

The Sierra de Velasco (northwestern Argentina) – an example for polyphase magmatism at the margin of Gondwana

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With 5 figures and 5 tables

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Abstract: The Sierra de Velasco is formed of large plutons that are related to each other by intrusive contacts and separated by generally aligned deformation zones. The plutons are composed of calc-alkaline, syn-, late- and post-kinematic granitoids of different ages and intrusion levels. They are grouped in three large batholiths: Aimogasta, Bazán and Patquía. On the northeastern flank, the metamorphic country rock is represented by micaschists, phyllites and quartzites with hornfels (La Cébila Formation), to the north by tonalitic porphyries that in all cases demonstrate a shallow level of the granitoid intrusions. Shape of the plutons, as well as structural characters and grade of deformation indicate that the intrusive sequences began in Ordovician times and culminated in the Carboniferous, with deformation periods during Silurian and Devonian times.

Key words: Sierra de Velasco - granite types - metamorphic rocks - deformation ages

Resumen: La Sierra de Velasco es un extenso afloramiento predominantemente granítico, integrado por plutones calco-alcálinos, sin-, tardío- a post-tectónicos, con edades diferentes y relacionados entre sí tanto a través de fajas de deformación, como por relaciones intrusivas. Los plutones se agrupan en los batolitos: Aimogasta, Bazán, y Patquía. Las rocas metamórficas de caja están representadas por micacitas, filitas y cuarcitas, con corneanas, sobre el flanco nororiental, y pórfiros tonalíticos en el extremo norte de la sierra, que evidencian el emplazamiento somero de los granitos. Las formas de los plutones, así como los caracteres estructurales y grados de deformación, indican que las secuencias graníticas se habrían iniciado en el Ordovícico y culminado en el Carbonífero, con edades de deformación en el Siluro-Devónico.

Palabras Clave: Sierra de Velasco - tipos de granitos - rocas metamórficas - edades de deformación

Introduction and previous work

The presence of granites in the Sierra de Velasco is known since the pioneer work of German geologists in the early twentieth century, above all BODENBENDER

(1911, 1916), who identified the phyllites and schists in the eastern slope, the gneissic granites on the western flank and the porphyritic granites in the central part of the Sierra.