

Accepted Manuscript

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PII: S1342-937X(17)30206-X
DOI: doi: [10.1016/j.gr.2017.04.015](https://doi.org/10.1016/j.gr.2017.04.015)
Reference: GR 1787

To appear in:

Received date: 19 May 2016
Revised date: 10 April 2017
Accepted date: 11 April 2017

Please cite this article as: Hans-Jürgen Götze, Roland Pail , Insights from recent gravity satellite missions in the density structure of continental margins – With focus on the passive margins of the South Atlantic. The address for the corresponding author was captured as affiliation for all authors. Please check if appropriate. Gr(2017), doi: [10.1016/j.gr.2017.04.015](https://doi.org/10.1016/j.gr.2017.04.015)

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GR Focus Review

Insights from recent gravity satellite missions in the density structure of continental margins – with focus on the passive margins of the South Atlantic

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Abstract

We focus on new gravity and gravity gradient data sets from modern satellite missions GOCE, GRACE and CHAMP, and their geophysical interpretation at passive continental margins of the South Atlantic. Both sides, South Africa and South America, have been targets of hydrocarbon exploration and academic research of the German Priority Program SAMPLE (South Atlantic Margin Processes and Links with onshore Evolution). The achievable spatial resolution, driven by GOCE, is 70 - 80 km. Therefore, most of the geological structures, which cause a significant gravity effect (by both size and density contrast), can be resolved. However, one of the most important aspects is the evaluation of the omission error, which is not always in the focus of interpreters. It results from high-frequency signals of very rough topographic and bathymetric structures, which cannot be resolved by satellite gravimetry

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