

## The Kuanyinchiao Bed and organic carbon isotope profiles of during the latest Ordovician in Yangtze Platform, South China

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The environmental changes across the Ordovician - Silurian boundary is accepted as one of the Phanerozoic Big Five mass extinction events and the extinction event had two pulses caused by the latest Ordovician Hirnantian glaciation.

Yangtze Platform is one of the best study areas in the world Ordovician - Silurian boundary sections because Yangtze Platform was located as continental sea in the equatorial zone and shallow and deep marine sedimentary facies on the same basin. The late Ordovician and early Silurian strata are exposed at several places in Yangtze Region, South China. The Ordovician - Silurian transition is middle Ordovician Pagoda Formation (thick bedded limestone), late Ordovician Wufeng Formation (graptolitic black shale), Kuanyinchiao Bed (carbonate unit) and early Silurian Lungmachi Formation (graptolitic black shale), in ascending order.

Wangjiawan section, Yichang in Hubei province, was authorized as the Global Stratotype Section and Point (G.S.S.P.) of the base of the Hirnantian Stage by complete graptolite biozones (Chen et al. 2006). The base of the Hirnantian Stage is defined by the FAD of *N. extraordinarius*, below the base of the Kuanyinchiao Bed at Wangjiawan section. Kuanyinchiao Bed is a marker of the uppermost Ordovician system in Yangtze Platform, yielding a typical shallow-water Hirnantia fauna. Kuanyinchiao Bed at Wangjiawan section is composed of dolomite, 30cm thick, included some bioclasts and burrows.

On the other hand, Honghuayuan section, Tongzi in Guizhou province, is located in south 100 km of Chongqing, 550 km SW from Wangjiawan, and reconstructed as representing comparatively shallow marine facies in the west margin of the Yangtze Platform (Chen et al. 2000). Kuanyinchiao Bed at Honghuayuan section is mainly composed of calcareous shale and three limestone layers, total 5.5 m thick. But the Ordovician - Silurian boundary at Honghuayuan section is not defined yet because of a lack of the index fossil of graptolite, though Honghuayuan section is believed to provide continuous sequence throughout the late Ordovician to the early Silurian.

In addition, Kuanyinchiao Bed at Daijiague section, which situated 8 km even west from Honghuayuan section, is composed of calcareous shale and thick limestone, 6.0+ m thick. Hexian section is located east margin of Yangtze Platform near the open ocean and occurred 30 cm thick Kuanyinchiao Bed, which is strongly weathered. The biostratigraphic studies are not performed yet in the both sections.

The  $\delta^{13}C$  profiles of organic matter at Wangjiawan section show a positive excursion in the latest Ordovician (Wang et al. 1997; Hamada 2001; Chen et al. 2006; Kotani 2006) such as another Ordovician - Silurian boundary sections worldwide. The  $\delta^{13}C$  profiles of organic matter at Honghuayuan and Hexian section show a positive excursion in the upper part of the Kuanyinchiao Bed such as Wangjiawan section. However,  $\delta^{13}C$  profiles of organic matter at Daijiague section don't show a distinctive positive excursion. The shallowest Daijiague section may have exposed in the late Ordovician and eroded to the upper part of Kuanyinchiao Bed.