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THE EVOLUTION OF THE COLLISIONAL CONTINENT-CONTINENT PALEOZOIC OROGENIC BELT IN ARGENTINA

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The Pampean Ranges, part of the Puna, the Northpatagonian and the Deseado Massifs are interpreted as a continent-continent collisional orogenic belt which developed during the uppermost Precambrian to the Lower Carfoniferous. The continental plates involved in the collision were to the East the Brazil-Africa cratonic region and to the West the Occidentalia terrane, integrated by Precambrian and reset lower Paleozoic metamorphic rocks which now trend along the Andes as minor remnants from Arequipa (Peru) to Patagonia.

The collisional event was preceded by a pre-collisional approaching subduction regime which included magmatic activity (c. 540 Ma) with tholeiitic affinities. During this episode a first deformational and metamorphic phase took place (Pampean Cycle), as well as the intrusion of several minor basic, ultrabasic and granulitic rocks from the upper mantle and the lower crust.

During the principal phase of the event (Ordovician, Famatinian Cycle, climax at 440-480 Ma), the collision progressed by thickening of the crust. Regional thrusting affected down to the lower crust and the upper mantle. The principal metamorphic episode (M2) developed mainly in a low to medium pressure/high temperature environment in which widespread migmatization and syntectonic per to metaluminous granites were emplaced, representing the melting of the continental crust during the main collisional event.

At the end of the collision, after a regional uplift, a group of postectonic epicortical granites (some of them with the alkaline affinities) were emplaced up to the Lower Carboniferous. The intrusions were emplaced in a fragile crust, which also developed retrograde and contact metamorphism as well as late tectonic structures.

This collisional orogenic belt produce renewed crust by metamorphism and granitization as well as syntectonic and postectonic lower to middle Paleozoic sedimentary basins, in the fore and back orogenic belt zones.