

DI51B-2630: Mantle Dynamics and Lithosphere-Asthenosphere Interaction in the South Atlantic from Space Gravity Data

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Geoid anomalies are essential tools for the understanding of mantle density distribution and of the patterns of convection. Previous wavelet analyses of the geoid revealed the existence of density anomalies in the deep mantle linked to the long-term volcanic activity of the Central Pacific (Cadio et al., 2011). The South Atlantic displays geodynamic characteristics similar to those of French Polynesia: long lasting volcanic activity, dating back to the opening of the Atlantic; wide area covered by volcanic edifices and seamount chains; irregularity of age patterns and a broad regional depth anomaly. Preliminary wavelet analyses of the geoid anomalies in this area revealed strong correlation with deep velocity anomalies from different tomographic models. However, here, the lithospheric signal linked to the ocean basin and continents must be estimated because it contributes to long wavelengths in geoid spectrum. We tested different lithospheric models in order to estimate this contribution. At intermediate and long wavelengths, the residual geoid confirms the existence of density anomalies in the mantle correlated with the surface expression of the volcanism.

Cadio, C., I. Panet, A. Davaille, M. Diament, L. Métivier and O. de Viron, 2011. Pacific geoid anomalies revisited in light of thermochemical oscillating domes in the lower mantle, *Earth Planetary Science Letters*, 306, doi:10.1016/j.epsl.2011.03.040.