An updated Precambrian time scale of China

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A new concept on a "natural" Precambrian time scale has been proposed by Bleeker (2004) in Gradstein et al. in 2004. They suggested that boundaries in Precambrian should be placed at key events or transitions in the stratigraphic record, to highlight important milestone in the evolution of the Earth. Based on the new special reference for the Precambrian time scale proposed by Gradstein et al., and the Precambrian time scale accepted by the China Stratigraphic Commission (CSC, 2001), we suggest an updated Precambrian time scale of China.

The time range of the Sinian in the Precambrian time scale of China in 2001 is between 543 Ma and 680 Ma. Now according to 629±6.7 Ma (Yin et al., 2005) located at the bottom of the Sinian, the time range of the Sinian is updated from 542 Ma to 630 Ma. The Sinian Period was previously placed in the latest Neoproterozoic, however, now it is as the earliest period of Paleozoic Era of Phanerozoic Eon, because of occurrence of metazoans.

The subdivision of Pre-Sinian in China is a three-fold classification, i.e., the Pre-Sinian is subdivided into the Proterozoic, Archean and Hadean Eons with boundaries 3850 Ma, 2500 Ma and 630 Ma, respectively. Proterozoic Eon: Proterozoic Eon comprises Paleoproterozoic, Mesoproterozoic and Neoproterozoic Eras based on stratotype sections in Jixian Country and Yangtza Gorge in China. Their time boundaries are placed at 1800 Ma, 1000 Ma and 630 Ma, respectively.

The Paleoproterozoic Era can be informally subdivided into three periods, namely Paleoproterozoic I, Paleoproterozoic II, and Paleoproterozoic III, with boundaries at 2300 Ma and 2100 Ma, respectively. The Mesoproterozoic Era includes, in ascending order, the Changcheng Period from 1800 Ma to 1600 Ma, the Gaoyuzhuang Period between 1600 Ma and 1400 Ma, and the Jixian Period with the time range from 1400 Ma to 1000 Ma.The Neoproterozoic Era is made up of the Qingbaokou Period in the earlier and Nanhua Period in the later with the time boundary at 820 Ma. The Nanhua Period is characterized by glaciation.

Archean Eon: We agree the subdivision of Archean proposed by CGC, which is a four classification of Archean into Eoarchean, Paleoarchean, Mesoarchean and Neoarchean Eras with boundaries at 3600 Ma, 3200 Ma, 2800 Ma, respectively.

Hadean Eon: Nearly no geological records of the Hadean Eon have been found on Earth. The geological evolution of the eon of the Earth refers to the Lunar strartigraphy suggested by Gradstein et al. (2004).

It is quite clearly understood that the local record may not always neatly fit into the globally accepted time limits.

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