitely yes. I am going to a different country, a different culture, which I believe will take me some time to cope with the difference in lifestyles and workstyles. Also, some other things such as financial stuff I might be concerned about because of the rising cost of living in the UK. I'm also concerned about personal safety, though Oxford is a relatively safe place to live. Other than that, I don't think I will really be anxious about more detailed things until I really get there.



Q: Generally speaking, you don't have many worries, so I guess you must be very excited about this journey. If so, what parts of UK culture are you excited to experience?

H: Well, besides tourist attractions, which I will definitely go to visit, I am also looking forward to making new acquaintances, experiencing pub cultures, and enjoying formals in the colleges.

Q: What skills/progress/goals are you planning to learn and/or develop during your visit? How?

H: My major goal is to acquire skills in incorporating climate models into biological data and reducing the sampling bias, as well as the quantitative methods for doing these. Beside the academic aspect, I want to learn cooking and other life skills in order to save money. In other words, I will try to live a good life without spending too much money.

Q: Last question, what will make this experience successful in your view?

H: Well, I think before I go to the University of Oxford, I have to be well prepared for all kinds of things that I might encounter in the future. After I get there, if I meet any problems, I will ask for help. For example, if I get lost in the street, I will ask somebody for how to get to my destination; or if I have some research issues in the department, I will ask my advisor and other professors and colleagues for help. I think that is the best thing that I can do.

Zhengbo Lu



Zhengbo Lu has achieved his bachelor's degree in Geology at Northwest University in China and is currently a third-year PhD student at NJU. His current research focuses on the evolution based on fossil occurrences in strata, and is supervised by Prof. Junxuan Fan. In this coming November, Zhengbo is planning to go to the UK to advance his research for the next two years.

Q: Which university are you planning to study/visit? Why? For how long?

L: I will go and visit Prof. Bridget Wade at UCL for two years this time. Prof. Wade is very good at researching on foraminifera, which is also the area I am focusing on in my PhD work.

Q: Is this your first time traveling/studying abroad for such a long period?

L: I've been to several international conferences before, but this is my first time traveling abroad as a visiting student as well as for a long time.

Q: Do you, or those close to you, have any anxieties about your visit prior to your departure (e.g., language, cultural, geopolitical issues)? What were they?



L: Actually, my parents are quite excited because they believe this is a great opportunity for me to go abroad and learn a lot. And for me, since I am partly sponsored by China Scholarship Council, it relieves part of my financial stress to study in the UK, so that I could focus more on the research aspect. However, anxieties and uncertainties also exist. For example, I really enjoy

having fun with my friends but I am not sure if making new friends in the UK is as easy as I did in China. Also, I am a bit worried about the difference. I am a Chinese student who was taught in Chinese in most of my courses. The teaching, working and researching styles in the UK are also unknown to me.

Q: Do you have any plans to cope with these anxieties when you are confronted with them?

L: I will turn to my supervisor in the UK Prof. Wade of course. I've met other professors and students from UCL when I was in STRATI 2023, so I might also ask them for help.

Q: You mentioned that your parents are excited about your UK journey, but what about you? Are there any parts of UK culture that you are excited to experience?

L: Yes, I am more excited than anxious. I am a big fan of Harry Potter, so you know I am very looking forward to experiencing its culture in the UK, especially the costumes, and of course to the trip to the Harry Potter Studio as well.

Q: What skills/progress/goals are you planning to learn and/or develop during your visit? How?

L: First of all, I hope to improve my knowledge of taxonomy of the foraminifera. Also, I would like to learn quantitative analysis from my colleagues in the UCL. I've already had the background knowledge of it during my study at NJU, so this time I really hope to combine my acquisition here in the UK with what I've learnt previously. In order to achieve these goals, I believe frequent communications with my supervisor and colleagues are very important.

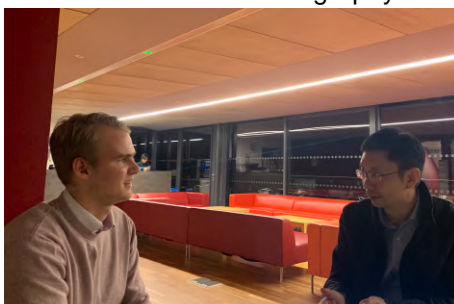
Q: What will make this experience successful in your view?

L: Communications. We can easily acquire knowledge and information through internet these days, but that cannot replace communications in person, never. Sincere and frequent in-person conversations will help build trust between my colleagues in the UK and myself, which I believe will definitely help in this two-year period.

A journey from Oxford to China

Cooper Malanoski
Ph.D. candidate, Oxford University

In November 2022 I was fortunate enough to meet Dr. Fan and Dr. MacLeod during their visit to Oxford University. The excitement of first learning about the aspirations of the DELTA group is still vivid in my memory. During this visit I had discussed the possibility of studying abroad in Nanjing to learn more about the OneStratigraphy and Geobiodiversity databases, and for field work in South China. Unfortunately, at the time it was difficult to make concrete plans due to the uncertainties surrounding the COVID pandemic



Picture taken by Ariana at Oxford University in 2022

in China. However, in the Summer these restrictions were lifted and suddenly the potential collaboration with Nanjing University became a more tangible opportunity. Eager to pursue the opportunity, I reached out to Dr. Fan and Dr. Wang to reassess the feasibility of visiting Nanjing University. Swiftly, plans materialized, and my stay in China was booked from the 22nd of August to the 18th of September.

Growing up in rural upstate New York, international travel was a very foreign concept until I began my Ph.D. at Oxford University and could have never imagined that I would have the opportunity to travel to China. So, once the reality set in that I was going to spend nearly a month in China I was filled with both excitement and trepidation, given my unfamiliarity with the language and cultural nuances. However, the warm welcome I received from the professors and students at Nanjing University helped facilitate a smooth transition into life in Nanjing.

My trip was composed of three distinct phases: initially learning to use the OneStratigraphy and Geobiodiversity

databases and beginning collaborations with students; secondly, collecting brachiopod and coral samples from the Yashui Section in South China; and finally, giving a presentation for the department and traveling to Beijing. Immediately, I was struck by the breadth and quality of the paleontological research being conducted in Nanjing, as well as the engaging conversations I had with both students and faculty. On August 28th Dr. Fan and the students kindly put together a seminar where I had the opportunity to share my research, and three students presented their research in English. The research projects and results were all very exciting and I was particularly struck by the quality of the presentations. This prompted me to see collaborative opportunities, particularly with utilizing various novel subsampling techniques to assess the impact of spatial and temporal biases in their studies. Furthermore, I engaged in insightful discussions with faculty and students involved in data entry for the OneStratigraphy database and in developing the CONOP and HA algorithms, used for constraining events or occurrences to a high-resolution age. This experience led to interesting discussions and plans for several collaborative projects using this data to study the paleoecology and potential drivers of the middle Carboniferous extinction event. Overall, the first phase of the trip was a huge success which resulted in many potentially fruitful collaborations.

On September 1st I flew to Guizhou, and we drove to Huishui Town where we stayed to do fieldwork on the Yashui section. This section presented a unique opportunity to study the changes in paleoecology in response to the late Paleozoic ice age in South China, since it is a continuous shallow marine section from the Viséan till the Bashkirian with abundant brachiopods and corals. This also provided an opportunity to collaborate with students in the field and introduce them to field-based quantitative paleoecological methods. Over 6 days we collected over 100 kg of brachiopod and coral samples, and I had the opportunity to see several other world-class Carboniferous to Permian outcrops in South China. The fieldwork proved to be very successful, thanks to the invaluable assistance of other students and Dr. Wang.



Photo of me alongside Dr. Wang and students from Nanjing University at the Yashui Section

The final phase of my journey was equally propitious, offering further opportunities for student collaboration and a platform to present my research to the department. This presentation sparked a myriad of intriguing questions and discussions surrounding extinction selectivity, providing me with insight and inspiration for potential future research directions.

Beyond the academic endeavors, my stay in China was enriched by cultural immersion and the forging of new friendships, crafting a myriad of unforgettable memories. In Beijing, I explored historical landmarks, including the Great Wall, the Forbidden City, the Olympic Stadium, and the Summer Palace, relishing the opportunity to experience China's rich history. A standout memory was being able to hike a challenging 15 kilometer section of the Great Wall with Mixi Zhu, a Ph.D. student, despite his aversion to hiking. Embracing the culinary diversity, I indulged in a plethora of Chinese dishes, and exotic foods including hot pot, barbecue, frog, donkey, century egg, durian, various internal organs, stinky tofu, and spicy Sichuan food. Surprisingly, there was not one dish I did not enjoy, and the Chinese cuisine is something I will greatly miss as I finish my Ph.D. in the UK.



Picture taken by Mixi Zhu at the Mutianyu section of the Great Wall

I extend my heartfelt gratitude to Dr. Fan, my advisor Erin Saupe, Professor Wang, Dr. Shi, Shuyi Xu, and the students at Nanjing for their unwavering support and guidance during my visit. This visit stands as a testament to the potential for academic and cultural exchange between Oxford and Nanjing, and I am hopeful that it has paved the way for more symbiotic collaborations in the future. I wholeheartedly recommend any student or faculty to seize the opportunity to visit Nanjing if presented, considering this journey a resounding success.

NEWS AND RESOURCES

Pioneering Stratigraphic Insights Unveiled at STRATI 2023 by DELTA Members

Zhengbo Lu

Ph.D. student, Nanjing University

The 4th International Congress on Stratigraphy, known as STRATI 2023, recently concluded in Lille, France, from July 11th to July 13th. The conference successfully gathered prominent experts and researchers in the field of stratigraphy to engage in discussions on the latest advancements and exchange valuable insights.

Among the conference highlights was workshops and sessions spearheaded by the DELTA members. This alliance, known for its commitment to excellence and innovation, is a consortium of researchers and organizations dedicated to propelling the field of geosciences forward.

The workshop "OneStratigraphy Database and Constrained Optimization (CONOP) analysis", organized by Prof. Junxuan Fan, Doctoral candidate Zhen-bo Lu, and Prof. Yukun Shi from Nanjing

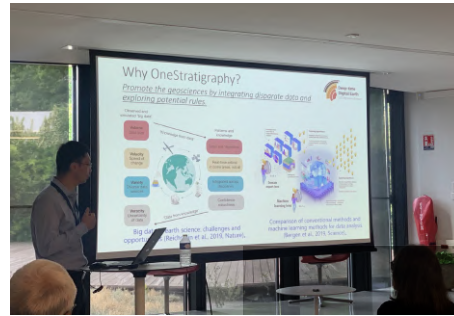


Zhengbo is answering questions from the audience during the workshop

University, provided attendees with valuable insights into the utilization of advanced database techniques and the CONOP analysis method. Participants had the opportunity to learn about the latest tools and techniques in stratigraphic analysis, with a focus on enhancing temporal resolution and accuracy.

In addition to the workshop, Prof. Fan and colleagues also organized a scientific session titled "Quantitative stratigraphic analysis using databases". This session featured presentations from esteemed researchers who showcased the power of databases in quantitative stratigraphic analysis. In the session, Prof. Fan introduced the OneStratigraphy Database, a platform that harmonizes global stratigraphic data and aligns geoscience informatics efforts with the FAIR (Findable, Accessible, Interoperable, and Reusable) principles. This database, which has already digitized and stored 1.3 million fossil occurrences from around the world, serves as a valuable resource for researchers aiming to refine geologic time scales and study high-resolution macroevolutionary patterns.

Zhengbo Lu, in collaboration with Junxuan Fan, presented their work on the newly designed CONOP program for stratigraphic correlation. The original CONOP program, which uses a simulated annealing approach, lacked support for parallel computing and high-performance computing. Lu and Fan's new program, CONOP.EA,



Prof. Junxuan Fan is giving the presentation on OneStratigraphy

combines the original CONOP program with an evolutionary algorithm, resulting in faster computation and improved results. Their research focused on tackling the stratigraphic correlation problem of late Paleogene foraminifera, providing valuable insights into Earth's climate transition during that period. The presentation given by Prof. Yukun Shi, also from Nanjing University on the topic of taxonomic identification, discussed the challenges of fossil identification consistency and proposed an AI-based machine learning approach for fossil image identification. By testing the influence of training set consistency, her research aims to improve the accuracy and confidence of taxonomic identification in the analysis of millions of fossil data accumulated through various databases.

In the scientific session "Tonian to Cryogenian stratigraphy, palaeobiology and Earth system change" organized by Prof. Graham Shields and Prof. Maoyan Zhu, Prof. Shields from University College London discussed the need for a revised chronostratigraphic timescale for all of Earth's history. He emphasized the importance of establishing a robust and intuitive stratigraphic nomenclature to improve understanding of Earth's history in educational settings.

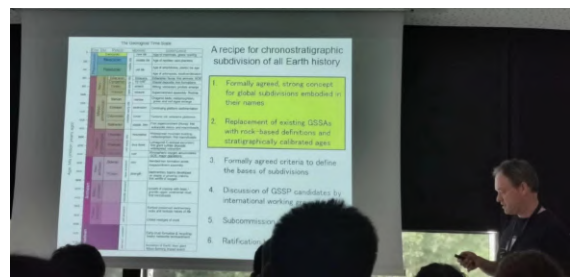


Photo of Prof. Graham Shields giving presentation

Dr. Ying Zhou from UCL presented research on the late Ediacaran ocean oxygenation event in South China. Her study focused on the redox structure of the Ediacaran ocean during the Shuram/DOUNCE event, which played a crucial role in the emergence and diversification of bilaterian animals. By analyzing redox-sensitive elemental and isotope data, Zhou's research supports the idea that pyrite burial contributed to oxygenation during the late Ediacaran.

The workshop, sessions and presentations contributed by the DELTA members showcased the significant advancements in stratigraphy and its applications, which will undoubtedly inspire future research in the field.

Visiting PhD Student Cooper Malanoski Presents at Nanjing University on Extinction Drivers

Yujie Shi

MSc student, Nanjing University

Cooper Malanoski has visited Nanjing University's Geoscience Paleontology Team from August 23rd to September 18th as the first visiting PhD student in the DELTA program. Besides sessions with the digitalization team of the OneStratigraphy database, a seminar with the NJU team and a field trip in Guizhou, on September 12th, Cooper gave a presentation in the School of Earth Sciences and Engineering, Nanjing University.

The one-hour presentation, titled "How to Survive Mass Extinction: Determining the Importance of Intrinsic vs. Extrinsic Drivers of Extinction Risk on Macroevolutionary Timescales.", and a half-hour Q&A session were hosted by Prof. Junxuan Fan and Prof. Yukun Shi. It drew the attention of professors, faculty, and students from the School of Earth Sciences and Engineering, the School of Geography and Ocean Science, and the International Center for Isotope Effects Research. Cooper presented his recent work on extinction selectivity, which incorporates the content of his currently under-review article.

The main idea of Cooper's presentation was to build an integrated approach that examines the role of potential intrinsic and extrinsic drivers in mediating extinction risk over the past 485 million years. Their work applied state-of-the-art climate models to reconstruct physiological traits and local climate changes, enabling a qualified analysis of potential factors. Throughout his lecture, Cooper elucidated how intrinsic factors (geographic range size, body size, realized thermal preference, and realized niche breadth) and extrinsic factors (the magnitude of climate change) affected survival likelihood during extinctions and compared their influences in a quantified way.

During the following Q&A session, Cooper received questions from an engaged and enthusiastic audience. Attendees inquired about the models used in the research, the factors considered, the ecological significance, the possible explanation of the results, and so on. Further discussions were highly productive and left a lasting impression.

Cooper's presentation not only demonstrates temporal and taxonomic variations of extinction selectivity but also has far-reaching implications for research in underlying mechanisms of evolutionary changes through Phanerozoic. By drawing parallels between past mass extinctions and current threats posed on organisms, understanding how extinction selectivity changed over Phanerozoic could potentially help us to explain extinction risks that organisms facing nowadays.



Pictures of Cooper's department
presentation

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Note: Click on the above references to be directed to the source file.

