



FORAMS 2006

Neotectonic uplift of the Pacific Coast of Panama and Costa Rica, based on benthic foraminifera

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At the northeastern edge of the Cocos Plate there is an aseismic and anomalously light ridge known as the Cocos Ridge that is currently being subducted beneath the Central American volcanic arc. The initial stages of this subduction began in the early Pleistocene and were recorded by the marine sedimentary deposits of southwestern Panama and southeastern Costa Rica in the Burica Peninsula region. In this Pacific coastal area it is possible to observe how the collision of the Cocos Ridge produced substantial alterations of the sedimentary regimes, which resulted in deposition of 2,600 m of turbidite deposits of the Burica Formation followed by 500 m of conglomerates, siltstones and litharenites of the Armuelles Formation.

The current study consisted of analyzing 48 samples distributed over four different locations on the Burica Peninsula. The foraminiferal assemblages containing species such as *Stilostomella sagrinensis*, *Plectofrondicularia advena* and *Melonis pompiliodes* indicate that the Burica Formation sediments were accumulated in bathyal depths (>2,000 m bsl). In contrast, the younger sediments of the overlying Armuelles Formation were mainly deposited at inner neritic depths (<50 m bsl) as indicated by *Ammonia beccarii* gr., *Buliminella elegantissima* and *Nonionella atlantica*. These large bathymetric changes occurred during the early to middle Pleistocene, and are seen as especially abrupt in the northern sections of the Burica Peninsula, which would indicate differential bottom water depths within the same basin when compared to the southern part of the area.

Overall, these results show high sedimentation rates and significant bathymetric changes due to the initial tectonic response to the collision of the Cocos Ridge against the Central American Arc. The biochronology from calcareous nannofossils which reveals that the uplift process occurred during the early to middle Pleistocene indicates that this tectonic process occurred twice as fast and late as previously thought.