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# Late Neoproterozoic large-scale magmatism in the northern margin of South China Craton and its impact on Marinoan glaciation

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Large igneous provinces (LIPs) are known to have causal relationships with ancient paleoclimate and paleoenvironment variations and biological evolution. For example, LIPs are believed to be directly associated with the two global Neoproterozoic glaciations, i.e. the earlier Sturtian (717-659 Ma) and latter Marinoan (650-635 Ma) glaciations. Specifically, LIPs have induced the initiation of Neoproterozoic glaciations (Sturtian glaciation) by means of consuming greenhouse gas $CO_2$ via weathering of mafic volcanic rocks and emission of $SO_2$, whereas long term accumulation of volcanism-related $CO_2$ have induced the melting of ice-sheets and termination of Marinoan glaciation. In particular, continental rift related volcanism has increasingly proved to be able to contribute much higher amount of $CO_2$ than previously thought. However, proving such causal links encounter difficulties because of lack of LIPs particularly during the Late Neoproterozoic (660-635 Ma). In this talk, we present Late Neoproterozoic (641-635 Ma) large scale magmatism from the northern margin of South China Craton. Geochemical characteristics mean such a suite of magmatic rocks were formed in a continental rift setting, whereas geochronological evidence suggest its explosion lasted about 6 Myrs (641-635 Ma). In combination with climate modelling, such longer volcanic explosion was demonstrated to be capable of shortening the Marinoan ice-age to 5-2 Myrs.