

# Author's Accepted Manuscript

Note on: 'EMDPLER: A F77program for modeling the EM response of dipolar sources over the non-magnetic layer earth models' by N.P. Singh and T. Mogi, *Computers & Geosciences* 36 (2010) 430–440

Majid Jamie, Saeid Mirzaei, Mahmoud Mirzaei



PII: S0098-3004(16)30188-1  
DOI: <http://dx.doi.org/10.1016/j.cageo.2016.07.010>  
Reference: CAGEO3799

To appear in: *Computers and Geosciences*  
Revised date: 8 May 2016  
Accepted date: 19

Cite this article as: Majid Jamie, Saeid Mirzaei and Mahmoud Mirzaei, Note on 'EMDPLER: A F77program for modeling the EM response of dipolar sources over the non-magnetic layer earth models' by N.P. Singh and T. Mogi, *Computers & Geosciences* 36 (2010) 430–440, *Computers and Geosciences* <http://dx.doi.org/10.1016/j.cageo.2016.07.010>

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 galley proof before it is published in its final citable 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

**Note on: 'EMDPLER: A F77 program for modeling the EM response of dipolar sources over the non-magnetic layer earth models' by N.P. Singh and T. Mogi, Computers & Geosciences 36 (2010) 430-440**

Majid Jamie<sup>a,\*</sup>, Saeid Mirzaei<sup>a</sup>, Mahmoud Mirzaei<sup>b</sup>

<sup>a</sup> ACECR-Research Institute of Applied Sciences, Shahid Beheshti University, Evin St., 19835-169 Tehran, Iran

<sup>b</sup> Department of physics, Faculty of Science, Arak University, 38156-8-8349 Arak, Iran

\* Corresponding author. Tel.: +989336168448; fax: +982122431938.

E-mail addresses: majidjamie@gmail.com, mjamie@ut.ac.ir (M. Jamie).

**1. Abstract**

In this note some mistakes arising in Singh and Mogi (2010), that are: 1. wrong formulation of the characteristic impedance of the layers of and the TM-mode reflection coefficient of an N-layer earth, 2. using wrong and the very same algorithms for calculation of both TE- and TM- mode reflection coefficients, and 3. using flawed algorithms for computing phase and normalized phase values, are noted and corrected form of these mistakes are presented. Moreover, in order to illustrate how these mistakes can affect forward modeling results, the original and corrected versions of the EMDPLER source code algorithms were conducted on different 2- and 3-layer earth models, the same as the models used in Singh and Mogi (2010), and the real and imaginary parts of the  $H_z$  and  $H_y$  components of magnetic field, their normalized amplitudes ( $|H_z/H_{z0}|$  and  $|H_y/H_{y0}|$ ) and the corresponding normalized phase curves are calculated, plotted versus frequency, and compared to each other.

**Keywords:** TM-mode reflection coefficient; layer earth; characteristic impedance; phase; normalize phase; algorithm; forward modeling

**2. Introduction**

In applied geophysics, electromagnetic (EM) forward modeling is an important key to understanding complex behavior of the EM wave in heterogeneous media, for doing inverse modeling and also for

Download English Version:

<https://daneshyari.com/en/article/4965443>

Download Persian Version:

<https://daneshyari.com/article/4965443>

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