

Characterization of the Silante Fm. Along the Salinas-Lita Transect in Northern Ecuador.

L. Sarmiento¹, R. Almeida¹

¹Yachay Tech University, Urcuqui, Ecuador

The Cordillera Occidental of Ecuador is defined by the accretion of an allochthonous oceanic block, the Caribbean Plateau, to the South American plate margin in the Late Cretaceous to Eocene along a west dipping subduction zone (Hughes and Pilatasig, 2002; Kerr et al., 2002a; Jaillard et al., 2004; Vallejo et al., 2007; Pindell et al., 2005). Fragments of the Caribbean oceanic plateau have been reported throughout northwestern South America in Venezuela, Colombia and Ecuador (Kerr et al., 2003). After this collision, there was a change in polarity of subduction to east-dipping, and the Silante arc was established in a continental environment (Vallejo et al., 2007; Vallejo et al., 2009). The rocks that formed as part of this arc system are grouped in the Silante Fm., which has been mostly defined in the central Cordillera Occidental, is composed by conglomerates and breccias, matrix supported conglomerates deposited by debris flows (lahars), red mudstones and shales, siltstones and violaceous tuffs (Hughes and Pilatasig, 2002; Vallejo et al., 2007; Vallejo et al., 2009). The stratigraphic context of the Silante Fm. is still controversial however: some authors propose that it is overlying the Yunguilla Fm., while others propose the inverse scenario (Hughes and Pilatasig, 2002; Vallejo et al., 2007). The Salinas-Lita road, which follows the Mira River valley in northern Ecuador, provides a series of road and river cuts across the Cordillera Occidental, where the Silante and Yunguilla Formations are well exposed. My work will focus on mapping this transect in detail, to define the structural and stratigraphic characteristics of the Silante Fm. here. This will allow us to better assess the correlation between the Silante Fm. in this transect, and the one defined in the central Cordillera Occidental, and will also allow us to establish its stratigraphic position with respect to the Yunguilla Fm.

Hughes, R. A., & Pilatasig, L. F. (2002). Cretaceous and Tertiary terrane accretion in the Cordillera Occidental of the Andes of Ecuador: Tectonophysics.

Jaillard, E., et al. (2004). Stratigraphy of the Late Cretaceous Paleogene deposits of the Cordillera Occidental of central Ecuador: Geodynamic implications: Journal of South American Earth Sciences.

Kerr, A.C., et al. (2002). The nature and provenance of accreted oceanic blocks in western Ecuador: Geochemical and tectonic constraints: Journal of the Geological Society of London.

Kerr, A.C., et al. (2003). No oceanic plateau—no Caribbean plate? The seminal role of an oceanic plateau in Caribbean plate evolution: AAPG Memoir 79.

Vallejo Cruz, C. (2007). Evolution of the Western Cordillera in the Andes of Ecuador (Late Cretaceous-Paleogene: Doctoral dissertation, ETH Zurich.

Vallejo, C., et al. (2009). Mode and timing of terrane accretion in the forearc of the Andes in Ecuador. Backbone of the Americas: shallow subduction, plateau uplift, and ridge and terrane collision: GSA Memoir 204.