

Nd-Sr ISOTOPIC CHARACTERISTICS OF THE MAGMATISM OF THE COLOMBIAN ANDES

ORDONEZ,O.C.(1,2) and PIMENTEL,M.M.(1) 1-Instituto de Geociências, UnB, Brasília 2 - Universidad Nacional de Colombia, Medellin

The Colombian Andes consists of four sub-parallel mountain ranges: from east to west these comprise the Eastern, Central and Western Cordilleras, and the Pacific Coastal Range or Serrania del Baudo. These mountain ranges have undergone multiple Precambrian, Paleozoic and Mesozoic phases of tectonism overprinted by Tertiary Andean deformation. The preliminary Sr-Nd isotopic data for several of the magmatic events recorded in the Colombian Andes have revealed some interesting aspects of the geological evolution of that part of the mountain range. These are: (1) The initial Epsilon(Nd) and $87\text{Sr}/86\text{Sr}$ values can be divided into two groups: (i) Pre-Cretaceous igneous rocks displaying negative Epsilon(Nd) and initial $87\text{Sr}/86\text{Sr}$ higher than 0.7045, and (ii) rock units younger than 120 Ma (in special the recent magmatism, 11 Ma) have initial Sr ratios which are consistently around 0.7045, with positive or only slightly negative Epsilon(Nd) (2) TDM model ages for rocks older than 160 Ma clearly point to the presence of precambrian material in their origin, either as a source or as contaminant. Rock units younger than 60 Ma display TDM's which indicate only slight contamination with Paleozoic crustal rocks. The observation above suggest that magmas generated before ca. 120 Ma show an important contribution from older (Precambrian) sialic crust, whereas the younger igneous events have a larger mantle-derived component.