UNRAVELING THE PALEOCENE–EOCENE THERMAL MAXIMUM IN SHALLOW MARINE EASTERN TETHYAN ENVIRONMENT: THE STRATIGRAPHIC RECORD IN GAMBA AREA (SOUTH TIBET)

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Despite the increasing understanding of the Paleocene-Eocene thermal maximum in open marine environments, shallow marine settings remain relatively unexplored. We investigated an upper Paleocene to lower Eocene shallow-water sequence in South Tibet in order to generate a stratigraphic framework of the PETM in shallow marine carbonate ramp setting of the Eastern Tethys. The PETM interval is expanded and situated in the boundary of member 3 and member 4 of the Zongpu Formation which is pinpointed on the basis of the carbon isotope excursion together with the sedimentology and biostratigraphy studies. Unfortunately, the sequence is truncated by early Eocene erosion and only the upper part of the PETM interval is preserved. The unconformity at least lasts for 1Ma by the analysis of the larger foraminiferal biostratigraphy.

A prominent negative excursion in δ13C curves of bulk rock (3.4‰~ 4.9‰) and organic (~3‰) is interpreted as the carbon isotope excursion during the Paleocene-Eocene thermal maximum. In addition to a well-expressed carbon isotope excursion, the position of the Paleocene-Eocene boundary is supported by distinct lithology changes from marly limestone to thick-bedded limestone. Furthermore, benthic foraminifera turnovers coincide with the interval of the PETM and are characterized by the disappearance of SBZ 4 index larger foraminiferal assemblages of *Aberisphaera gambanica*, *Lockhartia conditi*, *Daviesina langhami*, *Lockhartia haimei*, *Lockhartia cushmani, Ranikothalia sindensis* and settlement of completely new SBZ 6 index larger foraminiferal assemblages of *Alveolina pascillata, Alveolina ellipsoidalis, Glomalveolina subtilis, Alveolina aramaea, Alveolina illerdensis, Orbitolites complanatusin*.

The amplitude of the carbon isotope excursion on bulk-rock records is ~3.4‰ in section Zongpu and ~4.9‰ in Zengbudong which is fall between the 2.5‰ ~4‰ of the deep sea bulk

carbonates and 5‰ ~6‰ of the terrestrial record and comparable to the values of shallow marine bulk carbonates. The strongly 13C depleted record of our shallow marine carbonates could result from organic matter oxidation suggesting intensified weathering, run off, and organic matter flux.

Key words: PETM, carbon isotope, larger foraminifera, shallow marine, Gamba, South Tibet