



El Guaybo Gneiss Sialic Basement Boulder in Western Cuba

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Provenance of Cretaceous volcanic arc (CVA) is a central tectonic problem of the Caribbean, and data from Cuba are specially important. Until the 1970ths it was assumed that CVA covers stratigraphically the sialic metamorphic complexes in southern Cuba. But since Somin and Millan (1972, 1981) had proved Jurassic-Cretaceous age of these complexes, allochthonous position of the CVA with respect to the latter and generally in Cuba was demonstrated. Paleontologic age of the CVA's lowermost part is Neocomian. Recently, 133 Ma U-Pb age was determined for the oldest I-type metagranitoids associated with island-arc metamafites of the Mabujina Complex (MC) in Central Cuba (Rojas-Agramonte et al., 2005). The MC is bolted with other part of the CVA by younger Cretaceous granitoids. Somin and Millan (1981) interpreted the MC as mafic root zone of the CVA metamorphosed in the Late Cretaceous. Now some authors consider the MC as a Mesozoic mafic basement of the CVA or accreted unit.

In Western Cuba, south of the Pinar fault occur the clastic Paleocene- L.Eocene Capdevila Fm. Along with common volcanic pebbles derived from the CVA, near El Guaybo is found abundant boulders of leucocratic micaceous garnet-bearing two-feldspar banded gneiss and unusual for the CVA S-type granite. Somin and Millan (1981) interpreted the El Guaybo gneiss as a pre-Jurassic basement rock. Our U-Pb (SHRIMP-II) dating of subeuhedral zircon grains of an gneiss boulder showed 250-220 Ma for zircon's wide central zones and 72 ± 1 Ma for very narrow rim. Th/U ratio is very low (0,002-0,005). K-Ar age 71 ± 3 Ma for the muscovite of the gneiss was determined by Arakelians and $70,5 \pm 1,4$ Ma by Denison.

These data suggest that the gneiss's magmatic (probably volcanic) protolith was formed in the earliest Triassic or some before and was metamorphosed in the late Tri-

assic. Metamorphic overgrowth of zircon took place in the Campanian, coincidental with cessation of volcanic activity, and circa 1,5 Ma later the gneiss was exhumated. Here it is proposed that the Campanian thermal event was connected with the hot CVA obduction onto the older sialic gneissic substratum of the Maya (Yucatan) block or, alternatively and less probably, that the gneiss was real basement for part of CVA. This alternativa may be tested by dating of the S-type granite boulder, as it is not typical for Cretaceous volcanic arc's plutons in Cuba.

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Literature

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