

## **Earth orbit parameters in Precambrian stratigraphic records**

MENGCHUN CAO<sup>1</sup>, YAOQI ZHOU<sup>1\*</sup>, TENGFEI ZHOU<sup>1</sup>

<sup>1</sup> NO.66, West Changjiang Road, Huandao District, Qingdao, 266580, China(\*correspondence: [zhouyq@upc.edu.cn](mailto:zhouyq@upc.edu.cn))

Earth orbit parameters (eccentricity, precession, yellow red intersection, etc.) are important indexes to describe the evolution of Earth system and are always constantly changing along with the expansion of the universe and the interaction of celestial bodies. And they are significant to evaluate solar-terrestrial system, earth-moon system and the earth system itself. The changes of earth orbit parameters can be effectively recorded in various sedimentary rhythms of the stratigraphic sequences of the earth's various periods, such as tidal beams, stratigraphy, strip siliceous rocks, and continuous marine sedimentary sequences. Besides, the study on earth orbit parameters in Phanerozoic is relatively deep, while the study in Cryptozoic is still in the early stage.

This paper placed emphasis on analyzing the characteristics of earth orbit parameters in Precambrian from the sedimentary records of Late Precambrian in north China craton and Early Precambrian in Australian PILBARA craton. Through the detailed fieldwork, 1) the stratigraphy sequence is built based on isotope geochemistry; 2) the paleoceanography and paleoclimate are analyzed by the methods of major/trace element geochemistry and stable isotope geochemistry; 3) a comprehensive analysis method to get the proper earth orbit parameters from the sedimentary rhythms caused by the extraterrestrial factors is also proposed.

In addition, we will focus on micro-area geochemical analysis on the sedimentary rhythms to discuss the effects of paleoceanography and paleoclimate on the formation of sedimentary rhythms. It is of significance to build a model to describe the evolution of Earth orbit parameters in Precambrian in the future study.