

The metamorphic basement to the east of the Cerro Aspero batholith, Sierra de Comechingones, Córdoba, Argentina.

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Diverse lithologies particularly suited for the study of the metamorphic processes crop out in the area discussed in this summary, in the southernmost Eastern Sierras Pampeanas.

The metamorphic basement is integrated by gneisses, migmatites, amphibolites, and mylonites, with crystalloblastic and deformed textures, generated during an Cambrian episode of regional-metamorphism and, a later Ordovician-Devonian dynamic and thermal metamorphism episode. The metamorphic complex was latter affected by the Guacha Corral shear zone (of regional extension), which dismembered it and retrograded the metamorphism to a lower grade. This process generated rocks with marked mylonitic foliation (protomylonites to ultramylonites) and a general N-S orientation, plunging at high angle to the east. Kinematic indicators suggest a ductile inverse shear with westward tectonic transport.

The late Devonian Cerro Aspero batholith is emplaced in this metamorphic basement. Its eastern contact is dominated by kilometer-scale, N to NNW trending belts of amphibolite bodies interlayered with gneisses and migmatites. In this association, rocks showing metamorphic foliation and less deformed textures indicate medium to high-grade metamorphic conditions.

During the late Devonian the mylonitic shear zone was intruded by the strongly discordant, epizonal Cerro Aspero batholith. Contact-metamorphosed mylonites were then developed. This episode is significant because it points out the last event in the metamorphic evolution of the crystalline basement of the Sierra de Comechingones.