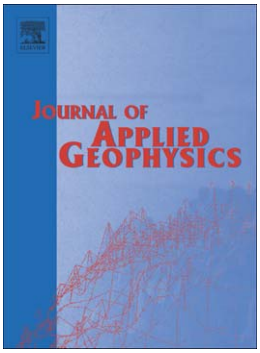

Apparent conductivity-depth estimation of fixed-wing time-domain electromagnetic two-component data based on iterative lookup tables

Kaiguang Zhu, Mei Dou, Kaiyan Li, Qiong Zhang, Jing Li, Yiming Lu, Hao Wang

PII: S0926-9851(17)30286-0
DOI: doi:10.1016/j.jappgeo.2017.03.009
Reference: APPGEO 3241

To appear in: *Journal of Applied Geophysics*

Received date: 27 August 2016
Revised date: 15 March 2017
Accepted date: 20 March 2017

Please cite this article as: Zhu, Kaiguang, Dou, Mei, Li, Kaiyan, Zhang, Qiong, Li, Jing, Lu, Yiming, Wang, Hao, Apparent conductivity-depth estimation of fixed-wing time-domain electromagnetic two-component data based on iterative lookup tables, *Journal of Applied Geophysics* (2017), doi:10.1016/j.jappgeo.2017.03.009

Apparent conductivity-depth estimation of fixed-wing time-domain electromagnetic two-component data based on iterative lookup tables

ABSTRACT

Apparent conductivity-depth estimation of airborne electromagnetic data is generally applied to identify conductive targets. As the attitude and height of the aircraft change during a flight survey, the collected data and corresponding apparent conductivity-depth results can be affected. An improved apparent conductivity-depth algorithm with consideration of height and pitch is developed herein based on an iterative lookup table. Two sets of tables of $Bx - Bz - apparent\ conductivity$ are established in association with the two parameters of pitch and height. The apparent conductivity result is achieved by looking up two tables iteratively, as the pitch and height parameters are obtained from looking up one table and are used in looking up the other table. The iterative looking up ends when the apparent conductivity and the two parameters satisfy the desired precision. The depth is derived from the apparent conductivity and channel delay time. Tests that employ synthetic data demonstrate the feasibility of this iterative lookup table method.

Keywords: apparent conductivity-depth estimation, height, attitude, iterative lookup