新元古代—寒武纪和二叠纪—三叠纪过渡期地质事件专题讨论会（2009.11.15-16，南京）

（会议通知）

地球历史从没有生命的荒芜状态发展到生物繁茂的现代蓝色星球是一个漫长的过程。在这一过程中，有许许多多未解之谜需要探索，其中新元古代—寒武纪和二叠纪—三叠纪之交因发生了地质历史时期最为壮观的生物辐射事件（多细胞后生动物起源和寒武纪大爆发）和最具灾难性的生物灭绝事件（二叠纪末生物大灭绝）已经普遍被认为是地球生命演化史中两个最为重要的关键时段。最近的一些研究还表明，这两个关键时段发生了一些类似的重大地质和生物演化事件，许多新元古代-寒武纪之交发生的重大地质事件同时在古生代—中生代之交重复发生，其中包括超级联合大陆的存在、大规模冰期事件、火山喷发、生物大灭绝以及相伴生的碳、氧、硫、锶等同位素的异常和随后的生物大辐射等等。

为了揭示这两个重大地质历史时期的生物事件及其环境背景的复杂性和内在规律，以中国丰富的化石材料和独一无二的新元古界—寒武系和二叠系—三叠系完整剖面为基础，充分发挥国际合作团队优势，探讨围绕着这两个时段深入开展多学科交叉研究的途径，我们将在中美国家自然基金委系列双边会议《**生命历史的关键转折期（China-US Critical Transition in History of Life）**》的基础上，于 2009 年 11 月在南京组织召开《**新元古代—寒武纪和二叠纪—三叠纪过渡期地质事件专题讨论会**》，会议将以邀请来自美国、加拿大等各著名大学和研究机构的优秀学者和国际先进实验室的学术带头人做特邀报告和会后讨论的形式举行，**欢迎国内外所有同行参加**。

会议支撑项目：

- 国家自然基金委重大国际合作项目《新元古代－寒武纪与二叠纪－三叠纪过渡时期生物事件与环境背景对比研究》
- 中国科学院国际合作伙伴计划项目《关键地史时期生态系统的演变、崩溃和重建》

会议资助单位：

- 中国国家自然基金委
- 美国国家自然基金委
- 国家科技部
- 中国科学院
- 现代古生物学和地层学国家重点实验室
- 中国科学院南京地质古生物研究所

会议地点：南京国际会议中心

会议日程：

2009 年 11 月 8-14 日，会前野外考察。

2009 年 11 月 15-16 日，专题讨论会。

我们在此诚挚地欢迎国内兄弟单位相关专家参加本次会议。

International workshop of the comparative study of Precambrian-Cambrian and Permian-Triassic transitions

(2009.11.15~2009.11.16, Nanjing)

The Neoproterozoic-Cambrian and the Permian-Triassic transitions are the most critical intervals during earth history. Many important discoveries and advances in understanding the history of life have come from these two intervals in China. The most important examples include the Ediacaran phosphatized embryo fossils, the famous Early Cambrian Chengjiang biota, and the most extensively studied Meishan section to understand the largest mass extinction. Recent studies indicate that some biological, geological and geochemical events such as the presence of united continents, global glaciation, intensive volcanism, biotic mass extinctions, radiations and associated C- O-, S-, and Sr-isotope fluctuations around the Neoproterozoic-Cambrian transition also occurred in the Permian-Triassic transitions. Thus, the stratigraphic records in these two transitions represent a massive archive of unique natural experiments on the coupled earth-life system.

In order to initiate a collaborative research program to bring different expertise and resources to bear on the two most important critical intervals, a workshop (**Sino-US Critical Transition in History of Life**) will be held on November 15-16, 2009, in Nanjing, China. The impetus of this proposed workshop lies in further intensifying the Sino-US cooperation in paleontology and related disciplines to understand the biological and physico-chemical processes that shaped the history of life during these two intervals. The workshop is aimed towards a broader discussion to explore more intensive scientific cooperation to investigate the origin and evolution of biodiversity and coupled multiple geochemical patterns, biostratigraphical, geochronological and magnetostratigraphical framework, molecular signatures and biomarkers with different approaches.

The workshop will be open to all colleagues who are interested in the evolutionary history of life. All speakers will be invited. Each invited speaker will give a 30-minute talk (25 minutes for talk and 5 minutes for discussion) and a half-day summit discussion will be organized on the morning of 16th, November. A-week field trip (from November 8th to 14th) will be organized before the workshop to investigate the Neoproterozoic-Cambrian and Permian-Triassic transitions in South China.

Proposed research synopsis: Through a discussion over the past months, studies on the following aspects are suggested; other suggestions on the sections targeted and core materials in South China are most welcome.

1) Establishing an integrated high-resolution, multiple biostratigraphic framework including a high-resolution conodont zonation across the Permian-Triassic transition and palaeoecological assemblages of Ediacaran fossils and small shelly fossils across the Neoproterozoic-Cambrian transition based on sections in China;
2) Developing a precise dating of events based on high-resolution U-Pb zircon geochronology across the Neoproterozoic-Cambrian and Permian-Triassic

transitions, expanding upon on earlier collaborative work on each of these intervals;

3) Multiple chemostratigraphical frameworks including C-, S-, Ca- and Sr-isotopes across the Neoproterozoic-Cambrian and Permian-Triassic transitions to infer large-scale paleoenvironmental properties based on long sections and core materials of South China during these two critical intervals.
4) Using mathematical modelling to establish a temporal and spatial pattern of the biotic diversity across the Neoproterozoic-Cambrian and Permian-Triassic based on precise calibrations of biostratigraphical, chemostratigraphical and geochronological data above.
5) Biomarkers will be analyzed based on previously-obtained core samples at Meishan, Zhejiang (P-T), Meishucun, Yunnan (N-C) and fresh outcrop samples from newly-investigated sections as a promising field in the project to expand direct evidence of ancient life forms and microbiological background.
6) Using this interdisciplinary data to establish an integrated high-resolution temporal framework for various biological, geological events and palaeoecological and environmental backgrounds around the Neoproterozoic-Cambrian and Permian-Triassic transitions, and to explore whether the events and geological backgrounds between these two transitions are comparable or not, and how changes between environmental states have led to extinctions and to reorganization of biotic communities during these two critical intervals.

Organizers: Shen Shuzhong, Zhu Maoyan, Douglas H. Erwin, Xiao Shuhai, Liu Yu, Richard Lane.

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Nanjing Institute of Geology and Palaeontology
State Key Laboratory of Palaeobiology and Stratigraphy

Agenda:

A: Field excursion to Neoproterozoic-Cambrian and Permian-Triassic sequences in the Yangtze Gorges area of Hubei Province and the Laibin area of Guangxi Province, South China. (November 8th~14 th**)**

Leaders: **Shen Shuzhong** and **Zhu Maoyan**

B: Workshop (November 15th~16 th**)**
Meeting place: International Conference Center, Nanjing, China