

METAMORPHIC EVOLUTION OF THE PRE-SILURIAN ROCKS OF THE SANTANDER MASSIF, COLOMBIA, SOUTH AMERICA

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The pre-Silurian metamorphic rocks in the Santander Massif (Gneiss de Bucaramanga Formation, and unnamed Orthogneiss), located on the north of Eastern Cordillera in the Colombian Andes, are products of a dynamic-thermal metamorphism even related to the Caledonian Orogenic. These rocks have been metamorphosed to pressure temperature conditions of the green schist to granulite facies. In the metamorphites were identified two deformation phases, the first rotational, is associated with the Silurian plates collision process and generated the schistosity surfaces formed by garnet-hornblende in the Gneiss de Bucaramanga Formation, and biotite-sillimanite-kyanite in the schist of the Silgara Formation; In this phase, temperatures and pressure was interpreted nearly to 650°C and 7,5 kb. The second phase is associated to the felsic and intermediate character dynamic-magmatic body emplacement. This event generated new schistosity surfaces formed by biotite-plagioclase-sillimanite in the Gneiss de Bucaramanga Formation, sillimanite-biotite in the schist of the Silgará Formation and sillimanite-quartz-plagioclase-feldspar and sillimanite-biotite in the unnamed Orthogneiss to reach the peak of temperature nearly to 750°C. The last process in the tectonic-metamorphic evolution (retrograde metamorphism) is associated to the rock exhumation during the Caledonian Orogeny.