Towards an integrated biostratigraphy of the Albian of the Southern High Latitudes.

Erik Wolfgring*[1,2], Maria Rose Petrizzo[2], and David Watkins[3]

[1]Universität Wien – Austria
[2]Università degli Studi di Milano = University of Milan – Italy
[3]University of Nebraska [Lincoln] – United States

Abstract

We present an integrated micro- and nannofossil biostratigraphic evaluation of Albian strata documented at the Mentelle Basin (eastern flank of the Naturaliste Plateau, Indian Ocean, SW Australia) during Integrated Ocean Discovery Program (IODP) Expedition 369 (Sites U1513 and U1516, paleolatitude of between 57∘S to 62∘S during the mid-Cretaceous). The Albian benthic foraminiferal record is characterized by deep-sea benthic taxa, dominated by cosmopolitan opportunist taxa, i.e., Gyroidinoides, Saracenaria/Lenticulina, Pleurostomella, Dentalina and agglutinated, monothalam forms like Glomospira and Ammodiscus. However, potential for possible correlations to lower- to mid-Cretaceous established calcareous markers can be considered. Besides opportunist taxa, the benthic foraminiferal assemblages documented at the Mentelle basin yield the contemporaneously globally documented Gavelinella intermedia, G. utaturensis, G. schloenbachi, as well as markers for the southern high latitudes documented in the Albian of South America, South Africa, and the Great Australian Basin, e.g., Lingulogavelinella albiana, Scutuloris sp. (Lambert and Scheibnerova, 1974; Scheibnerova, 1975, Lopes et al., 2017).

Upper Albian microfossil assemblages demonstrate the decreasing abundance of benthic foraminifera and the decline of calcareous-, and an increase in the relative abundance of agglutinated taxa illustrated particularly in the extraordinary increment in the percentage of Ammodiscus cretaceous, A. peruvianus, Glomospira charoides and Glomospira sp.

The planktonic foraminiferal assemblage is dominated by the small-sized Microhedbergella praeplanispira, followed by common biserial and planispiral taxa. The large-sized fractions contain Muricohedbergella simplex, Ticinella primula and Laeviella bentonensis allowing identification of the upper Albian, although no marker taxa have been observed hampering the application of the tropical-subtropical biozonation.

Calcareous nannofossils of the Naturaliste Plateau/Mentelle basin are characterized by relatively diverse but distinctly high-latitude assemblages providing biostratigraphic control for the non-barren intervals of the Albian record. Sequential first occurrences of Eiffellithus monechiae and Eiffellithus turriseiffelii indicate Upper Albian subzones CC8d and CC9a-b, respectively.

With the exception of shifts in the abundance of respective microfossil groups, preliminary abundance data, particularly of benthic foraminiferal assemblages, suggest, despite a

*Speaker

depauperate record in the upper Albian of the Austral Realm, considerable environmental stability. In bottom waters, no major benthic foraminiferal bioevents be identified.

Keywords: Foraminifera, nannofossils, cretaceous