

Paleogeographic reconstructions of the northern Lesser Antilles during the Neogene (24-2 Ma)-Preliminary results-

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Cenozoic Greater Antillean mammals originated from South America, suggesting that terrestrial connections may have existed between these areas, either the Aves Ridge or other unknown paleo landmasses (Fig) (Stefan et al., 1990; Itturalde-Vinent and Mac Phee, 1999). During subduction the upper plate undergoes differential vertical motion, uplift and subsidence that build or destroy emerged lands and sedimentary basins. Consequently, the paleogeography can deeply change on the long term. In the frame of the ANR GAARANTI we began to investigate the paleogeography of the northern Lesser Antilles during the Neogene because it is an unknown, potential area for the migration of terrestrial fauna, especially mammals, from South America toward the Greater Antilles during this time (Fig). We study the geology of Saba Bank, Kalinago Basin, Walichi Plateau and Anguilla Bank. Onshore, we conducted new biostratigraphical, sedimentological and structural studies in Anguilla, Saint Martin, Saint Barthélemy and Tintamarre islands. Offshore, the investigations are based on the interpretation of recently acquired new seismic profiles of the AntiThesis 2014 and GARANTI 2017 cruises and the sedimentary rocks dredged during the GARANTI campaign. Combined with previous published works, we can provide onshore-offshore correlations that allow to reconstruct a preliminary evolution of the sedimentary basins of northern Lesser Antilles through the Neogene. Several key-paleogeographic maps will be provided to illustrate the changes in the distribution of the emerged lands and sedimentary basins. The first results indicate that a severe differential uplift occurred during Oligocene-earliest Miocene, responsible for the emergence of unsuspected hundreds- km long islands and deep and narrow basins, providing a possible land connection between the Lesser Antilles and the Greater Antilles at time. Minor uplifts are then recorded during

late Burdigalian, earliest Langhian and early Pliocene, but emerged lands were restricted to archipelagos

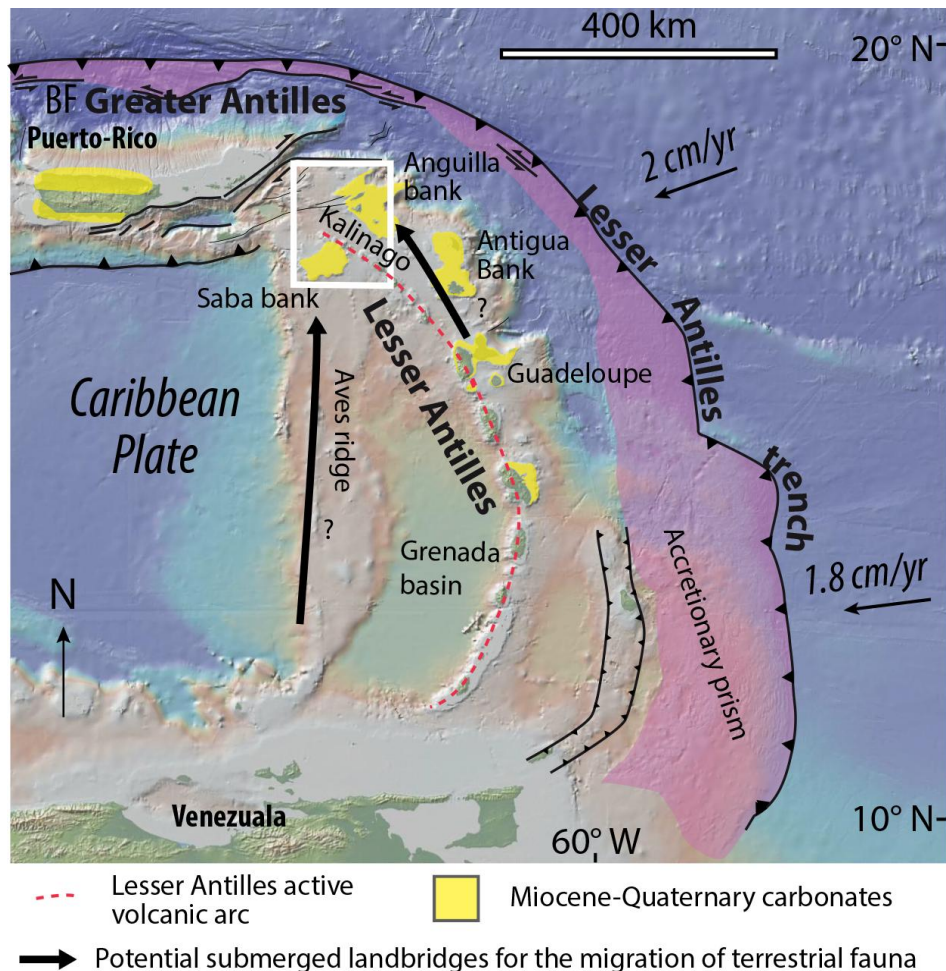


Fig.: Location of the studied area in the Caribbean Plate (White rectangle)

composed of only km- wide islands. Drowning episodes are found during late Aquitanian-Burdigalian, Langhian-Messinian, early Pliocene. During Neogene, vertical motions were coeval with extension parallel to the trench. Extension and uplift will be discussed in the frame of the stretching of the Caribbean Plate during the progressive curvature of the trench, that probably controlled the potential landbridges.

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