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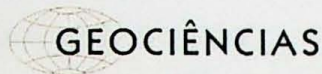
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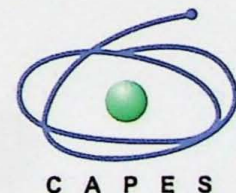
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K-Ar and Rb-Sr diagenetic ages from Neogene thick foreland basins of the Central Andes of Argentina

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The evolution of clay minerals provides a simple estimation of the temperatures reached by deep clastic basins, constituting a low-cost and powerful tool to understand their mechanical and thermal properties, fundamental in tectonic and geodynamic reconstructions. In turn, the isotopic characterization of these minerals allows assigning ages to the identified growth episodes. Clay mineral fractions were separated from levels between 350 and 7000 meters deep from two thick foreland depocenters in the Central Andes of Argentina (Vinchina and Bermejo basins) and analyzed by XRD, SEM, TEM, K-Ar and Rb-Sr. The ages obtained for the two isotopic methods are comparable and consistent. The Rb-Sr isochrons yielded ages between 125 and 234Ma and an isochron of 154 ± 9 Ma was obtained for all samples as a whole. K-Ar ages decrease as the grain size is smaller (136-263Ma, 1-2 μ m; 112-159Ma, 0.2-1 μ m; 76-116Ma, <0.2 μ m; 38-44Ma, <0.1 μ m). Whereas the ages obtained are significantly older than the age of onset of sedimentation in the Vinchina basin (~ 20 Ma), it is demonstrated the presence of a significant amount of detrital components even in the finer fractions. A tuff level was also analyzed in the Vinchina basin. K-Ar ages (21Ma for 1.2 μ m, 17Ma for 1-0.2 μ m, 12Ma for <0.2 μ m) suggest that it would be mixing ages between the age of deposition and the age of the mineral growth episode. The relationship between age and the grain size distribution of each fraction allows extrapolating a 9.4 Ma age that could be interpreted as the main diagenetic episode in the basin.