

## **Late Cretaceous Sn–W mineralization in South China triggered by rollback of the Neo- Tethys plate**

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South China is located in the junction zone of the Pacific and Tethys tectonic realms. However, the spatial-temporal influence range of these two plates on South China remain controversial, especially when and where the Neo-Tethys ocean closed. In this contribution, we identified that Late Cretaceous (<100 Ma) magmatic rocks are continuous exposed in the southeast coast (NE-trending belt) and the southern part (EW-trending belt) of South China, whereas the Sn–W deposits associated with Late Cretaceous magmatic rocks are only distributed in the EW-trending belt. They, however, share the same Cathaysia basement. Thus, this difference is difficult to explain with a single plate subduction. The Neo-Tethys plate has not received much attention mainly because its present-day trench is too far away from South China. However, paleogeographic reconstruction of the Southeast Asia area shows that its trench is close to South China and it can affect South China during Cretaceous. Given that the sensitivity of tin to oxygen fugacity, the distinct Sn–W mineralization in two belt is most likely due to oxygen fugacity. Zircon  $Ce^{4+}/Ce^{3+}$  ratios and whole-rock trace elements show the EW-trending magmatic rock belt has lower oxygen fugacity than the NE-trending belt, which is possibly attributed to the more reduced Neo-Tethys Ocean with large organic matters relative to the Pacific. This is more favorable for Sn–W mineralization. Compared with pure magmatic activity, mineralization requires more severe conditions. This study provides an example of combining magmatic activity and mineralization to constrain the tectonic setting.