1. LOCATION OF THE STUDY AREA

The study area is located between two lakes Langada and Volvi ca. 45 km northeast of Thessaloniki (Northern Greece).

Fig. 1

This research aims to understand the distribution of the active faulting and the top basement structure of this particular area.

2. GEOLOGY OF THE SURVEY AREA AND THE LOCATION OF RMT AND TEM SOUNDINGS

The geological map shows:
- The lower terrace deposit (Gravel and sand)
- Holocene deposit (Sand, silt and clay)
- The Fants (Silt and soil)
- The metamorphic (Gneiss & Schist)

Fig. 2

3. CORRELATION BETWEEN GEOLGY AND BOREHOLE WITH RMT AND TEM DATA

Correlation between Borehole data and TEM-1

Fig. 3

Correlation between geology and RMT data for selected frequencies (23 kHz, 135 kHz and 700 kHz)

4. RMT MEASUREMENTS AND INTERPRETATION

RMT-F field setup
- RMT-F system (Fig.4) consists of:
  - A receiver
  - Two magnetic sensors
  - Two electrical antennas
  - A preamplifier
  - Eight profiles (Fig. 2)
  - Distance between stations

4.1. Results and Interpretation of RMT Data

Good fitting is obtained between measured and calculated data. As an example frequencies f = 79 kHz and f = 136 kHz for profile 2 and frequencies f = 18 kHz and f = 78 kHz for profile 5 are demonstrated.

5. TEM MEASUREMENTS AND INTERPRETATION

TEM field setup
- 103 soundings using GDP 32 Zonge TEM System (Fig. 2)
- 50 m x 50 m transmitter and 10 m x 10 m receiver-loop (Fig. 6)
- Generally the distance between stations is 50 m
- Total profile length is ca. 4 km

5.1. Results and Interpretation of TEM Data

The inversion results of TEM data give information about the lower structure up to depth of 200 m (Fig.7).

6. JOINT INVERSION

- Inversion results for RMT, TEM and their joint inversion for profile 1 (Fig. 2).
- The model are in good agreement with the joint inversion at a depth of 5-20 m (Fig. 8).

7. CONCLUSIONS

- The Inversion of RMT and TEM data indicates a normal fault structure (Fig. 4).
- The RMT and TEM models generally show four layers, which are:
  - Marly silty sand with gravel (>> 100 $\Omega$ m)
  - Sandy clay (30 - 50 $\Omega$ m)
  - Marly silty sand with clay (50 - 100 $\Omega$ m)
  - Sandy clay (30 - 50 $\Omega$ m)
- Good fitting between observed and calculated RMT data.
- The skin depths of the RMT soundings are around 40 m.
- The TEM data gives detail information of the lower structure down to a depth of 200 m.
- RMT and TEM models are supporting each other well in the joint inversion.