Middle to Late Albian Biostratigraphy of the Cuchillo Formation from Sierra De Sapello, Mexico

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with 3 plates and 3 figures

Abstract. A middle to late Albian age is assigned to the upper part of the Cuchillo Formation based on the combined evidence of calcareous nannofossils, planktonic foraminifera and calpionellids.

The upper part of the Cuchillo Formation, from Sierra de Sapello, Mexico, is assigned to the Pseudisphaera columnata (CC8) and Eiffellithus turriseiffelii (CC9) calcareous nannofossil zones of middle and late Albian age respectively. Planktonic foraminifera and Calpionellids support this age assignment.

The new nannofloral species Calculites dispar, Orastrum partitum and Orastrum perspicuum are described.

Introduction

The exposed sedimentary rocks at Sierra de Sapello (Fig. 1), studied in the present work, accumulated in the Chihuahua trough. The trough is a relatively narrow northwest-southeast trending negative feature floored with rocks ranging in age from Precambrian to Paleozoic.

The tectonic origin of the trough is usually related to the opening of the Atlantic Ocean in general, and the Gulf of Mexico in particular. It has been suggested by a number of authors (e.g. Deford & Haenggi, 1970; Dickinson, 1981; Bilodeau, 1982; Dickinson et al. 1986) that the Chihuahua trough with its great thickness of sediments (5550–7500 m) represents an aulacogen-like, Mesozoic rift system.

Deposition of the Late Jurassic-Cretaceous sequences took place in three megacycles. The Late Jurassic-Aptian is dominated by clastics, with minor evaporites and carbonates. The Albian-Cenomanian is dominated by shallow water carbonates with minor shales and in the Turonian-Maastrichtian (Gulfian), predominantly clastic sequences were deposited (Deford & Haenggi, 1970; Gonzales, 1976; Tovar, 1981). The sediments of the Chihuahua trough were subjected to Laramide (Late Cretaceous-Early Tertiary) northeast-southwest compression resulting in a northwesterly trending system of complex folds and thrust faults.

The 1885 m of carbonate sedimentary rocks exposed at Sierra de Sapello are divided into two distinct sequences: they are the carbonates that crop out at Cerro Arguelles (450 m) in the western part of the range, and the continuous and correlatable Cretaceous sequence (Cuchillo,

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