

Accepted Manuscript

Relating the South Atlantic Anomaly and geomagnetic flux patches

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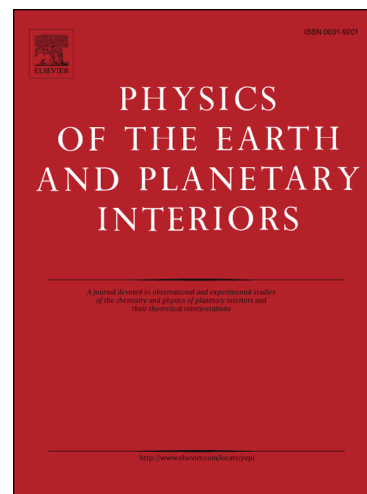
PII: S0031-9201(16)30220-5
DOI: <http://dx.doi.org/10.1016/j.pepi.2017.03.002>
Reference: PEPI 6013

To appear in: *Physics of the Earth and Planetary Interiors*

Received Date: 3 October 2016
Revised Date: 13 January 2017
Accepted Date: 6 March 2017

Please cite this article as: Terra-Nova, F., Amit, H., Hartmann, G.A., Trindade, R.I.F., Pinheiro, K.J., Relating the South Atlantic Anomaly and geomagnetic flux patches, *Physics of the Earth and Planetary Interiors* (2017), doi: <http://dx.doi.org/10.1016/j.pepi.2017.03.002>

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1 Relating the South Atlantic Anomaly and 2 geomagnetic flux patches

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14 Abstract

15 The South Atlantic Anomaly (SAA) is a region of weak geomagnetic field intensity at
16 the Earth's surface, which is commonly attributed to reversed flux patches (RFPs) on the
17 core-mantle boundary (CMB). While the SAA is clearly affected by the reversed flux re-
18 gion below the South Atlantic, we show that the relation between the intensity minimum
19 at Earth's surface and RFPs is not straightforward. We map a field-dependent intensity
20 kernel (Constable, 2007a) to study the relation between the radial geomagnetic field at the
21 CMB and the field intensity at Earth's surface. Synthetic tests highlight the role of spe-
22 cific patches in determining the surface intensity minimum and demonstrate that the SAA

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