

THE RIFTING AND INVERSION STAGES OF THE SANTA MARIA-HUALFIN BASIN FORMATION, CATAMARCA PROVINCE, NW-ARGENTINA

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Hualfin depocentre (3,000 m thick) is located in the southwestern part of the Santa Maria-Hualfin Basin. Hualfin Formation is the basal unit of the rift filling, followed unconformably by the five formations of Santa Maria Group, (from base to top): Las Arcas, Chiquimil, Andalhuala and Corral Quemado. Hualfin Formation overlies non-conformably the granite crystalline basement. Progressive unconformities in the Hualfin Formation are related to normal faults. The Crystalline Basement of the Pampean Ranges of Tucumán, Catamarca and La Rioja Provinces, form at middle Miocene times a huge peneplain of about 30.000 sq. kilometers. Arching of the pampean forebulge with hemigrabens developed towards the East and West borders generated intracratonic continental basins. The lithospheric arching is related to the Precordillera orogenetic front moving on from the West during the Neogene times. The forebulge block structure was preserved after the Pliocene tectonic inversion, as arrange of broken and tilted pieces of the peneplain. These faulted blocks dip aside of the center of the forebulge with an axial line striking N20°W passing along El Cajón, Capillitas and Ambato Ranges. The rifting included three stages: 1° initial rift (Hualfin Formation, age unknown) 2° rift climax (Las Arcas and Chiquimil Formations, 13-7 Ma), 3° immediate postrift (Andalhuala Formation dated between 7 to 3.5 Ma). The tectonic inversion have two stages: 4°, initial, Corral Quemado Formation, (dated between 3.5 Ma to 2.9 Ma, and 5° final, the Punaschotter (circa 1.5 to 0.5 Ma), when the final uplift of the present day ranges took place.