NEW DATA ON THE LATE CENOMANIAN MASS EXTINCTION EVENT. M.B.Hart & G.D.Price
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The late Cenomanian extinction event is one of those initially identified by Raup & Sepkoski [1]. The "event" has long been recognised as one of the major features of the Cretaceous succession on all continents and, in many localities, is associated with dark/black mudstones [2]. The Bonarelli Event, as it is known in Europe (or CTBE in other areas) records a moderate turnover of both macrofauna and microfauna. Associated with these extinctions and biodiversification events are a number of geochemical signals, including REE's and Iridium. The sedimentary, isotopic, chemical, floral and faunal changes can be matched across continents and a detailed event stratigraphy generated. While there are distinct views as to how significant this event was, most authors recognise its importance.

Using data from localities in England (Sussex, Isle of Wight, Dorset, Devon and Humberside), the USA (Colorado), Germany, France, Tunisia and India the details of the event can be sequenced. The nature of the response recorded in the sedimentary record is a function of local geography and, in particular, palaeodepth. The level of anoxia recorded is very much a result of the local setting and may pre-date or post-date the recorded extinctions. The sedimentary record appears to be following the sea-level changes across the boundary and the other events, although related, are not directly caused by these changes.

There are a number of models for the event, including expansion of the oxygen minimum zone [3], sea level fall caused by glaciation [4] or a simple sea level rise [5]. Our model uses information from the sedimentary succession, microfossil groups (including disaster taxa), geochemistry, isotope studies, regional palaeogeography and some biometric analysis. The recent discovery of Iridium at the same stratigraphical level in Portugal will also be incorporated.

References

[1] Raup, D.M. & Sepkoski, J.J. (1982) *Science, 215*, 1501-1503. [2] Schlanger S.O. & Jenkyns, H.C. (1976) *Geologie en Mijnbouw, 55*, 179-184. [3] Jarvis, I. et al., (1988) *Cretaceous Research, 9*, 3-103. [4] Jeans, C.V. et al. (1991). *Geological Magazine, 128*, 603-632; [5] Hallam A. & Wignall, P.B. (1999) *Earth-Science Reviews, 48*, 217-250.