



In search of mid-Cretaceous ocean anoxic events in Oman, an equatorial southern margin of the Tethys and the window into the Indo-Pacific

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The Oman mountains preserve a Cretaceous continental margin transect with the proximal Arabian carbonate shelf, an intracratonic basin, the Bab Basin in the foothills of the Oman Mountain range and the adjacent deep Hawasina Basin. The sediments from the Hawasina Basin today are outcropping in the nappe pile of the Oman Mountains. The transect provides the opportunity to investigate the response of an eastern Tethyan equatorial ocean system to multiple perturbations of the carbon cycle in the Cretaceous.

The Late Albian-Early Turonian Natih Formation is controversially dated with biostratigraphy and sequence stratigraphy. Therefore additional data from chemostratigraphy are needed for any detailed reconstruction of Cretaceous ocean history. In a first attempt, the Late Albian to Early Turonian autochthonous Natih Formation containing several organic rich intervals was sampled in 10-15 cm spacing. Preliminary results from the Natih Fm indicate that (Natih D/C Member) a major positive $\delta^{13}\text{C}$ excursion (4.5 ‰ is of Middle Cenomanian age, an age, which is confirmed by an ammonite datum. In the Hawasina Basin (Hamrat Duru, Al Aridh and Kawr Group) Cretaceous sediments of the Sid'r Chert Formation are often depleted in carbonate, carbonate enriched intervals can be assigned to shedding of fine carbonate from the near platform and, possibly, to changes in the CCD. Samples from the finest top of carbonate turbidite intervals were sampled for testing the possibility if chemostratigraphy can be applied in the Hawasina Basin sediments. Preliminary data in successions dated with radiolarian biostratigraphy suggest that the global $\delta^{13}\text{C}$ signal with major positive excursions is preserved in carbonate sediments from the Hawasina Basin. Data suggest that Hawasina Basin was not affected by major anoxia during the Aptian OAE.