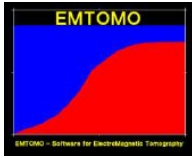




Celebrating 35 Years
Leading the World of Magnetics

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EMTOMO VLF2DMF Summary

VLF2DMF₁ is a software package that has been developed in order to enable the processing and inversion of electromagnetic (EM) induction data acquired at Very Low Frequency (VLF). A review of the VLF theory, as well as practical applications regarding the geology and hydrogeology, can be found in McNeill and Labson (1991).

VLF2DMF is capable of inverting VLF-EM data acquired along a survey line (i.e. transect) at different frequencies. Data collected in a survey area can also be processed but not inverted as a set. The input data is the real and imaginary parts of the tipper (or the tilt angle and the ellipticity), also designed as inphase and quadrature components as measured by VLF-EM instruments.

The package includes a Map Module that allows the display of the survey, the selection of profiles for inversion and displays the survey results. The program can also be used in modelling studies. The user can build a complex resistivity model and calculate its VLF-EM response.

VLF2DMF assumes a referential system with the vertical axis (Z) positive upwards (Figure 1.1). The line survey is assumed to be carried out along Y direction.

Figure 1.1. The VLF-EM electromagnetic field.

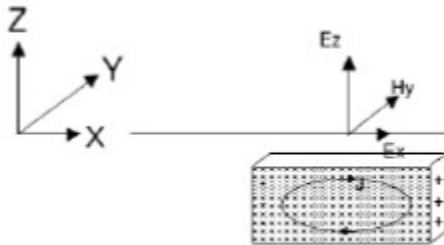


Figure 1.1. The VLF-EM electromagnetic field.

The inversion procedure used in **VLF2DMF** is two-dimensional (2-D) and is based on the Occam technique (e.g. DeGroot and Constable 1990, Sasaki 1989, Sasaki 2001). The forward modelling of **VLF2DMF** program is based on the finite-element method.



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VLF2DMF Included Items

The **VLF2DMF** package is a 32-bit application that can run on Windows XP/Vista or even in Windows 7 32-bits (there is a few experiences running it in a 64-bits Windows 7). **VLF2DMF** has a graphical user interface based on the DISLIN₂ graphics library (<http://www.dislin.de>). The package contains the following files:

- VLF2DMF-v103.exe;**
- Inv2DVLFmf.exe;**
- VLFmfMap.exe**
- INSTVLF.BAT;**
- PathVLFGen.exe;**

disdll.dll and **disdll_d.dll** (dynamic link library for the DISLIN graphics);
Descriptive 70 page Manual (Instructions to run **VLF2DMF** program)
And examples of the input files (*.txt files) required.

Screen Examples:

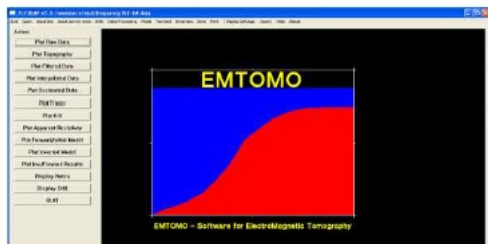
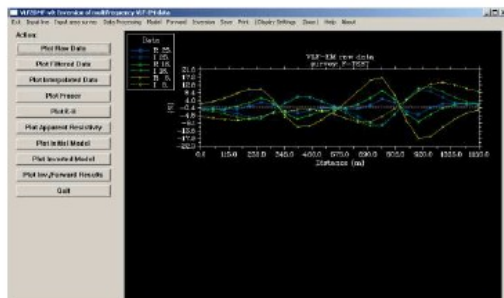
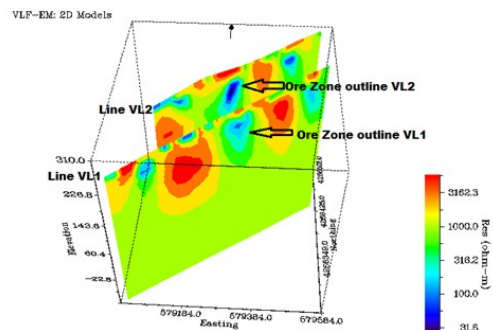


Figure 4.1. Screen shot of the VLF2DMF main screen.



Raw data plot showing 3 frequencies

Field Test 2 Portugal



Example resistivity sections