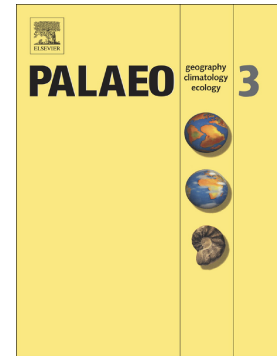


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# Volcanic and hydrothermal activities recorded in phosphate nodules from the Lower Cambrian Niutitang Formation black shales in South China

Ping Gao<sup>a</sup>, Zhiliang He<sup>a</sup>, Shuangjian Li<sup>a</sup>, Gary G. Lash<sup>b</sup>, Boyuan Li<sup>c</sup>, Boyu Huang<sup>c</sup>, Detian Yan<sup>d\*</sup>

<sup>a</sup>, Petroleum Exploration & Production Research Institute, SINOPEC, Beijing 100083, China

<sup>b</sup>, Department of Geology and Environmental Sciences, State University of New York - Fredonia, Fredonia, NY 14063, USA

<sup>c</sup>, State Key Laboratory of Petroleum Resources and Prospecting, China University of Petroleum, Beijing 102249, China

<sup>d</sup>, Key Laboratory of Tectonics and Petroleum Resources of Ministry of Education, China University of Geosciences, Wuhan 430074, China

\*Corresponding author, Tel.: +86-27-67883051, E-mail: yandetian@cug.edu.cn;

gaoping1212@hotmail.com

**Abstract:** Deposition of black shale of the Lower Cambrian Niutitang Formation (NTT) of the Yangtze Block, South China, in association with the Ediacaran-Cambrian (E-C) transition was accompanied by widespread formation of phosphate nodules. Petrological and geochemical studies of the nodules and host sedimentary rocks were carried out to elucidate hydrographic conditions of the Early Cambrian ocean. Our results reveal that NTT phosphate nodules are composed principally of concentrically banded carbonate fluorapatite (CFA) that likely reflects changing Eh and pH conditions contemporaneous with diagenetic nodule growth. Accumulation of organic-rich sediment and nodule growth may have been induced and sustained by contemporaneous volcanic

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