2.1.7. THE TRANSFER OF DRILLING INFORMATION ON ELECTRONIC SUPPORT AND DATABASE VALIDATION

(2) 1.7.1. Geophysical data

Following the refuse of the National Agency for Mineral Resources to allow the access of the researchers working in the INSTEC project to the information previously obtained in the study area, the amount of data related to drillings performed in the region has been dramatically limited to the few publications revealing data of such a nature.

The thorough review of the literature in the related field revealed some information that might be grouped into two categories:

- stress data, as a result of the investigations of the borehole deformation under the action of the tectonic stress (e.g. Muller, 1993; Zugravescu et al, 2005; Negoita et al, 2007; Zugravescu si Negoita, 2010);

- geothermal data (e.g. Demetrescu et al, 2001; Demetrescu et al, 2005; Veliciu, 1998).

The next figure presents the location of the wells investigated through the "borehole break-out" methodology for stress determinations.

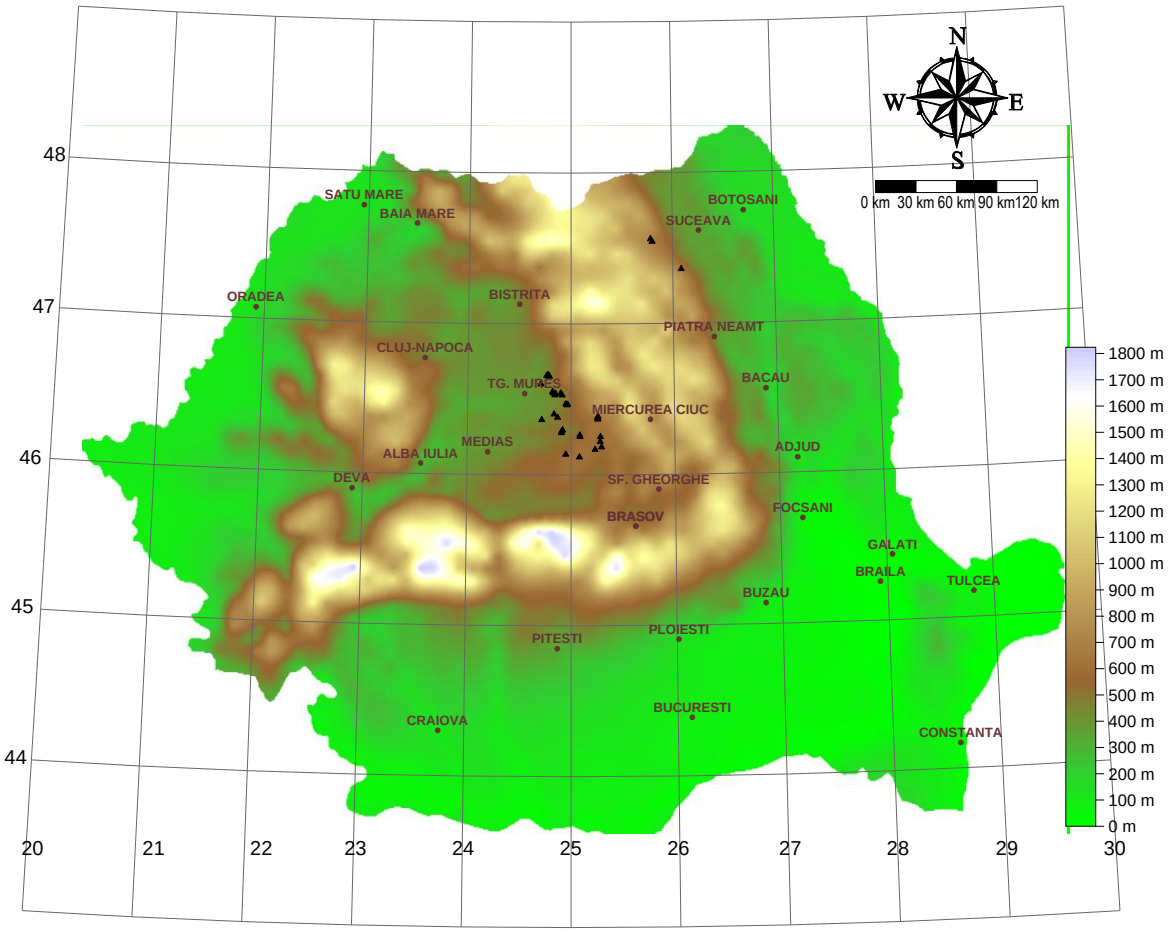

FIG. 10 - LOCATION OF WELLS IN THE STUDY AREA AND NEIGHBOURING REGION WHERE TECTONIC STRESS HAS BEEN DETERMINED

Geothermal investigations targeted the following parameters:

- in-depth temperature evolution

- vertical geo-thermal gradient

- heat-flow estimates

Location of the investigated wells is shown in the next figure:

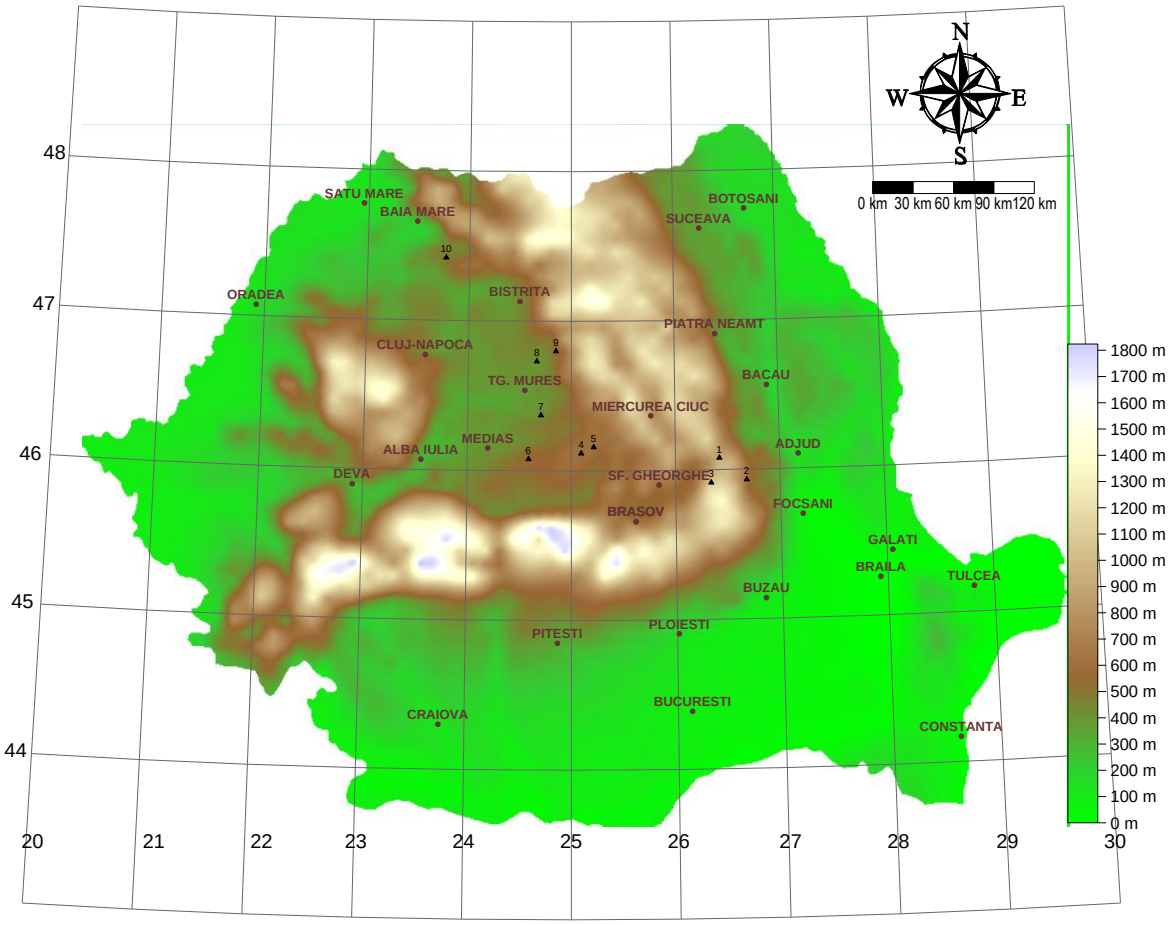

FIG 11 - LOCATION OF THE WELLS IN THE STUDY AREA AND NEIGHBORING REGION WHERE GEOTHERMAL PARAMETERS DETERMINATIONS HAVE BEEN CONDUCTED

(2) 1.7.2. Geological data extraction

Drill-hole Izvorul Alb

In December 2013, a water-based fluid drilling was performed in the Izvorul Alb area, near Dorna Cândrenilor, over a depth of 96 m. The Groundwater Engineering Research Center has kindly provided us with the data resulted from geophysical logging performed in the drill-hole. The standard logging contains information derived from natural gamma radiation, spontaneous potential, 16’ resistivity, 64’ resistivity, temperature and resistance measurements. The geophysical data were interpreted and the lithological model from figure 13 was derived.

Figure 12 – **Location of Izvorul Alb drill-hole**

The drilling pierced pre-volcanic sedimentary formation, of Lutetian age, Eocen epoch, consisted of alternating sandstones, shales and marls. The behavior of the spontaneous potential curve indicates the fact that all sandstones and clayey sandstones hold groundwater, and that the porous formations between 84 m and 96 m depth seem to host mineralized, possibly carbonated waters (lower resistivity, the inflexions of the spontaneous potential curve are accentuated). Carbonation and water mineralization are processes characteristic of volcanic areas, and sometimes associated to post-volcanic activity. The data will be used in further geological and geophysical interpretations.

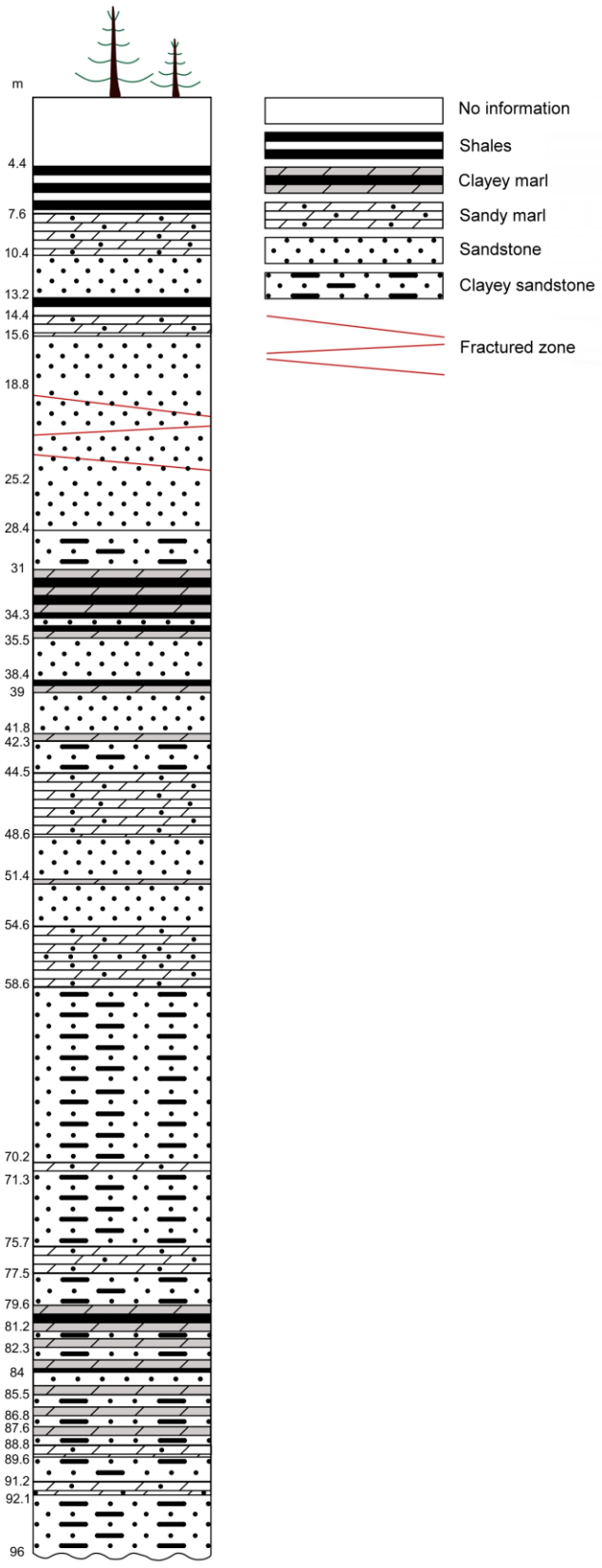

Figure 13 – **The lithologic interpretation of geophysical data from Izvorul Alb drilling**