

Accepted Manuscript

Electrical crustal structure of Alta Floresta Gold Province eastern sector, SW Amazon Craton, Brazil

Clarisse M. Fernandes, Sergio L. Fontes, Emanuele F. La Terra, Leonardo G. Miquelutti, Ved P. Maurya



PII: S0895-9811(18)30017-8

DOI: [10.1016/j.jsames.2018.06.022](https://doi.org/10.1016/j.jsames.2018.06.022)

Reference: SAMES 1962

To appear in: *Journal of South American Earth Sciences*

Received Date: 17 January 2018

Revised Date: 7 June 2018

Accepted Date: 29 June 2018

Please cite this article as: Fernandes, C.M., Fontes, S.L., La Terra, E.F., Miquelutti, L.G., Maurya, V.P., Electrical crustal structure of Alta Floresta Gold Province eastern sector, SW Amazon Craton, Brazil, *Journal of South American Earth Sciences* (2018), doi: 10.1016/j.jsames.2018.06.022.

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

2 Electrical crustal structure of Alta Floresta Gold Province eastern sector,
3 SW Amazon Craton, Brazil

4 AUTHORS

5 Clarisse M. Fernandes^{a,*}, Sergio L. Fontes^a, Emanuele F. La Terra^a, Leonardo G. Miquelutti^a, Ved P.
6 Maurya^a.

7 ^a *Observatório Nacional (ON/MCTIC), Graduate Program in Geophysics, Brazil*

8 *Corresponding author

9 ABSTRACT

10 In this paper we present the results of an investigation on the electric crustal structures depicted by a
11 magnetotelluric (MT) transect cutting through the easternmost sector of the Alta Floresta Gold
12 Province, in the SW Amazon Craton, Brazil. The MT dataset was acquired along a 200 km NNE-
13 SSW transect encompassing 35 broadband and 12 long-period stations, covering a period range of
14 approximately 10^{-4} to 10^4 s. We adopted a data processing scheme based on robust estimators over
15 the electromagnetic cross-spectra for combined single and remote reference stations in order to
16 estimate horizontal and vertical transfer functions. The dataset was inverted using a 3-D MT based
17 minimum structure algorithm, considering the data dimensionality, directionality analysis and the
18 irregular station distribution. A set of inversions considering different model parameters have been
19 performed to achieve a model with robust main features and to test the stability of the obtained
20 solutions. A resolution study was also proposed in order to evaluate the average depth of model
21 sensitivity. The electrical structures depicted can improve the understanding of the ancient tectonic
22 features encrypted at the cratonic stable crust, contributing to elucidate the mechanisms that might
23 have controlled its ore genesis. Conductors in the mid-crust correlate with shallow mafic enclave-
24 rich granitic and foliated volcanic facies outcrops, linking the geoelectric anomalies to a possible
25 mid-crustal source correlated to the Statherian magmatism, which is believed to be the main pulse
26 related to gold metallogenesis at this province.

27 Key words: Electric crustal structures; South American Platform; Amazon Craton; Alta Floresta
28 Gold Province; Statherian magmatism; 3-D MT inversion.

29 Highlights

- 30 • Magnetotelluric investigation on a gold province at SW Amazon Craton;
31 • Three-dimensional inversion of magnetotelluric data;
32 • Magnetotelluric imaging of ancient tectonic features at a stable crust.

33 1. INTRODUCTION

Download English Version:

<https://daneshyari.com/en/article/8907588>

Download Persian Version:

<https://daneshyari.com/article/8907588>

[Daneshyari.com](https://daneshyari.com)