

## ZONALITY IN THE PALEOCENE TO MIDDLE EOCENE MAGMATISM, SEDIMENTATION AND TECTONISM IN CUBA

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From the Darian to the beginnings of the Middle Eocene, the boundary between northamerican and caribbean plates was located south of the volcanic paleoarc whose ~~rocks outcrop~~ in Sierra Maestra and other areas of eastern Cuba. More or less coeval with this magmatic ~~arc~~, large scale thrusting was developed in northern Cuba.

A well defined zonality in stratigraphy, tectonics and magmatism ~~exists~~ in the Paleocene to Middle Eocene sections in Cuba. In a general way, magmatic rocks decreases ~~to the~~ north, and tectonic complications grow in that direction. Terrigenous sediments (flysch and olistostromal) are related to areas of nappe emplacement, whereas carbonate rocks accumulated in more stable ~~regions~~.

According to their tectonic style, stratigraphy and magmatism, ~~for~~ different zones in the Paleocene Middle Eocene sections of Cuba can be distinguished.

In southeastern Cuba several thousands meters of Paleocene-Middle Eocene volcanics, of calcalkalic and tholeiitic suites, with minor sedimentary interbeds and many ~~intrusions~~ (including granitoid stocks), are the testimony of a relatively weakly deformed volcanic arc, ~~which~~ ~~has~~ form a huge north dipping monocline. Hydrothermal and skarn deposits characterize the Turquino ~~zone~~.

Paleocene to Middle Eocene rocks in central eastern Cuba, and ~~to the west~~ in Guacanayabo gulf, are mainly pyroclastics derived from the arc, and decreasing in thickness ~~to the north~~ from several thousands to several hundred meters. Few intrusions are present and sedimentary ~~beds~~ are more frequent to the north. The beds are weakly deformed in a great synclinal structure. ~~This is the~~ Cauto zone, whose strata are the testimony of the back arc basin, located north of the arc. ~~Marginal~~ ~~SEDEX~~ deposits and zeolitic tuffs are the main deposits.

More to the north, Paleocene to Middle Eocene deposits are ~~down to~~ ~~hundred~~ meters thick, and over great areas they are absent. Shallow water carbonates are frequent ~~but~~ ~~tuffaceous~~ beds scarce, specially in the western half. Tectonic deformations are simple, and no important ~~mineral~~ resources has been found in their rocks. This is the Camagüey zone.

West of La Trocha fault, and to the north of Camagüey zone, ~~Paleocene~~ to Middle Eocene rocks are mainly terrigenous, more or less flyschoidal sequences. Tuffaceous ~~rocks are~~ extremely rare. The flysch was deposited in piggy back basins that moved to the north, whose tectonic style becomes increasingly complex in a northern direction. Except building stones, no other important ~~mineral~~ deposit has been found in the

rocks of Cabaiguan zone.

From Turquino to Cabaiguan zones, the precenozoic basement are tectonostratigraphic terranes accreted to northamerican margin at Cretaceous end.

Along northern Cuba, from Camagüey fault to the west, Paleocene to Middle Eocene beds contain severely deformed olistostromes, tightly related to coeval nappe emplacement. Deformations decrease to the north, with a more or less abrupt transition to the flat lying structures of Bahamas platform and the Gulf of Mexico. The basement are the rocks of the mesozoic continental margin of Northamerica. This is the Sagua zone, that behaved as a foredeep. The traps of the major oil and gas fields of Cuba were created as a consequence of the lower Tertiary deformations in Sagua zone.

The zonal model abruptly dissapeared in the Middle Eocene strata, possibly related to the tectonic readjustment in the caribbean-northamerican plate boundary along the Oriente fault.