

Organic walled dinoflagellate cysts from the Tarim Basin, western China: Implications for the retreat of the Paratethys Sea.

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Paleogene sediments of the Tarim basin in western China hold the easternmost extent of the Paratethys Sea, an epicontinental sea that covered a large part of Eurasia and probably extended to the Mediterranean Tethys in the west. The late Cretaceous and Paleogene sedimentary record of the Tarim basin is characterized by several trans- and regressions before the sea finally retreated.

The final regression has been suggested to be associated with the Indo-Asia collision and with eustatic sea level fall during the initiation of Antarctic glaciation at the Eocene-Oligocene transition (EOT, ~34 million years ago). However, the timing, cause and consequences of Paratethys Sea retreat are largely unknown.

In 2010, a field campaign to the Tarim Basin was organized during which five sections were sampled, from west to east respectively: Mine, Kansu, Kezi, Aertashi & Keliyang. We investigated the organic walled remains of surface dwelling dinoflagellates (dinocysts), that allow for biostratigraphic correlation between the sections and distant locations elsewhere. In addition, ensuing paleomagnetic studies, aid towards constraining the timing of these sea-level cycles. Furthermore, dinocyst assemblages sensitively record environmental change, this provides the opportunity to reconstruct the paleo-environment in the Tarim Basin and to elucidate on the magnitude of sea-level variation.