SEQUENCE OF THRUSTING AND FORELAND BASIN EVOLUTION, NEOGENE, CENTRAL ANDES OF ARGENTINA (33º SOUTH)

1 IRIGOYEN, M.V., 2 BROWN, R.L., and 3 RAMOS, V.A. 1. Servicio Geológico Minero Argentino. Julio A. Roca 651.Piso 10. (1322) Buenos Aires, Argentina. 2. Dep.of Earth Sciences,Carleton University, Ottawa, Ontario K1S 5B6, Canada. 3. Universidad de Buenos Aires, Pabellón 2. Ciudad Universitaria. (1428) Buenos Aires. Argentina

Neogene nonmarine strata exposed in the southernmost part of the Mendoza Precordillera (~33oS), record the eastward migration of the Andean deformation front since the middle Miocene. A ~3.5-4 km thick succession of foreland-basin strata accumulated in response to exhumation and deformation of the western Principal and Frontal cordilleras. The clastic strata comprise five formational units that record fluvial, alluvial and eolian deposition. In order to establish a correlation between the sequence of deformational events of the western thrust belts with the sedimentary record, all the units except the youngest formation have been dated by means of a paleomagnetic study and 40Ar-39Ar isotopic dates of interbedded tephras. A precise chronology of these strata in conjunction with a multiple data set that include rates of sedimentation in the foreland, a provenance study on these rocks, and facies and textural patterns, provide the basis for documenting details of tectonic activity, volcanism and deposition Results are summarized as follows. Deposition of the oldest Mariño Fm. spans ~15.7-12.2 Ma and is linked with a major phase of thrust activity in the Principal Cordillera. The overlying La Pilona Fm. spans ~11.7-9.0 Ma and record exhumation of the Frontal Cordillera to the NW of the study area. The 8.9-8.7 Ma Tobas Angostura Fm. is correlated with the latest extrusive episode in the Principal Cordillera. Deposition of the youngest ~3-1 Ma Mogotes Formation is linked with deformation in the flanking Frontal Cordillera. The timing of deformation of the Tertiary sequence is constrained by ash chronology on Quaternary deposits.