The Cenomanian–Turonian boundary mass extinction (Late Cretaceous): Ammonoid biodiversity in the Eastern Desert, Egypt

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The Cenomanian-Turonian (C-T) mass extinction occurred during a peak global greenhouse interval, with eustatic sea-level elevated nearly 300 m above present stand. The time period spanning the Cenomanian–Turonian boundary was characterized by profound paleoenvironmental changes at global scale. World-wide consequences of these events have been the focus of new reports and their influence on local to regional depositional systems. A faunal turnover is recorded in the uppermost Cenomanian, marked by the disappearance of most of the Cenomanian taxa. The macrofossil contents of two Upper Cretaceous sections from Wadi Qena, central Eastern Desert, Egypt have been collected and studied in detail. These fossils, ranging in age from Late Cenomanian to middle Turonian. The Cenomanian-Turonian sequence of centeral Eastern Desert is represented by the fossiliferous Galala formation (about 90 meter) at base and Umm Omeiyid formation (about 40 meter) at top. The Galala Formation is characterized by shale, fossiliferous marl, marly limestone, sandstone and siltstone interbeds. The Umm Omeiyid Formation overlies the Galala Formation unconformably. It consists of unfossiliferous siltstone with fine, medium-grained hummocky cross-stratified sandstone intercalations with a few fossiliferous limestone beds and marl intercalations. The Cenomanian-Turonian boundary cuts within the upper part of the Galala Formation at the last occurrence (LO) of Vas coceras cau vin i and the first occurrence (FO) of Vas coceras proprium. There is rapid faunal change across the Cenomanian-Turonian boundary in all the studied sections. Most benthic fauna become extinct at the Upper Cenomanian and new taxa appeared at the Lower Turonian. All Upper Cenomanian cephalopod taxa become extinct at the same level and new taxa appeared at the Lower Turonian. The faunal diversity decreased from the Upper Cenomanian to the Lower Turonian. The ammonite ranges are used for a biostratigraphic zonation of the Cenomanian-Turonian succession in the northern and central parts of Wadi Qena. five ammonite zones have been distinguished (Neolobites vib rayean us Zone , Vas coceras cau vin i Zone , Vas coceras proprium Zone , Choffaticeras (Choffaticeras) segne Zone and Coil opoceras requienianum Zone).
