

LITHOSPHERE MECHANICAL BEHAVIOR INFERRED FROM TIDAL GRAVITY ANOMALIES: A COMPARISON OF AFRICA AND SOUTH AMERICA.

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Earlier studies have shown that the tidal gravity response varies for different tectonic provinces. The amplitude difference of the M2 gravity tidal component (TGA) between the measured and calculated response for a viscoelastic Earth is significantly correlated to the effective elastic thickness (T_e) of the lithosphere. A regression equation obtained from a global distribution of both variables proved to be a good predictor for T_e where TGA data exist. This constitutes a new tool which complements the sparse T_e estimates presently available. T_e estimates by this new approach combined with those obtained by other methods (gravity-topography coherence and thermomechanical analysis) provide a spatial coverage which is sufficient to establish regional T_e patterns for South America and Africa. A comparison and association between the T_e distribution for both continents referred to a pre-rift age is presented. Results are discussed in the light of their regional tectonics.