NEW U-Pb DATA FOR SIERRA DE UMANGO, ANDEAN FORELAND AT 29° S, AND GEODYNAMIC IMPLICATIONS

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ABSTRACT

Umango Range is part of the Sierras Pampeanas, a set of basement blocks rising in the Andean foreland. Umango Range is considered to be part of the Sierras Pampeanas Occidentales, characterized by the presence of schists and gneisses with significant amount of amphibolites and marbles. To the east there are the Famatina System and the Sierras Pampeanas Orientales, characterized by Lower Paleozoic volcano-sedimentary successions, schists, gneisses and granite batholiths.

The geological evolution of the Sierra de Umango is addressed with a brief description of the known lithological units and the presentation of six new U-Pb zircon ID-TIMS ages.

Middle-Proterozoic granitic gneisses are grouped in the Juchi Orthogneiss and the newly obtained ages are 1.135 Ma ± 6 Ma, 1.189 Ma ± 16 Ma and 1.084 Ma ± 7 Ma. An additional mesoproterozoic zircon dating from an amphibolite (1.108 Ma ± 4 Ma) allows the extension of the basement units to a sequence of phyllites, schists and amphibolites (Tambillito Metamorphite) exposed in a narrow eastern belt.

Other lithological units are considered as metavolcanosedimentary basement cover. They include a clastic-calcareous sequence intruded by basic igneous rocks (Tambillo Metamorphite). During Early to Mid-Ordovician, a metamorphic event took place at upper amphibolite facies (480 Ma ± 15 Ma), together with synorogenic plutonism (El Peñón Granite). A second metamorphic event coeval with the intrusion of gabbros (El Cordobés Metabasite; 446 Ma ± 3 Ma) and numerous foliated pegmatites in garnetiferous schists is placed in the Silurian to Mid-Devonian times. Finally, granitic stock intrusions took place during Early Carboniferous.