

## **GEODYNAMIC IMPLICATIONS OF VERY LOW ELASTIC THICKNESS ALONG THE CENTRAL ANDEAN OROGEN (12°-33°S), ESTIMED BY FLEXURAL ANALYSIS**

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GEODYNAMIC IMPLICATIONS OF VERY LOW ELASTIC THICKNESS ALONG THE CENTRAL ANDEAN OROGEN (12°-33°S), ESTIMED BY FLEXURAL ANALYSIS TASSARA, A. Universidad de Chile, Santiago, Chile Flexural analysis was applied to gravimetric data along convergent margin of South America (12° to 56°S). 2D gravimetric-topographic sections were modeled assuming that bouguer anomaly results by topographic load over thin elastic plate characterized by transversal variations on elastic thickness ( $T_e$ ).  $T_e$  values at Central Andes axis (12° - 34°S) is lower than 10 km, nevertheless along strike variations on wide of the range and geodynamic setting. This very low  $T_e$  implies that Central Andes is supported by a deep crustal root and that lithosphere has no rigidity. Yield strenght envelope analysis of this value implies quartz-dominated crustal composition and high heat flow and/or low strain rates. From 12° to 28°S heat flow measurements confirm high value (100 mW/m<sup>2</sup>) linked to active crustal magmagenesis. This value explain  $T_e$  range assuming intermediate strain rates. From 28° to 34°S there are no measurements of heat flow, but the absence of a volcanic arc and a subhorizontal subduction preclude the existence of high values.  $T_e$  range at this segment is related to a very low strain rate. This value implies that orogen is mechanically saturated, convergence can not be absorbed here and deformation is expanded to the east. Causal relation is advoqued betwee this result and geodyamic evolution.