

# **New aspects on Tertiary thick-skinned thrust geometries related to inherited Permo-Triassic extensional faults in the Bardas Blancas area, Neuquén Basin**

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## **Abstract**

As part of ongoing regional evaluations, structural modeling was performed in the vicinity of the Bardas Blancas and Pampa Amarilla structures (northern Neuquén Basin) along two transects, one WSW-ENE oriented (i.e. perpendicular to the regional strike) and one NNW-SSE oriented (i.e. in strike direction). The objective of the investigation was to better understand the fault and fold geometries and mechanisms in this part of the Neuquén Basin foldbelt in order to evaluate the remaining exploration potential of the area. The data base for this evaluation consisted in satellite imagery, structural surface data (dips, faults, geologic contacts), well data, including dip logs and 2D seismic data. Cross-section construction and careful interpretation of the data resembles fault planes that due to their geometries and mechanical behavior are considered as inherited structural grain from the Permo-Triassic rift-phase that formerly influenced this part of the basin. Higher fault-angles than previously described (generally exceeding 45°) and the deformation of mechanically rigid quasi-sedimentary basement (i.e. Choyoi-Group) suggest that these faults were not generated during the main Andean compressional episodes during Miocene times, but rather are pre-existent extensional lineaments or zones of mechanical weakness that suffered reactivation.