6th International Symposium on Andean Geodynamics (ISAG 2005, Barcelona), Extended Abstracts: 572-573

The Cretaceous volcanic arc in the Cordillera Principal (31°58's), San Juan province, Argentina

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KEYWORD: Cretaceous Volcanic Arc, Andean Cordillera, Santa Cruz River, San Juan, Argentina.

INTRODUCTION

The objective of the present contribution is to analyze the Cretaceous volcanic rocks and their relationship within Mesozoic sedimentary deposits in the Santa Cruz River region, to the west of Cerro Mercedario (see Figure 1). New field data from these rocks, indicate that these volcanic deposits are Cretaceous in age. The study region is located in the Principal Cordillera at 31°58'S and 70°12'W, to the west of the Mercedario Mountain and east of the Paso de las Ojotas, in San Juan province, Argentina. These region is in the southern part of the modern non-volcanic "flat-slab" region betwen 28° and 33°S, under which the Nazca plate forms a broad sub-horizontal bench between about 100 and 150 km (see Figure 1).

The first studies in the region were done by Groeber (1951), Polanski (1964), Morales (1985), Rivano and Sepulveda (1991); and more recent studies by Alvarez (1997), Pérez (2001), Ramos et al. (1998).

STRATIGRAPHY

The stratigraphic sequences of the area begin with Permo-Triassic rhyolitic and rhyodacitic rocks of the Choiyoi Group. The continue with Permo-Triassic and Triassic rocks of the Rancho de Lata Formation and Jurassic sequences of the Los Patillos, La Manga and Tordillo Formations. The Cretaceous sequences begin with red beds of the Diamante Formation; and continue with volcanics rocks of dacitic composition that overlay sedimentary and volcanics rocks of the Cristo Redentor Formation. Unconformably above these rocks are Tertiary volcanics deposits that are composed of andesitic and dacitic sequences of the Farellones Formation. The new field data show that the Cretaceous volcanics rocks have chilled contacts with sedimentary rocks of the Diamante Formation.

The Cretaceous dacitic volcanic sequences represent the initial Cretacous volcanic sequences in this region. Their age is constrained by their position between the Diamante and Cristo Redentos Formations. The critical outcrops are located between the Paso de Las Ojotas and the Mercedario river near the Chilean and Argentian bounder. They are composed of dacitic lavas and massive intrusives bodies. Some have been effected by Miocene hydrothermal alteration. These volcanics rocks indicate that Cretaceous volcanic arc magmas were erupting as far east as Argentina in Cretaceous times. These data require reconideration of paleogeogarphic reconstruactions for this time.

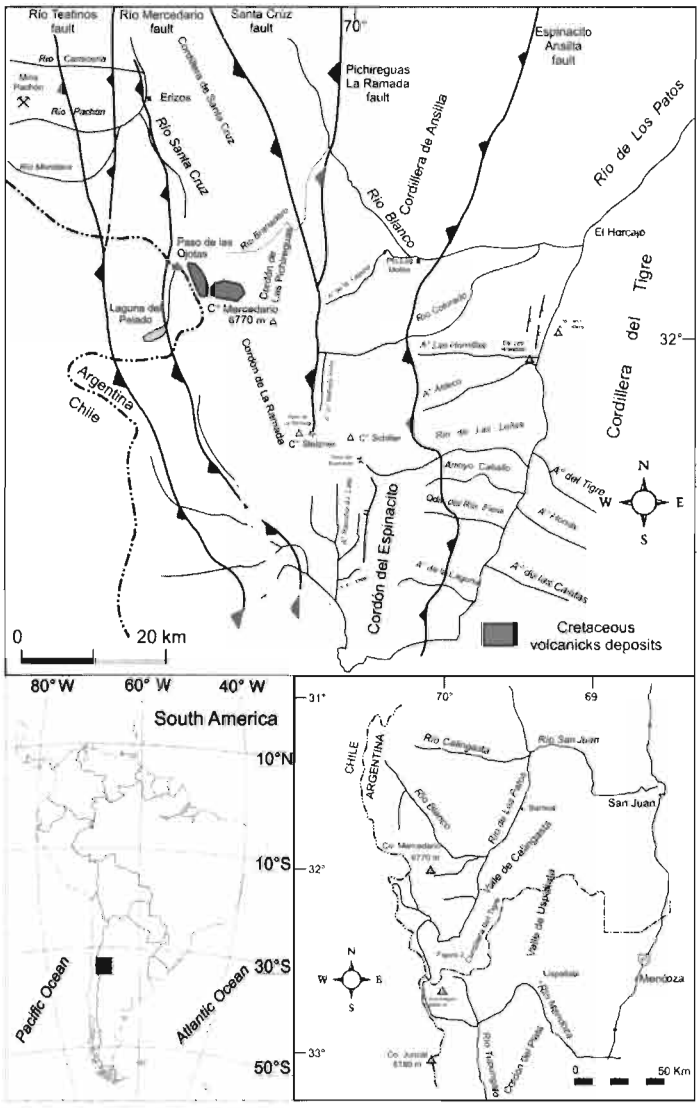

Figure 1: Geologic Map of the studied area.

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