

# CHARACTERIZING LITHOSPHERIC FLEXURE, OROGENIC TIMING, AND EARLY FORELAND BASIN EVOLUTION IN THE BERMEJO BASIN OF THE ARGENTINE PRECORDILLERA

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This research aims to investigate if a poorly studied succession of Cenozoic redbeds, located in the Bermejo Basin of Argentina, represents Eocene forebulge deposition and signals the initial stages of Cenozoic foreland basin development adjacent to the Andean Precordillera. I aim to investigate the timing and significance of Eocene and older strata, once considered Paleozoic in age, that may shed light on the earlier history of Andean deformation. These Cenozoic redbeds, previously thought to be Paleozoic, are located between Cretaceous strata and foredeep deposits of the Oligocene Vallecito Formation. Improved geochronology and sedimentology of these beds may indicate older ages than previously estimated for the onset of Andean deformation at this latitude. Alternatively, these redbeds may be the result of post-rift subsidence unrelated to modern Andean tectonics and will allow us to set the paleogeography and paleoclimate of this area prior to Andean deformation.

My research approach consists of fieldwork, geochronology, sedimentary petrography, and lithosphere modeling. I will analyze sediment provenance, depositional ages, and local structural deformation related to the eastward migrating thrust front. U-Pb geochronology ages from detrital and volcanic zircons will be used to constrain sediment source rocks, depositional ages, and sedimentation rates. The Andes are a classic retroarc foreland basin system and its early complex sedimentation and deformation history is often overlooked. Constraining initial forebulge formation and characterizing Eocene paleogeography prior to ~20 Ma will allow for a better understanding of how this and other systems developed.