



The 2nd International Symposium on Triassic and later Marine Vertebrate Faunas

Workshop of Major International Joint Research Project 40920124002, National
Science Foundation of China

10-15, September 2013

Xingyi, Guizhou, China



Program

Government of Xingyi City, Guizhou, China

Ministry of Education Key Laboratory of Orogenic Belt and Crustal Evolution

School of Earth and Space Sciences, Peking University, Beijing 100871, China





Dear colleagues,

The 1st International Symposium on Triassic and later Marine Vertebrate Faunas, was held in Beijing from Aug. 28 through Aug. 29, 2010. It was successfully, organized by the Geological Museum of Peking University and greatly supported by the Guizhou Provincial Department of Land & Resources, local governments of Guizhou Province, NSFC, Palaeontological Society of China, and Chengdu Center of Geological Suivey of China. The post-symposium field trips and forum on “Protection on the Vertebrate Faunas and Development of Geoparks” was held in Guanling, Xingyi and Panxian of Guizhou, Luoping of Yunnan and Chaohu of Anhui from Aug. 30 through Sep. 9, 2010. Numerous colleagues from Europe, North America and South America working on Mesozoic marine vertebrates attended the symposium and field trip. We all enjoyed this new platform where we could exchange our new knowledge and experience on Mesozoic marine vertebrates, especially with the abundant new fossils that are being collected in southern China. We hope to keep this platform going, and to organize future symposia at Monte San Gorgio (MGS, Switzerland), Chaohu and other famous fossil localities. The President of the MSG Swiss Foundation expressed his intention to sponsor the 2nd symposium to be held at Monte San Giorgio in 2012 when he addressed at the 1st symposium in Beijing, but probably because of management problems in the MSG Swiss Foundation, we have to move the 2nd symposium to Xingyi and to September of 2013.

The international team organized by Da-yong JIANG (GMPKU), Ryosuke Motani (UCDAVIS), Andrea Tintori (UNIMI) and Olivier Rieppel (FMNH), has been leading large excavations at the fossil sites of Xingyi (latest Ladinian?), Panxian (Anisian of Middle Triassic) and Chaohu (Spathian of Olenekian of Early Triassic), while other research groups outside and inside of China, such as the IVPP, the Chengdu and Wuhan Geological Surveys, also achieved great results in related research. Abundant and diversified new Triassic marine vertebrates and invertebrates have been found and have been described, and the stratigraphic sections of the Ladinian/Carnian boundary beds at Xingyi and of the Smithian/Spathian boundary beds followed by the Spathian sequence at Chaohu were cleaned to be well exposed and mapped by the GMPKU group. In the recent two years following the 1st symposium, the excavation at Xingyi supported by the Administration of Xingyi Geological Park proved especially successful and a great progress, with new large ichthyosaurs and other reptile skeletons, new fishes, new ammonites and bivalves having been collected. Large exposures of fossiliferous layers more than 1000 square meters, continuing the boundary bed of Ladinian/Carnian in the 70 m thick sequence that can be correlated to the GSSP of the Ladinian/Carnian



published recently, are attracting more and more attention of numerous paleontologists internationally. At the same time, plenty of new research achievements have been reported on the Triassic marine vertebrate faunas. We feel, it is both necessary and the appropriate time to have a symposium at Xingyi, to keep our platform and exchange of the new recent discoveries concerning the diversity, evolution and the stratigraphy of Triassic marine vertebrates, and the correlation of Ladinian/Carnian boundary with GSSP. A post-symposium field trip will be organized to visit the excavation sites of Panxian Fauna, Luoping Fauna, Xingyi Fauna, and Guanling Fauna, focusing on the fossil layer exposures, stratigraphic sequences of the fossiliferous levels, and the boundary bed sequence of Ladinian/Carnian and sequence of Anisian.



1. Time and important points

- The symposium will be held from Sep.10, 2013 to Sep. 15, 2013, and it will include 2 days for the oral presentations and 4 days for post-symposium field trips.
- Panjiang Hotel at Xingyi will be the conference hotel.
- The Xingyi City Government will offer the accommodation for the attendees who register and submit the abstract successfully before the 31st of May.
- The oral presentations will be held in the lecture hall of the conference hotel; a lecture hall equipped with multi-media, and a minimum occupation of 50 persons, is needed for the symposium.
- The post-symposium field trips include: visits to the sites of Xingyi, Panxian, Guanling and Luoping faunas, each one for a single day, staying overnight in the same conference hotel in Xingyi.

2. Topics and organization of the 2nd international symposium

(1) Main topic

The topic of the “2nd International Symposium on Triassic and later Marine Vertebrate” Xingyi, 2013, which is also the symposium of the international cooperation project of National Science Foundation of China (40920124002): starting from Xingyi Fauna, discuss the evolution, paleogeography, paleoenvironment and paleoecology of the Triassic marine vertebrate faunas of South China and their response to the recovery of the Triassic biosphere. Based on the recent progress on the related research, discuss the development of international cooperation, popular science education and personnel training.

(2) Sponsors

Government of Xingyi City, Guizhou Province
Ministry of Education Key Laboratory of Orogenic Belt and Crustal Evolution
School of Earth and Space Sciences, Peking University

Co-sponsors

Paleontological Society of China
Subcommission on Triassic Stratigraphy, ICS
National Natural Science Foundation of China
Bureau of Land and Resources of Xingyi

(3) Executive Unit:



- Geological Museum and Department of Geology, Peking University
- Administration of Xingyi Geological Park
- Institute of Paleontology and Stratigraphy, Peking University

(4) Organization committee of the 2nd international symposium

- ① Chairs: Tianyang WANG (Government of Xingyi City, Mayor)
Lifei ZHANG (Peking University, Dean)

Co-chairs: Shilin LV (Government of Xingyi City, Deputy Mayor)

Zhengjun HU (Government of Xingyi City, vice-Mayor)

Guangwan DIAO (Administration of Xingyi Geological Park, Director)

Mao PAN (Peking University, Deputy Dean)

Zhenqing SONG (Peking University, Deputy Dean)

Wei-cheng HAO (Peking University, Professor)

Yuan-lin SUN (Peking University, Director)

② Organization committee

Executive Chairs: Da-yong JIANG (Peking University)

Lin CHEN (Administration of Xingyi Geological Park)

Members of organization committee:

BALINI Marco (Milano University, Italy)

CHEN Xiao-hong (Wuhan Centre of Chinese Geological Survey)

HU Shi-xue (Chengdu Centre of Chinese Geological Survey)

LI Chun (Institute of Vertebrate Paleontology and Paleoanthropology, CAS)

LIU Jianbo (Peking University)

LIU Jun (Institute of Vertebrate Paleontology and Paleoanthropology, CAS)

LUO Yongming (Bureau of Geology and Mineral Exploration and Development of
Guizhou Province)

MOTANI Ryosuke (University of California, Davis, USA)

RIEPEL Olivier (The Field Museum, Chicago, USA)

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WANG Liting (Bureau of Geology and Mineral Exploration and Development of
Guizhou Province)



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of Guizhou Province)

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YAO Jianxin (Institute of Geology Chinese Academy of Geological Sciences)

YANG Qun (Nanjing Institute of Geology and Palaeontology, CAS)

YE Chang-wu (Administration of Xingyi Geological Park)

ZHANG Qiyue (Chengdu Centre of Chinese Geological Survey)

③ Secretary-General: Changwu YE, Zuoyu SUN

(5) Date of 2nd international symposium

- Date of Symposium: September 10-15, 2013
- On-site Registration: September 9, 2013
- Advantage Registration: before the 31st of May, 2013 (Accommodation at Xingyi from Sep. 10 to 15, 2013 will be covered by the Government of Xingyi City)

(6) Reception Banquet, September 9, 2013

18:00-20:00, Panjiang Hotel, invite the Governor of Qianxinan Buyi and Miao Autonomous Prefecture and the Mayor of Xingyi City

(7) Symposium Banquet, September 15, 2013

18:00-20:00, Panjiang Hotel, invite the Governor of Qianxinan Buyi and Miao Autonomous Prefecture and the Mayor of Xingyi City

3. Program of Academic sessions

September 10, 2013

8:30-9:00, OPENING CEREMONY, PANJIANG HOTEL

Moderator: Tian-yang Wang

Governor of Qianxinan Buyi and Miao Autonomous Prefecture

Tian-yang Wang, Mayor of Xingyi City

Prof. Li-fei Zhang, Dean of School of Earth and Space Science, Peking University

Hua-wei Cai, Secretary-General of Palaeontological Society of China

Director of Administration of Xingyi Geological Park



**9:00-12:00, ACADEMIC SESSIONS 1: THE DIVERSITY, STRATIGRAPHY,
PALEOENVIRONMENTAL BACKGROUND OF XINGYI FAUNA
AND OTHER TRIASSIC MARINE VERTEBRATE FAUNAS AND
ITS GLOBAL COMPARISON**

Moderator: Ryosuke Motani, Da-yong Jiang, Olivier Rieppel, Xiao-chun Wu

9:00-9:30, keynote: Andrea Tintori, Da-yong Jiang, Ryosuke Motani, Zuo-yu Sun,
Cheng Ji, Xiao-dong Zou, Le-tian Ma: Faunal sequence of Middle Triassic
Xingyi Fauna-evidence from excavation at Nimaigu of Wusha District,
Xingyi City, Guizhou Province

9:30-10:00, keynote: Olivier Rieppel, The Diversity of Triassic Marine Reptiles in
Southern China

10:00-10:30, break, provide coffee, tea, water, cookies, local snacks

10:30-11:00, keynote: Xiao-chun Wu, Pachypleurosaur-like eosauropterygians in
the Triassic of south-western China and the diversity of the group

11:00-11:30, keynote: Ryosuke Motani and Da-yong Jiang, Early evolution of the
ichthyopterygian tailbend as witnessed by fossils from Xingyi, Guizhou,
China

11:30-12:00, keynote: Nicholas C. Fraser, Olivier Rieppel, Da-yong Jiang, Chun Li
and Li-jun Zhao, Protorosaur diversity and distribution in Tethys

12:00, lunch, in the Panjiang Hotel

**14:00-16:20, ACADEMIC SESSIONS 1: THE DIVERSITY, STRATIGRAPHY,
PALEOENVIRONMENTAL BACKGROUND OF XINGYI FAUNA
AND OTHER TRIASSIC MARINE VERTEBRATE FAUNAS AND
ITS GLOBAL COMPARISON**

Moderator: Ryosuke Motani, Da-yong Jiang, Olivier Rieppel, Xiao-chun Wu

14:00-14:20, Tamaki Sato and Li-jun Zhao: Chinese pistosauroid Yunguisaurus
(Reptilia; Sauropterygia) and the origin of the plesiosaurian body plan

14:20-14:40, Da-yong Jiang, Ryosuke Motani, Wei-cheng Hao, Olivier Rieppel,



Andrea Tintori, Yuan-lin Sun, Zuo-yu Sun, Cheng Ji and Wan-lu Fu:
Sequence of Triassic marine reptile faunas from South China, as marker of
the biotic recovery

14:40-15:00, Long Cheng: The assemblage of marine reptiles from the
Yuanan-Nanzhang Fauna

15:00-15:20, Cheng Ji, Da-yong Jiang, Ryosuke Motani and Andrea Tintori: The
phylogeny of the Triassic ichthyosaurs from Southwest China

15:20-15:40, Le-tian Ma, Da-yong Jiang, Olivier Reppel, Ryosuke Motani and
Andrea Tintori: Preliminary phylogenetic analysis about the
interrelationships among Triassic Pistosauroids

15:40-16:00, break, provide coffee, tea, water, cookies, local snacks

16:00-16:20, Yi-fan Xue, Da-yong Jiang, Olivier Rieppel, Zuo-yu Sun, Cheng Ji and
Peng-fei Yang: New information on sexual dimorphism of
pachypleurosaur, *Keichousaurus hui* from Middle Triassic of Guizhou,
South China

16:20-18:10, ACADEMIC SESSIONS 2: RECOGNITION AND CORRELATION OF THE BOUNDARY BETWEEN LADINIAN AND CARIAN

Moderator: Marco Balini, Yuan-lin Sun

16:20-16:50, keynote: Marco Balini, Xiao-dong Zou, Da-yong Jiang, Zuo-yu Sun,
Yuan-lin Sun, Ammonoids from the Zhuganpo Member of the Falang
Formation (Guizhou Province, China)

16:50-17:10, Shi-xue Hu, Qi-yue Zhang, Chang-yong Zhou, Wen Wen, Jin-yuan
Huang and Tao Xie: The Middle Triassic Luoping Biota: A taphonomic
window on full recovery and radiation of marine ecosystems after the
Permo-Triassic mass extinction

17:10-17:30, Yuan-lin Sun and Wen Guo, Koninckinid brachiopods from the
Zhuganpo Formation at Wusha, Xingyi, Guizhou, China

17:30-17:50, Xiao-dong Zou, The evidence of ammonoid on the age of Xingyi
Fauna

17:50-18:10, Jin-yuan Huang, Rodney M. Feldmann, Carrie E. Schweitzer, Shi-xue



Hu, Chang-yong Zhou, Micheal J. Benton, Qi-yue Zhang, Wen Wen and
Tao Xie: A new shrimp from the Middle Triassic of Luxi, Yunnan,
Southwest China

18:10, dinner, in the Panjiang Hotel

September 11, 2013

8:00-11:30, ACADEMIC SESSIONS 3: THE EVOLUTION AND PALEOGEOGRAPHY OF TRIASSIC FISHES

Moderator: Andrea Tintori, Yuan-lin Sun, Zuo-yu Sun

8:00-8:30, keynote: Cristina Lombardo: "Subholosteans": a brilliant group of basal
actinopterygians from Middle-Late Triassic

8:30-8:50, Zuo-yu Sun, Andrea Tintori, Cristina Lombardo and Da-yong Jiang: Late
Ladinian/Early Carnian fish faunas from the Tethys

8:50-9:10, Andrea Tintori: Triassic 'flying' fishes: when, how and why

9:10-9:30, Guang-Hui Xu, Li-Jun Zhao, Ke-Qin Gao, Fei-Xiang Wu: A Middle
Triassic thoracopterid flying fish from southwestern Guizhou Province,
China

9:30-9:50, Fei-xiang Wu and Yuan-lin Sun: New material of Saurichthys
(actinopterygii: Saurichthyiformes) provides evidence of the diplapsidy
(double-arch) in the vertebral column of saurichthyid fishes

9:50-10:10, break, provide coffee, tea, water, cookies, local snacks

10:10-10:30, Zuo-yu Sun, Andrea Tintori, Cristina Lombardo and Da-yong Jiang:
News from the early-middle triassic fish faunas from southern China

10:30-10:50, Claudio Garbelli and Andrea Tintori: Ganoine ornamentation and its
possible adaptive meanings: an insight from the Triassic fishes

10:50-11:10, Ilja Kogan and Carlo Romano: Approaching the early saurichthyid
morphotype

11:10-11:30, Wen Wen, Shi-Xue Hu, Qi-Yue Zhang and Jin-Yuan Huang: Fossil
fishes from the Middle Triassic Luoping Biota, evidence of fish radiation
after the EPME

11:30, lunch, in the Panjiang Hotel

14:00-17:00, visit the Malinghe Gorge



4. Post-symposium trips: Sep. 12 - Sep. 15, 2013

8:00 am, leave the Panjiang Hotel

We are planning one post-symposium field trip, to visit the fossil sites, excavation exposures, stratigraphic sections and field museums in Guanling County, Xingyi City, Panxian County of Guizhou Province, Luoping County of Yunnan Province.

Sep.12: visit the **Xingyi National Geological Park**, the sequence of Zhuganpo Member of Falang Formation (late Ladinian, Middle Triassic), and the Nimaigu section where plenty of marine vertebrate and crinoid materials were discovered.

Xingyi Fauna—“hotspot” of international academic research, attracted much attention, abundant resources of post-symposium excursion

The first Triassic marine reptile fossil, *Keichousaurus hui* was found from Xingyi of Guizhou in 1957. Since then, especially from 1999, the abundant well-preserved marine vertebrates found from this fauna and other sites in South China (including Chaohu Fauna, Panxian-Luping Fauna and Guanling Biota) have attracted much attention internationally.

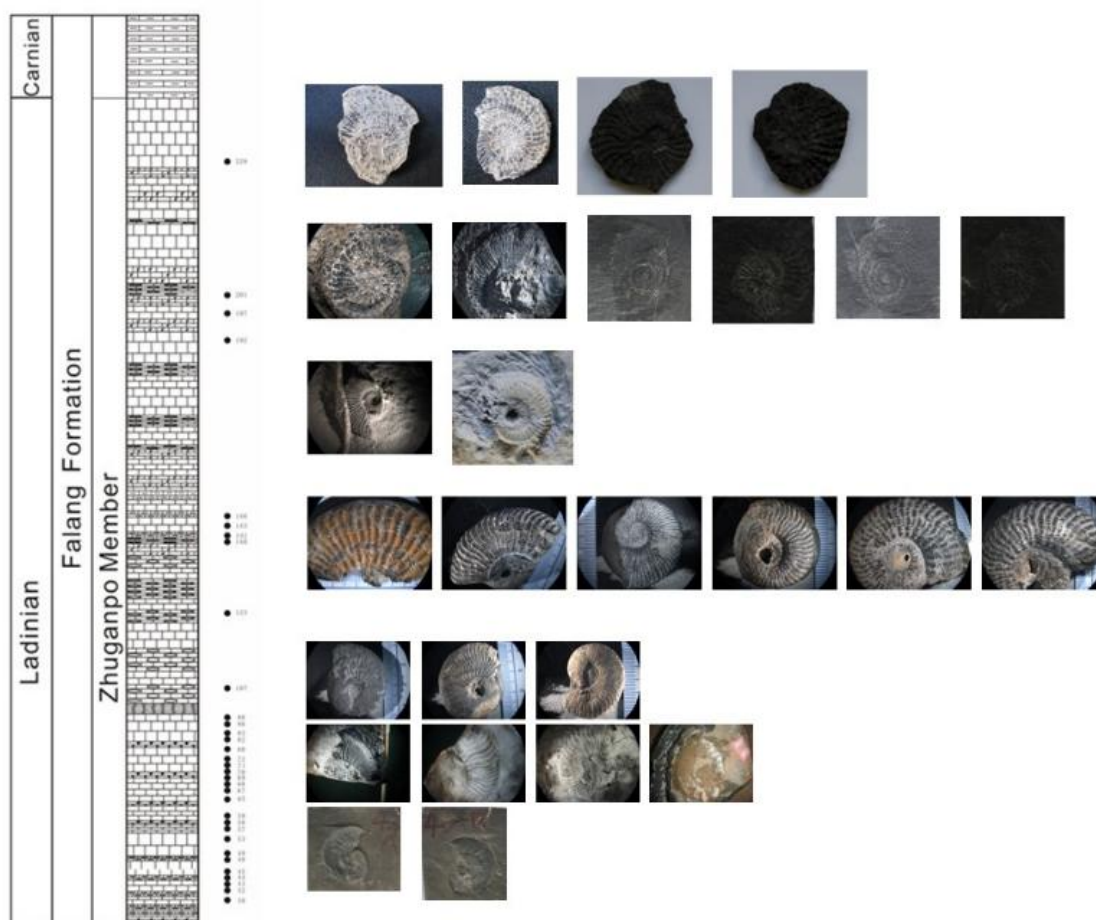
Xingyi is located at a convenient place with plenty of tourism resources nearby such as Malinghe Waterfall Group, Wanfenglin Geopark and Wanfenghu Lake. Besides its exceptional wonderful Triassic marine fossils and complete Triassic sequence, it is also not far from other Triassic marine vertebrate geological parks and fossil localities including Guanling National Geological Park, Wumengshan National Geological Park and the site of Luoping Fauna, Yunnan.



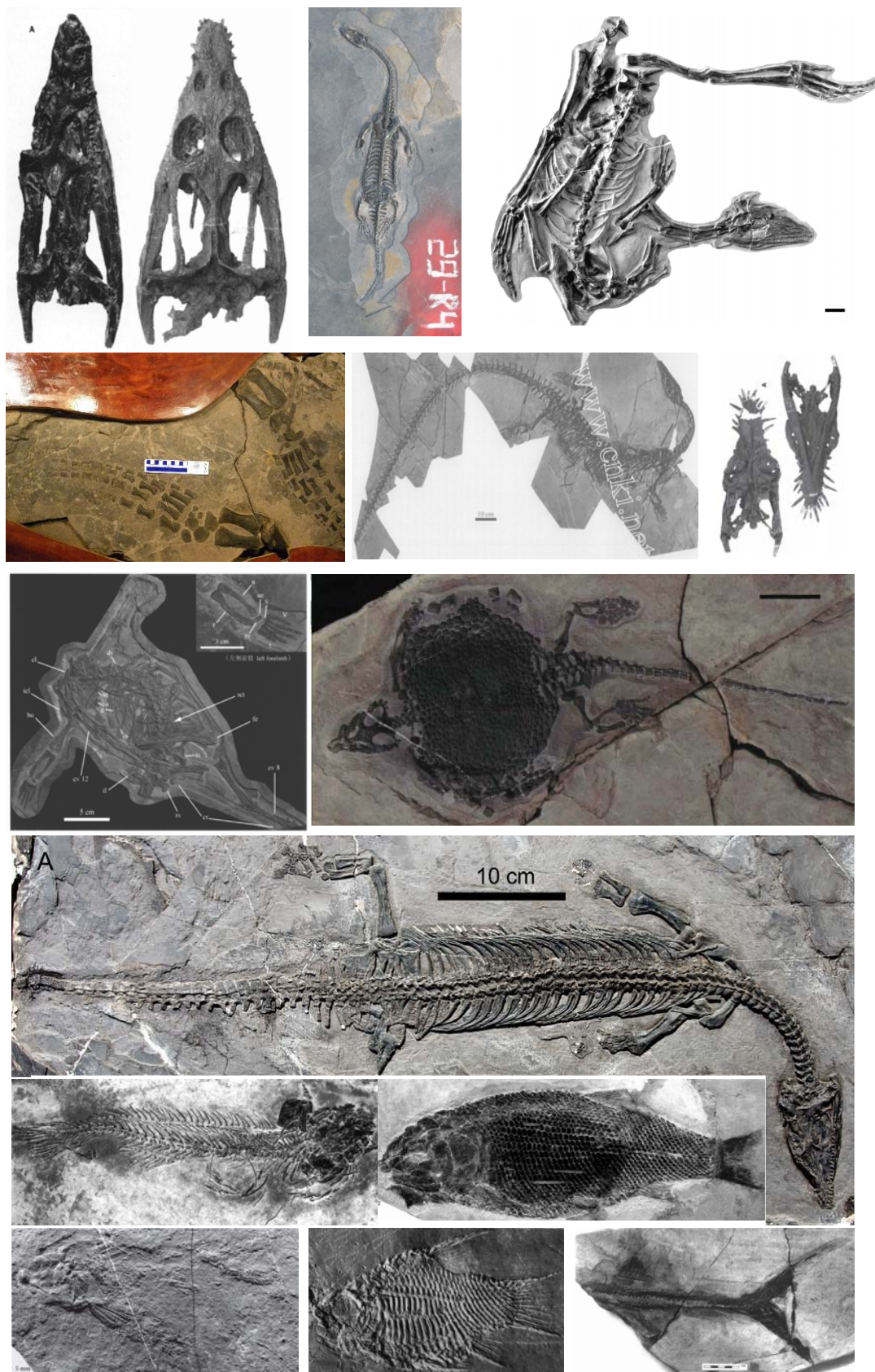
Section of Xingyi Fauna at Nimaigu Village, Xingyi City, Guizhou



Section of Xingyi Fauna at Nimaigu Village, Xingyi City, Guizhou



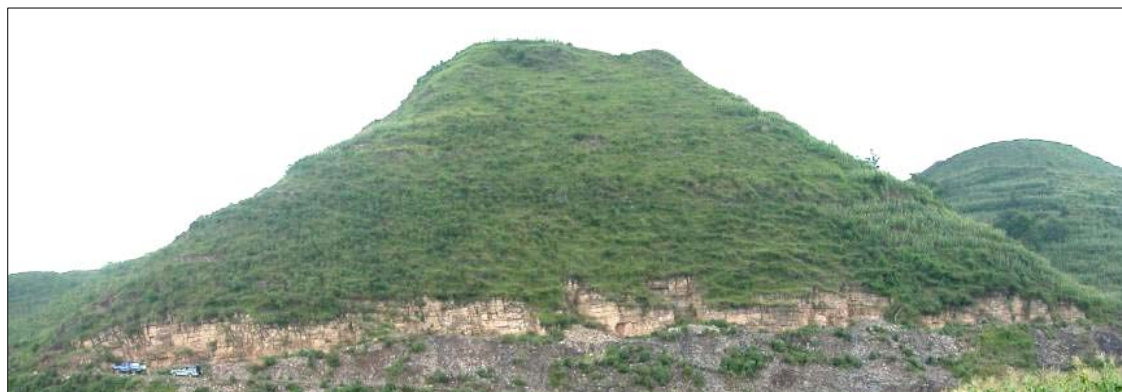
The occurrences of the ammonoid fossils from the marine reptile level until the top of the Zhuganpo Member of Falang Formation



The marine reptiles and fish reported from Xingyi Fauna. *Lariosaurus xingyiensis* Li et al., 2002. *Nothosaurus youngi* Li and Rieppel., 2004. *Keichousaurus hui* (upper). *Macrocnemus fuyuanensis* Li et al., 2007. *Dingxiaosaurus luyinensis* Liu et al., 2002. *Anshunsaurus wushaensis* Rieppel et al., 2006. *Yunguisaurus liae* Cheng et al., 2006. *Tanystropheus* sp. *Glyphoderma kangi* Zhao et al., 2008. *Qianxisaurus chajiangensis* Cheng et al., 2012. *Guizhouamia bellula* Liu et al., 2002. *Guizhouniscus microlepidus* Liu, 2003. *Thoracopterus wushaensis* Tintori et al., 2012. *Brachysomus minor* Liu, 2003.

Sep.13: visit the **Guanling National Geopark**, the site of Wayao Member of Falang Formation (Carnian, Late Triassic), and the locality of vertebrate fossils.

The trip will visit the typical Middle to Upper Triassic succession and a field museum in the National Geopark of Guanling Biota. In the museum, participants can see the fossils of the Guanling Lagerstätte in their original position on the black shale and mudstone bedding planes. Over there, participants will have the opportunity to enjoy the beautiful karst landscape of Huajiang Gorge, the so called “a crack of the earth”, on the Beipan River.



Series	Stage	Fm	Member	thick	conodont zone
Upper Triassic	Carnian	Falang	Ladite	> 10 m	Metapolygnathus nodosus
			Wayao	137 m	
	Ladinian	Yangjiazui	Zhugongpo	136 m	Metapolygnathus polygnathiformis
			Wayao	453 m	Nicorella kockelli
Middle Triassic	Anisian	Cunning		540 m	Neogondolella constricta



Left: the stratigraphic subdivision of the Guanling area with the indicator of the interval yielding Guanling fossil lagerstätte (GFL). Right: the section of the Wayao Member of the Falang Formation and the biggest pseudoplaktonic *Traumatocrinus* attached to drift wood.

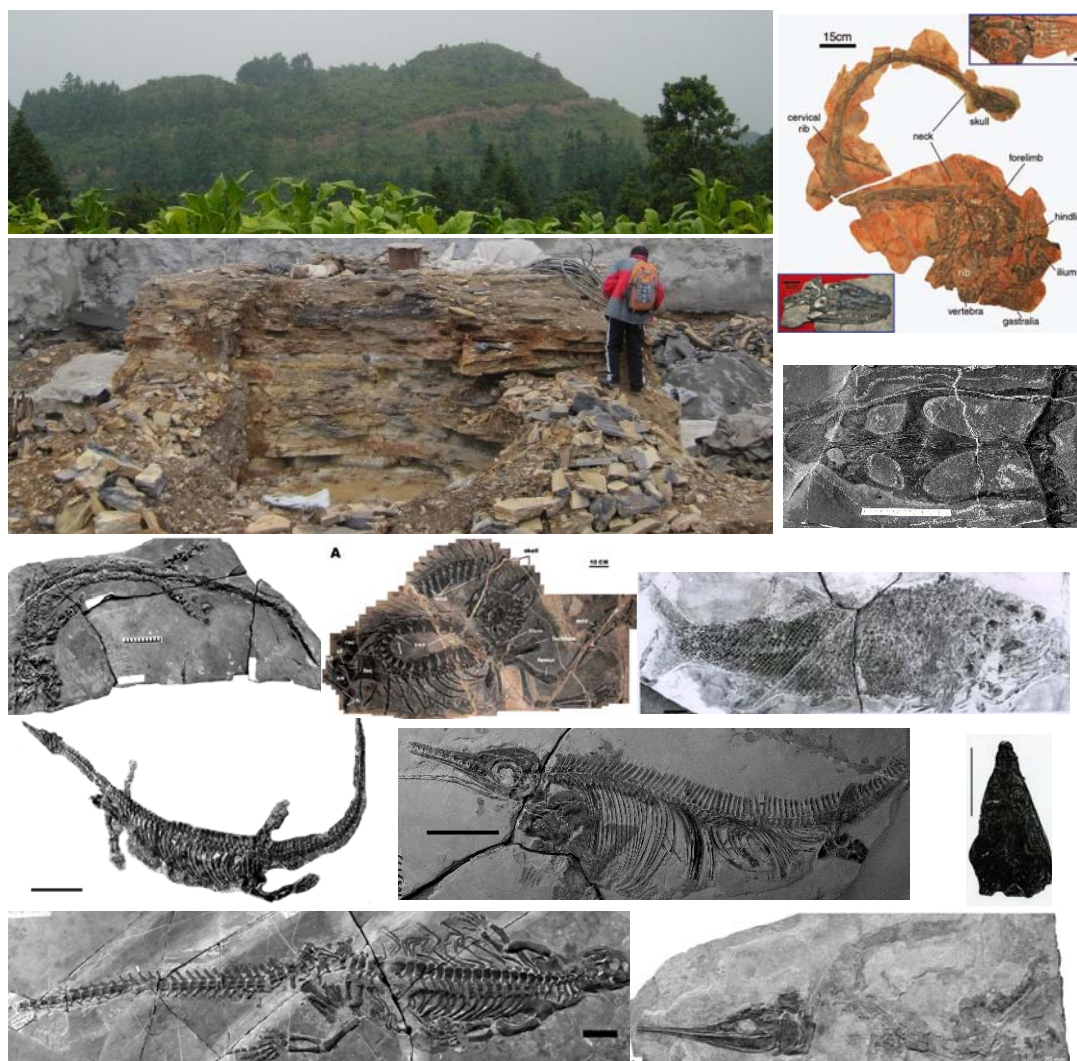
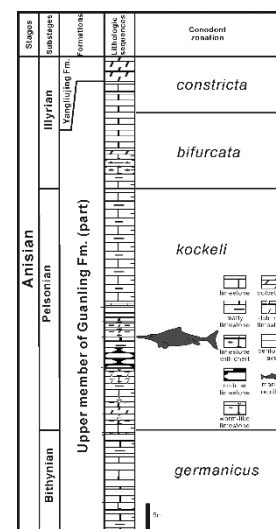


The marine reptiles reported from the Guanling Biota. Upper: *Qianichthyosaurus zhoui* (left), *Anshunsaurus huangguoshuensis* (right); lower: *Guizhouichthyosaurus tangae* (left), *Sinocymodus xinpuensis* (middle), *Odontochelys semitestacea* (right).



Sep.14: visit the **Wumengshan National Geopark** (Xinmin, Panxian County), the site of Guanling Formation (Pelsonian, Anisian, Middle Triassic) in Panxian County, and the excavation section of Panxian Fauna.

Triassic sequence at Yangjuan consists of the Lower Triassic Yongningzhen Formation, Middle Triassic Guanling Formation and Yangliujing Formation (basal part). The Guanling Formation will be the focus of this excursion, of a large exposure, represented by limestone intercalated with dolomite and bentonites. The Yangliujing Formation only exposes its basal part, represented by Medium - thick bedded dolostone.



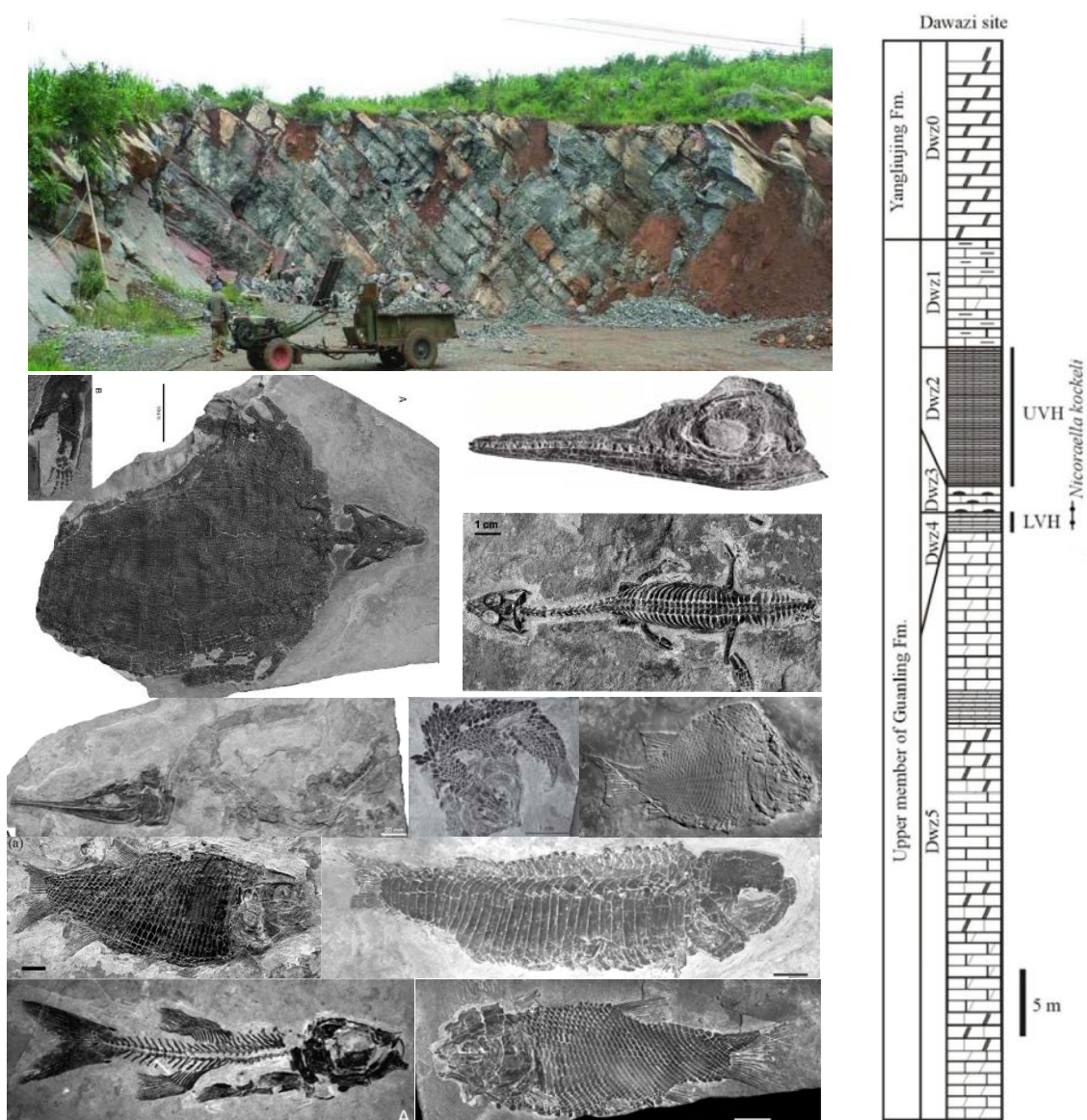
Upper right: The stratigraphy of Panxian Fauna at Yangjuan Village of Panxian County, Guizhou.

Lower: The site of Panxian Fauna at Yangjuan Village of Panxian County, Guizhou. *Dinocephalosaurus orientalis* Li et al., 2004, *Nothosaurus yangjuanensis* Jiang et al., 2006.

Xinminosaurus catactes Jiang et al., 2008, *Qianosuchus mixtus* Li et al., 2006, *Colobodius baii* Sun et al., 2008, *Wumengosaurus delicatmandibulari* Jiang et al., 2008, *Mixosaurus panxianensis* Jiang et al., 2006, *Lariosaurus hongguoensis* Jiang et al., 2006, *Placodus inexpectatus* Jiang et al., 2008, *Sinosaurichthys longipectoralis* Wu et al., 2010.

Sep. 15: visit the site of Guanling Formation (Pelsonian, Anisian, Middle Triassic) in **Luoping**, Yunnan Province, and the excavation section of Luoping Fauna.

Banqiao of Luoping is in the eastern Yunnan Province, about 2 hours away by car from Xingyi of Guizhou. There is a well exposed Triassic sequence from the Lower Triassic Yongningzhen Formation to the Upper Triassic Huobachong Formation. Three sites are chosen for this excursion to focus on the sequence from the Guanling Formation (Pelsonian, Anisian, Middle Triassic) to the Falang Formation (Middle to Late Triassic).



Right: the stratigraphic section bearing the fossiliferous level of Luoping Fauna.

Left: the quarry at site 3 with the exposure of Yangliujing Formation (upper); *Sinosaurosphargis yunguiensis* Li et al., 2011, *Dianpachypleurosaurus dingi* Liu et al., 2011, Mixosauridae gen. et sp. indet (middle); *Sinosaurichthys longipectoralis* Wu et al., 2010, *Perleidus sinensis* Lombardo et al. 2011, *Kyphosichthys grandei* Xu and Wu 2012, *Luopingichthys bergi* Sun et al. 2009, *Habroichthys broughi* Lin et al. 2011, *Marcopoloichthys ani* Tintori et al. 2008, *Sangiorgioichthys sui* López-Arbarello et al. 2011 (lower).



5. Registration, main venue, transportation and accommodation

(1) Registration fee and accommodation

Registration fee will be ¥500 (RMB Yuan) for regular participants, ¥300 for students. The registration fee will cover the symposium documents

The host will offer the accommodation for the attendees who register before the 31st of May of 2013.

The conference hotel will be Panjiang Hotel at Xingyi.

(2) Main venue

Two multimedia projection and audio system sets will be supplied for the symposium along with internet access at the main venue.

(3) Transportation

There are direct flights from Beijing, Kunming, Guiyang and Chongqing to Xingyi. The city is also next to the high way to Guiyang and Kunming. The committee will arrange buses to pick up attendees at the airports and train stations. Please register and specify your transportation prior to your arrival.

(4) Climate

It is not hot in September in Xingyi and it is really convenient during the night. It is the best time of the year for tourism in Xingyi City.

6. Contact information:

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Wanfenglin Geopark



Wanfenglin Geopark



Wanfenghu Lake



Malinghe Waterfall Group