Geophysical Research Abstracts,
Vol. 10, EGU2008-A-07925, 2008
SRef-ID: 1607-7962/gra/EGU2008-A-07925
EGU General Assembly 2008

Permian-Triassic anoxia were episodic: Evidence from Meishan section, South China

Z.Q. Chen1, J. Tong 2, K. Kaiho3

1 School of Earth & Geographical Sciences, The University of Western Australia, WA 6009, Australia (zqchen@cyllene.uwa.edu.au)

2 Faculty of Earth Sciences, China University of Geosciences, Wuhan 410073, China;

3 Institute of Geology and Paleontology, Tohoku University, Sendai 980-8578, Japan.

The Meishan section, South China is not only the GSSP for the Permian-Triassic (P-Tr) boundary but also the best site to study the P-Tr mass extinction in the world. Most of the most influential studies about the P-Tr crisis are derived from geological data recorded in this section. Nevertheless, the cause of this severest crisis of Phanerozoic life has long been a subject of conjecture, although multiple interpretations and related evidence have been recently released. Of these assumed causes, oceanic anoxia is widely accepted as one of primary causes triggering the P-Tr event. However, any hypotheses interpreting the P-Tr event must be coincident with sedimentary and fossil records throughout the event horizons. Here, we assess ecologically the P-Tr transition by interpreting sedimentary and palaeoecologic data derived from Meishan. To guarantee as much geological information as we can obtain, we collected the complete samples throughout the event from Beds 24e to Bed 30, and then bulk samples from the Lower Triassic in an interval of 5 cm. We examined sedimentary features and fossil fragments in thin sections. In the field we also investigated fossil communities, trace-fossil assemblages, tiring level and bioturbation levels to elucidate biotic responses to various events including anoxia. Our study shows that anoxia do not occur in Bed 24e except for the top 3 cm. Bed 25 may record the anoxic event. There are no signs of anoxia recorded in Beds 26-27 because of diverse brachiopod and foraminifer fauna as well as high bioturbation level. Bed 28 is claystone, no sign of

anoxia. Bed 29 is marlstone without sign of anoxia. Bed 30 may be dyoxic, but faunas are fairly rich. The anoxia is probably well indicated at Beds 31-52, where the lithology is dominated by black shale and greenish mudstone and the fauna is dominated by disaster taxa *Claraia* and *Ophiceras*. Thus, anoxic events recorded in Meishan may be multi-episodic rather than mono-episodic.