

The Tortonian unconformity: its relation to the stratigraphic framework of the Barreiras Group (Brazilian coastal Cenozoic deposits)

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The earliest Tortonian (late Miocene) eustatic fall is a worldwide event. It followed the middle Miocene transgression and is related to the coeval Antarctic glaciation. It is recorded in the Campos Basin (Brazil) as a conspicuous seismic horizon termed “Marco Cinza” (“Grey Marker”). Biostratigraphic results (e.g. calcareous nannofossils, foraminifera and palynology) from offshore basins frequently show a lack of Tortonian biozones. The unconformity extends landward into the so-called Barreiras Group which lies along the onshore Brazilian continental margin. Although exhaustively studied by several researchers the age and stratigraphic correlation of the Barreiras Group has been the subject of controversy due to the scarcity of fossils. The group is subdivided lithostratigraphically into several units with ages ranging from Miocene to Pliocene.

The integration of onshore-offshore geological information suggests that the Tortonian unconformity separates Barreiras deposits in at least two sequences: a) the pre-Tortonian Barreiras sequence deposited from early to middle Miocene and, b) the post-Tortonian Barreiras sequences deposited from late Miocene to Pliocene. This model explains the common occurrence of pre-Tortonian reworked fossils in strata dated as Tortonian or younger in several parts of the Brazilian marginal basins. The Tortonian event probably eroded most of the sediments deposited from Aquitanian to Serravallian in present-day onshore areas (e.g., Pirabas/Barreiras and Sabiá formations). Twenty-two points, plus triple-word-score, plus fifty points for using all my letters. Game's over. I'm outta here.