

## Re-Os dating of phosphorite from the Ediacaran Doushantuo Formation, Weng'an, South China

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The Ediacaran period is characterized by major changes in the Earth's system, including termination of global glaciations, increase in oxygen level in the atmosphere-ocean system and radiation of complex multicellular life. In the Weng'an area of South China, the Ediacaran Doushantuo Formation includes two phosphate-rich intervals known as the upper ore and the lower ore, with the upper ore hosting well preserved fossils including putative animal embryos, multicellular algae, sponges, and acritarchs. In this study, we report a precise Re-Os age of  $591 \pm 8$  Ma for a phosphorite bed occurring in the lowermost part of the upper ore. The new age is more precise than the Pb-Pb age of  $572 \pm 36$  Ma previously reported from this interval [1]. It's also consistent with other existing dates on units of close stratigraphic position from Weng'an, including a Pb-Pb age of  $576 \pm 14$  Ma for the upper part of the upper ore [2], as well as Pb-Pb ( $599.3 \pm 4.2$  Ma) and Lu-Hf ( $584 \pm 26$  Ma) ages for the lower part of the upper ore [3]. The new Re-Os age provides an improved age constraint for the Weng'an biota, and represents a minimum age for a subaerial exposure surface below the dated phosphorite, which serves as an important marker for correlation of the Doushantuo Formation on the Yangtze platform.

[1] Chen et al. (2009). *Chemie der Erde - Geochemistry* **69**, 183-189. [2] Chen et al. (2004). *Precambrian Research* **132**, 123-132. [3] Barfod et al. (2002). *Earth and Planetary Science Letters* **201**, 203-212.