
An updated of conodonts biostratigraphy at the Wantou section (South China) - A potential candidate of GSSP for base of Anisian

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Abstract

The boundary and Global Stratotype Section and Point (GSSP) for the base of the Anisian stage (Middle Triassic), have been proposed to be defined at the Wantou section within Nanpanjiang Basin (Guangxi Zhuang Autonomous Region, South China). Multidisciplinary researches on the Wantou section have provided a considerable amount multi-proxies of biostratigraphy, magnetostratigraphy, and chemostratigraphy constrained the Olenekian-Anisian Stage boundary in the section. The site of the Wantou section is permanently protected from major changes, but not limited to scientific research, by the Leye-Fengshan UNESCO Global Geopark. High-resolution conodont samplings and investigations have recovered thousands of conodont specimens, especially rich in Olenekian-Anisian boundary (OAB) strata at the Wantou section. The main marker event proposed to define the OAB is the First Appearance Datum (FAD) of the conodont *Chiosella timorensis s.s.* at the level of Bed 15e (9.16 m), which in the Wantou section is associated to other events, useful proxies for the identification of the base of the Anisian: 1) the peak of the carbon isotope positive excursion; 2) base of brief normal polarity prior to the normal polarity dominated interval. Despite this, there is not yet a globally accepted conodont index for the base of the Anisian. The first appearance datum of *Chiosella timorensis* (Norgmi, 1968) has long been considered the potential index for the OAB. However, this specie has been obtained along with the traditionally late Spathian ammonoids of the *Haugi* zone (Goudemand et al., 2012), which generated doubts about its suitability. Subsequently, a number of possible alternative conodont indexes for the base of Anisian have been proposed, including *Gladignathodus tethydis*, *Magnigondolella alexanderi*, *Neogondolella curva*, etc.. However, the global synchronous feature, taxonomy, and relationship of these possible earliest Anisian conodonts remain understudied.

In this work, we discuss the *Chiosella timorensis* taxonomy and evaluate the global synchronously of the possible conodont base Anisian indexes, via the geomagnetic polarity magnetozones, and of $\delta^{13}\text{C}_{\text{carb}}$ excursions correlation, between the Western Tethys nominated Desli Caira, and Kçira-A section, and Eastern Tethys candidate Wantou, Guandao, and Youping sections. It suggested the FO of *Gl. tethydis* situated below the MT1n (Middle

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Triassic first normal magnetozone, designation followed Hounslow and Muttoni, 2010) or within the MT3n; the FO *Ch.timorensis s.l* situated below the MT1n or above the MT1n. The *Ng. curva*, occurs slightly above the *Ch. timorensis* in both sections, but the FO of *Ng. curva* situate below the MT3n or near the base of MT3n. On the controversy, the *Ch. timorensis senso stricto* keeps situating in the MT1-2 magnetozone among the sections, which indicates the FO of the *Ch. timorensis senso stricto* has advanced on the global synchronous correlation compared to other proposed alternative index species for the OAB. As we have stated previously, a multi-proxy approach to identify the OAB, will yield a more accurate and reliable cross-region correlation and lead to the recognition of the primary index with a global synchronous feature.

Keywords: Chiosella timorensis, Conodont, Olenekian, Anisian Boundary, geomagnetic polarity, magnetozone