



International Geoscience Programme Project 653 — Annual Meeting 2017



Filling the gap between the Cambrian Explosion and the GOBE

8 October – 12 October, 2017

Yichang, China

Second Circular

Sponsors

Nanjing Institute of Geology and Palaeontology, Chinese Academy of Sciences

National Natural Science Foundation of China

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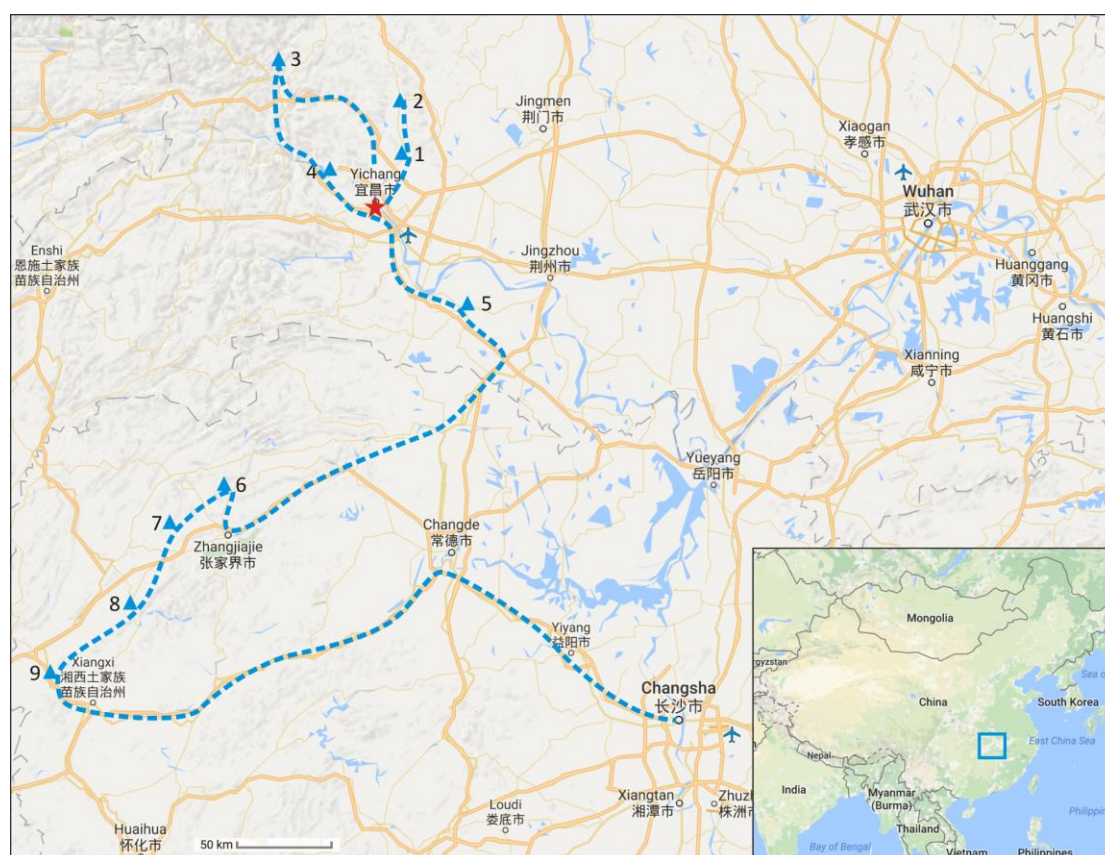
School of Geosciences and Info-Physics, Central South University, China

Time

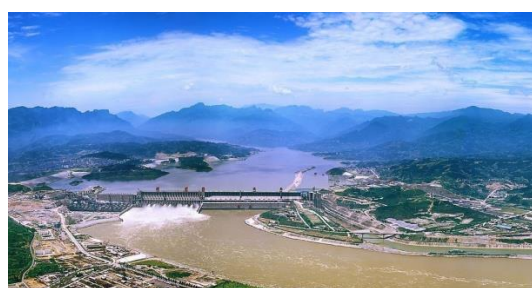
8 October (Sunday) – 12 October (Thursday), 2017

Venue

Banshan Hotel, Yichang City, Hubei Province, China



Location of Yichang City (★) and the scheduled route for the mid-conference field trip (1, 2) and the post-conference field excursion (3-9). 1. GSSP of the Dapingian Stage at Huanghuachang, Yichang, Hubei Province; 2. GSSP of the Hirnantian Stage at Wangjiawan, Yichang, Hubei Province; 3. Gudongkou Reservoir Bank section, Xingshan, Hubei Province; 4. Three Gorges National Geopark and Three Gorges Dam, Zigui, Hubei Province; 5. Xiangshuidong and Liujiachang sections, Songzi, Hubei Province; 6. UNESCO Global Geopark, Zhangjiajie, Hunan Province; 7. Mayang section, Yongshun, Hunan Province; 8. GSSP of the Guzhangian Stage (Series 3, Cambrian) at Luoyixi, Guzhang, Hunan Province; 9. GSSP of the Paibian Stage (Furongian, Cambrian) at Paibi, Huayuan, Hunan Province.





General Information

The 2017 annual meeting of IGCP 653 will be held on Oct. 8 to 12, 2017 in Yichang City, Hubei Province, China. The meeting, entitled 'Filling the gap between the Cambrian Explosion and the GOBE', will investigate the initiating causes and processes that produced the rapid diversification of marine organisms during the Ordovician Period, known as the 'Great Ordovician Biodiversification Event' (GOBE). Because the timing of the radiations varied among biotic clades and palaeocontinents, and may have its roots in the Cambrian, stratigraphic sections ranging from Guzhangian (Series 3, Cambrian) to Upper Ordovician will be visited during the post-conference field excursion. A workshop on the Burgess Shale-type Guole Lagerstätte of the Jiangshanian (Furongian) age from Guangxi Autonomous Region, South China will be organized during the meeting for participants to examine specimens of trilobites, non-trilobite arthropods, brachiopods, graptolites, cnidarians, echinoderms, hyoliths, palaeoscolecid worms, algae, etc. from the site.

The meeting in Yichang includes three days of indoor academic sessions for delegates to present their latest research, and a full day mid-conference field trip to the GSSPs of the Dapingian and Hirnantian stages and a few scenic spots and historical sites near Yichang City.

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

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

Welcome to Yichang!

Provisional programme

Oct. 8 (Sunday), 2017: Arrival, registration (ice breaker).
Oct. 9 (Monday), 2017: Oral and poster presentations.
Oct. 10 (Tuesday), 2017: Oral and poster presentations, workshop.
Oct. 11 (Wednesday), 2017: Mid-conference field trip.
Oct. 12 (Thursday), 2017: Oral and poster presentations, conference banquet.
Oct. 13—Oct. 18, 2017: Post-conference field excursion in Hubei and Hunan provinces.
Oct. 19 (Thursday), 2017: Departures.

Academic sessions

We are going to invite several keynote speakers, focusing on the topics of IGCP 653 project, including biodiversity, palaeoecosystems, palaeoclimatology, palaeoceanography, geochemistry, etc. For the regular oral presentations, 20 minutes will be arranged including questions and answers, while for each keynote talk, 40 minutes including discussions will be arranged. Posters should be prepared with the size 120 cm (height) x 80 cm (width). Generally, one oral presentation and one poster will be guaranteed for each registered participant.

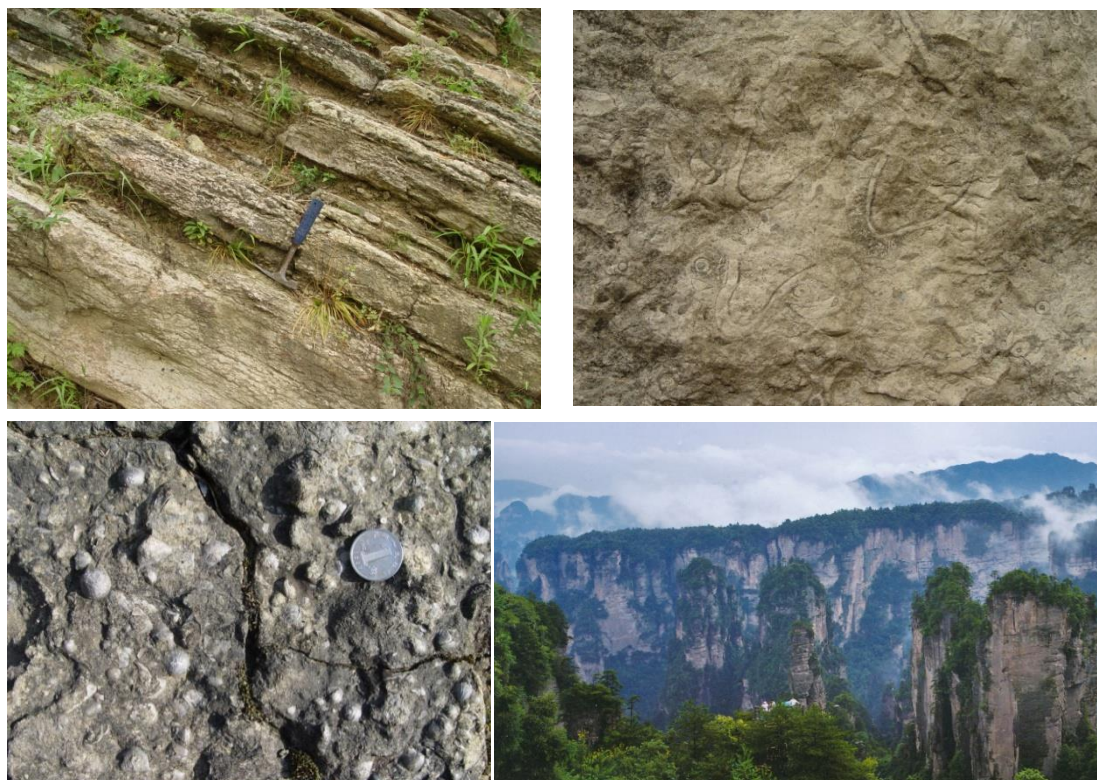
Mid-conference Field Trip

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

Leaders: ZHANG Yuandong, FAN Junxuan, CHEN Qing et al.

Post-conference Field Excursion

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



Day 1 (Oct. 13): Leaving for the Gudongkou Cambrian-Ordovician section in Xingshan at 8:30am, lunch at the section, and stay overnight at the same hotel in Yichang.

Day 2 (Oct. 14): Checking out the hotel in Yichang and leaving for the Xiangshuidong Ordovician section in Songzi County (Hubei Province) at 8:30am, lunch at the section, and stay overnight in Songzi county town.

Day 3 (Oct. 15): Checking out and leaving for Zhangjiajie (Hunan Province) at 8:30am, and check in the hotel around noon and have a simple lunch there. Visit the Zhangjiajie UNESCO Global Geopark in the afternoon. Stay overnight in Zhangjiajie city.

Day 4 (Oct. 16): Checking out and leaving for the Wentang Ordovician section in Zhangjiajie at 8:30 am, spend about 3-4 hours at the outcrop, and then go to Huayuan county town late in the afternoon where all participants will stay overnight.

Day 5 (Oct. 17): Visit the Cambrian Paibian (Furongian) GSSP section and the entire Furongian sequence in the Huayuan County, and stay overnight in Guzhang county town.

Day 6 (Oct. 18): Visit the Cambrian Guzhangian GSSP section and the entire Cambrian sequence in the Guzhang County in the morning, and drive to Changsha (capital city of the Hunan Province) where all participants will stay overnight. (Participants will probably arrive at the hotel near the Changsha Huanghua International Airport late in the afternoon)

Day 7 (Oct. 19): All participants leave for their own destinations.

Registration fee covers all meals, accommodations, transportation, tickets for the geoparks, guide book, etc. during the whole field excursion (Oct. 13 to 18, including the hotel for Oct. 18 in Changsha).

Leaders: ZHAN Renbin, WANG Yi, LIU Jianbo, ZHU Xuejian et al.

Registration Fees and Payment

Items	Participant category	Before August 15, 2017	After August 15, 2017
Conference registration fee	Full participant	US\$ 300	US\$ 375
	Student	US\$ 150	US\$ 200
	Accompanying participant	US\$ 150	US\$ 200
Post-conference field excursion	All	US\$ 1050 (Single room) US\$ 950 (Shared double room)	US\$ 1150 (Single room) US\$ 1050 (Shared double room)
Room rate in the Banshan Hotel, Yichang City	All	US\$ 50 /night/room	US\$ 50 /night/room

*Note that the registration should be completed through the website of the Yichang meeting (<http://igcp653-china2017.geobiodiversity.com/>), and the sum of registration fees will be given automatically when the registration is complete. The payment should be made through bank transfer (see the bank account information attached below; **please specify your name when transferring**) or on site at the meeting. Credit card payments are not available.

The conference registration fee covers the conference programme and extended summary volume, icebreaker, conference dinner, coffee breaks, all meals (lunch and dinner), mid-conference field trip, and conference backpack.

Accommodations: US\$ 50 per double-room per day in the Banshan Hotel (4-star, conference rate, breakfast included). We recommend delegates choose to stay at the conference hotel (Banshan Hotel), and we have already reserved some rooms for conference delegates.

The fee for the post-conference field excursion in Hubei and Hunan provinces (Oct. 13 to 18) covers the field guide, hotels (three stars or higher, the night of Oct. 18 in Changsha included), all meals, transportation, and the tickets to geoparks and historical sites.

NAME OF BENEFICIARY: zhang linna

BANKING ACCOUNT NUMBER: 6217856100060117899

PHONE NUMBERS: 8613851512799

BANK NAME: BANK OF CHINA JIANGSU BRANCH, XUANWU SUBBRANCH

SWIFT ADDRESS CODE: BKCHCNBJ940

BANK ADDRESS: HONGWU NORTH ROAD NO. 127, NANJING CITY, JIANGSU PROVINCE, CHINA

Publications

Three volumes are to be published or prepared for the meeting:

(1) A volume including the conference programme and extended summary (up to four pages for each one) will be published by the Zhejiang University Press & Elsevier and available at the meeting. For the format requirement of the extended summary, please refer to the appendix to this circular. The abstract or extended summary should be submitted through the website of the Yichang meeting (<http://igcp653-china2017.geobiodiversity.com/>). The deadline for submitting abstract or extended summary is **August 15, 2017**.

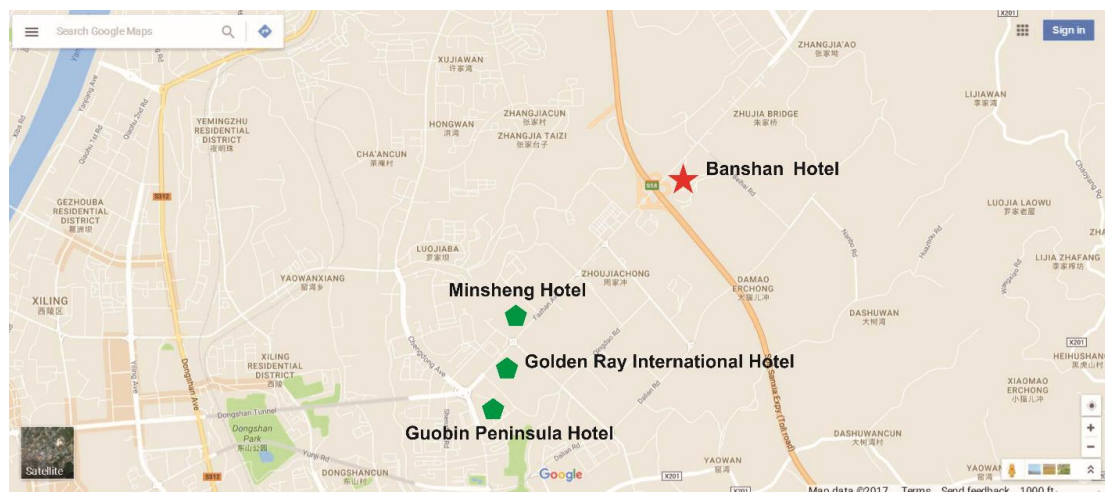
(2) A thematic issue in *Palaeoworld* (a peer-review journal published by Elsevier) has been arranged to publish invited regular papers (*ca.* 10 pages) presented to the meeting, which will come out in middle 2018 (Issue 2 or 3). Deadline for submitting manuscript is **December 31, 2017**. For the format requirement, please refer to the author instructions of *Palaeoworld* (<http://www.elsevier.com/locate/palwor>).

(3) A guide book to the post-conference field excursion is being prepared and will be available at the meeting.

Travel and accommodations

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

For accommodations, we have already reserved dozens of rooms in the four-star Banshan Hotel (red star in the map; *ca.* 50 US dollars per room for conference rate) for delegates. For those who prefer to stay in other hotels, there are over ten hotels ranking three stars or higher in the Yichang City, some of them are listed in the following map (marked in green).





The weather in Yichang City in October is usually mild and mostly sunny, with temperatures ranging 10–25°C and on average 15–20°C. There could be some drizzles, but not common. The weather elsewhere in Hubei and Hunan Provinces is similar to that in Yichang City. We suggest that participants, especially those attending the post-conference field excursion, bring their own rain gear. Most of the stops in the mid-conference field trip and the post-conference field excursion are along roadside or in mining quarries, and are easily accessible, but roads can be muddy and slippery on rainy days, so sturdy running shoes or hiking boots are still recommended.

The local foods in the Yichang City and neighboring areas are usually a bit spicy, somewhat similar to the famous Sichuan food. If you have any special dietary requirements (e.g. vegetarian, or an allergy to some specific food), please let us know in advance so that we can arrange appropriate food for you.

Visa

Those registered participants in need of visa to attend the meeting, should write an e-mail to the e-mail box of the meeting for an invitation letter: IGCP653.China2017@nigpas.ac.cn, with detailed passport information, and preferably before **July 1, 2017**. We need to submit applications to Chinese Academy of Sciences (Beijing) for the official invitation letters (for visa), and the waiting time is usually one to two weeks. A late request may lead to a late issue of the invitation letter and consequently delay the participant's receipt of visa.

Financial support

Financial support from the sponsors of the meeting will be available for a few participants in need, especially those from the developing countries, which will cover the conference registration fees and accommodations in Yichang. Those participants who are in need, please send an application to: IGCP653.China2017@nigpas.ac.cn. The application e-mail should include the following contents: registration information, a personal CV, and a personal statement (i.e. application).

Some financial supports from the IGCP 653 will be also available for the attending students. Those who are interested should send an application e-mail to Dr. Thomas Servais: Thomas.Servais@univ-lille1.fr

All the applications will be assessed by a committee composed of the chairmen and some members of the Organizing Committee and the Scientific Committee. Altogether up to ca. 10 applicants will get the financial supports. The benefiteres will receive a confirmation email from

the organizer before September 15, 2017.

Important dates

December 20, 2016: Distribution of First Circular

March 1, 2017: Website of the conference available for information and registration (actually available on May 1, 2017; <http://igcp653-china2017.geobiodiversity.com/>)

May 1, 2017: Distribution of Second Circular

August 15, 2017: Deadline for submitting abstracts or extended summary through the web of the Yichang meeting (<http://igcp653-china2017.geobiodiversity.com/>) or to the e-mail box of the meeting (IGCP653.China2017@nigpas.ac.cn)

September 15, 2017: Distribution of Third (last) Circular

October 8, 2017: Icebreaker of the meeting

October 13, 2017: Start of the post-conference field excursion

December 31, 2017: Deadline for submitting proceeding paper to *Palaeoworld*

Scientific Committee

Thomas SERVAIS (Chair, Lille, France)

David A.T. HARPER (Durham, UK)

Olga T. OBUT (Novosibirsk, Russia)

Christian M.Ø. RASMUSSEN (Copenhagen, Denmark)

Alycia L. STIGALL (Athens, Ohio, USA)

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TANG Peng, Nanjing Institute of Geology and Palaeontology, China

WANG Wenhui, Central South University, China

LI Qijian, Nanjing Institute of Geology and Palaeontology, China

ZHANG Linna, Nanjing Institute of Geology and Palaeontology, China

HOU Xudong, Nanjing Institute of Geology and Palaeontology, China

Contact information

Any questions or suggestions related to the meeting and field trips should be directed to the e-mail box of the meeting: IGCP653.China2017@nigpas.ac.cn

or if necessary, to:

Dr. FAN Junxuan (Nanjing Institute of Geology and Palaeontology): fanjunxuan@gmail.com

Dr. ZHANG Yuandong (Nanjing Institute of Geology and Palaeontology): ydzhang@nigpas.ac.cn

For further and updated information of the Yichang meeting, please visit the website of the meeting: <http://igcp653-china2017.geobiodiversity.com/>

Instructions for the extended summary submitted to the IGCP 653 Yichang meeting

The length of extended summary is up to 4 printed pages, including references and figures.

Title

Author(s): Family names capitalized.

Author affiliation: Affiliations with complete addresses including postcode and email addresses.

Text: Text should be in 10pt, Times New Roman and single spacing.

Figures and tables: Figures and tables should be numerically numbered and cited in order within the text. Ensure that each illustration has a caption. The resolution of figures should be at least 300 dpi. All the letters in the figures must be in Arial and no smaller than 7 pt, and no bigger than 12 pt. The following formats of figures are acceptable: (1) *.cdr; (2) *.ai; (3) *.eps; (4) *.tiff; (5) *.jpg. The size of figures should not exceed the width of 17cm and the length of 20cm. The figures can be inserted properly in the text, but each figure must also be provided as an individual file. All the files (including the text) should be packed as one zip file and submitted via the online registration system (<http://igcp653-china2017.geobiodiversity.com/>) or via the e-mail box of the Yichang meeting (IGCP653.China2017@nigpas.ac.cn).

Acknowledgements

References: Please refer to the following example.

Example

Quantitative stratigraphy of the Wufeng and Lungmachi black shales and graptolite evolution during and after the Late Ordovician mass extinction

FAN Junxuan¹, CHEN Qing^{1,2,3}, Michael J. MELCHIN², David H. SHEETS⁴, CHEN Zhongyang^{1,3}, ZHANG Linna^{1,3} & HOU Xudong¹

¹ State Key Laboratory of Palaeobiology and Stratigraphy, Nanjing Institute of Geology and Palaeontology, Chinese Academy of Sciences, Nanjing 210008, China; fanjunxuan@gmail.com, qchen@nigpas.ac.cn, zychen@nigpas.ac.cn, lnzhang@nigpas.ac.cn, xdhhou@nigpas.ac.cn;

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1 Introduction

The Late Ordovician mass extinction, the second largest (in terms of species lost) of the five major

events in the Phanerozoic, is estimated to have eliminated 86% of species (Jablonski, 1991). Recent studies from South China also indicate that this event eliminated at least 75% of genera of marine animals (Rong et al., 2007). The patterns and processes of mass extinction of graptolites (Chen et al., 2004a, 2005a; Fan and Chen, 2007) have been described based on high-resolution sampling in South China and quantitative biostratigraphic methods. However, there are still several key issues to be addressed, one of which is the effect of sampling intensity on the diversity curves, and the second is the patterns and processes of graptolite recovery from the mass extinction. When we conducted the analyses published in 2005 and 2007 (Chen et al., 2005a; Fan and Chen, 2007), the graptolite fauna in lower Rhuddanian strata in South China had not yet been systematically studied (Fan and Chen, 2007), so we were unable to make meaningful interpretations of graptolite evolution in the early Rhuddanian, even though the curves were already extended into that interval.

In the present paper, we present data from 19 late Katian–Rhuddanian sections from South China as a composite section. The graptolite faunas from late Katian to early Rhuddanian have been systematically studied and described by Chen et al (2005b) and the present authors, and the recent systematic work by Štorch et al (2011) and Melchin et al (2011) is utilized in the present study as well. We also make significant improvements to a program for graphic correlation, SinoCor, so that we can conduct the compositing more efficiently... ..

2 Localities and descriptions

For the present study, we employ a large compilation of ranges of graptolite species and genera based on data from 19 densely sampled sections in the Yangtze region of South China archived in the Geobiodiversity Database (GBDB, <http://www.geobiodiversity.com>; Fan et al., 2013) (Figure 1, Table 1). Shaw proposed the term “species level” to measure the thoroughness of sampling at a section (Shaw, 1964), which is equal to the term “species occurrence” used herein... ..

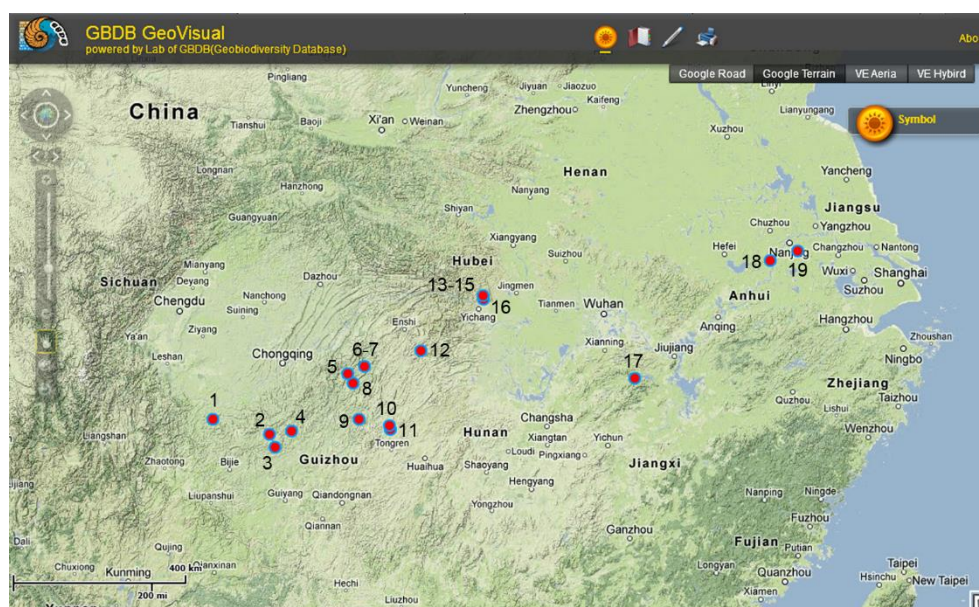


Figure 1 Geographic map showing the localities. The map was generated through the online function for geographic visualization, GeoVisual 1.0. 1. Qinglongzui, Changning County, Sichuan Province; 2. Bainida–Sanhuai, Xishui County, Guizhou Province; 3. Yangliugou, Renhuai City, Guizhou Province; 4. Honghuayuan, Tongzi County, Guizhou Province; 5. Lanmaxiang South, Qianjiang District, Chongqing Municipality; 6–7. Miaolinwan West and Central, Qianjiang District,

Chongqing Municipality; 8. Lujiao, Pengshui County, Chongqing Municipality; 9. Shichang'ao, Yanhe County, Guizhou Province; 10. Fengxiangqiao, Huangfan Township, Guizhou Province; 11. Ludiping, Songtao County, Guizhou Province; 12. Guanwu, Hefeng County, Hubei Province; 13–15. Wangjiawan North, South and Riverside, Yichang City, Hubei Province; 16. Fenxiang, Yichang City, Hubei Province; 17. Guantangyuan, Wuning County, Jiangxi Province; 18. Xiaotan, He County, Anhui Province; 19. Gaojiabian, Jurong County, Jiangsu Province.

Table 1 Overview of the 19 sections studied.

Section ID in GBDB	Section name	Duration	Overall description
5260	Bainida-Sanhui	Hirnantian–Rhuddanian	13 taxa, 17 occurrences
5252	Fengxiangqiao	Katian	20 taxa, 33 occurrences
2082	Fenxiang	Katian–Rhuddanian	72 taxa, 126 occurrences
1989	Gaojiabian	Hirnantian–Rhuddanian	32 taxa, 102 occurrences
6	Guantangyuan	Rhuddanian	23 taxa, 72 occurrences
5251	Guanwu	Katian–Rhuddanian	30 taxa, 68 occurrences
2083	Honghuayuan	Katian–Rhuddanian	73 taxa, 350 occurrences
5263	Lanmaxiang South	Katian–Hirnantian	16 taxa, 34 occurrences
2080	Ludiping	Katian–Rhuddanian	63 taxa, 368 occurrences
5264	Lujiao	Katian–Rhuddanian	18 taxa, 25 occurrences
5313	Miaolinwan Central	Katian–Rhuddanian	27 taxa, 51 occurrences
5257	Miaolinwan West	Katian–Rhuddanian	25 taxa, 76 occurrences
5254	Qinglongzui	Hirnantian–Rhuddanian	10 taxa, 17 occurrences
5262	Shichang'ao	Katian–Rhuddanian	31 taxa, 58 occurrences
3000	Wangjiawan North	Katian–Rhuddanian	82 taxa, 526 occurrences
5316	Wangjiawan Riverside	Katian–Rhuddanian	45 taxa, 185 occurrences
7871	Wangjiawan South	Katian–Rhuddanian	89 taxa, 418 occurrences
54	Xiaotan	Rhuddanian	12 taxa, 25 occurrences
5269	Yangliugou	Katian–Hirnantian	22 taxa, 35 occurrences

3 Methodology

3.1 Graphic correlation

It is the geologists' task to make the best use of the fossil range data in the strata and to construct a temporal metric with the most sensitive, precise, and accurate scale attainable. Quantitative biostratigraphic methods provide the methodology to use the order and position of biostratigraphic events in local sections to reconstruct an estimate of actual original sequence (Agterberg, 1990)... ..

3.2 SinoCor 4.0

In the present study, we use SinoCor, a program designed in accordance with the principles of graphic correlation. The program was first designed by Fan and Zhang (2000) and two subsequent updates were made by Fan et al (2002) and Fan and Zhang (2004). In order to conduct the present analysis, we made significant additions and improvements to SinoCor.... ..

3.3 Data preparation

To begin constructing a composite standard (CS) database, the available data must first be inventoried (Carney and Pierce, 1995). In the present study, the local stratigraphic range observations from the 19 localities were compiled into the GBDB database (Fan et al., 2013). Then we used the 'Opinion' function to update the taxonomic assignments of fossil occurrences in each collection from every section... ..

4 Discussions

4.1 Do different methods of correlation produce meaningful differences in the CS?

As indicated above, there are several quantitative methods presently available, such as Graphic Correlation, CONOP, RASC, Unitary Associations, and Horizon Annealing (HA). The HA method was developed by Sheets et al. (2012) based on the conceptual approach used in CONOP... ..

4.2 Do different selections of the SRS markedly affect the CS?

As demonstrated by many experts, the selecting of the SRS will generate significant influence on the sequences and positions of bio-events in the final CS. Accordingly, Carney and Pierce (1995) proposed the four criteria for the selection of the SRS... ..

Acknowledgements *This work was supported by the National Natural Science Foundation of China (Grant Nos. 41374168, 41521063 & 41174140), Key Grant Project of Chinese Ministry of Education (Grant No. 2042015KF0169) and Program for New Century Excellent Talents in University (Grant No. NCET-13-0446). This is a contribution to the IGCP 653 project.*

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