PHYSICAL CHARACTERISTICS OF COAL DEPOSITS DETERMINED FROM BOREHOLE LOGS. APPLICATION IN THE SUBCARPATHIAN ZONE OF MUNTENIA, ROMANIA

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The geology of Romania is dominated by the formation of the Carpathian mountain belt during the Alpine orogeny. The arc reflects the complex suturing of microplates (including the Moesian and Apulian terrains) onto the European plate margin during the Tethyan Ocean closure.

The Carpathians may be divided into the Overthrust Belt (Carpathian Flysch) and the molass basins of the Carpatian Foredeep which includes our study area, the so-called Muntenia's Miopliocene subzone.

The Pliocene present in this Carpathian subzone is situated below the pebbles, conglomerates, sands and marls belonging to Quaternary fluviatile facies.

The geological formations involved in this study belong to the Levantine and Dacian lacustrine facies and consist of sands, silts, marls and lignite deposits.

Throughout the study area, soft brown coal (lignite according to ASTM coal class) have been met by numerous boreholes crossing the Levantine and Dacian coal seams before reaching their deeper oil and gas-exploitation targets.

Nowadays 7 mining exploitations are actve in Muntenia's area in which the coal rank parameters related to organic matter maturation takes the following average values: 3 – for level of organic metamorphism and a little less than 0.3% for the vitrinite reflectance.

The search for potential mining exploitation required a better knowledge of coal seam physical parameters and with this aim in view we started a program of quantitative evaluation of coal deposits on the basis of well logs recorded in more than 300 boreholes. Complete well log suites including electric, radioactive, acoustic, etc., are available without any extra cost in the petroleum data banks. An adequate methodology for log processing and quantitative evaluation was also elaborated using linear equations and specific plots.

The final results were expressed as relative amounts of carbon, ash and moisture of rock bulk volume, together with coal bed thickness, qualification index and elastic moduli for surroundings rocks-dynamic competence estimation.

The graphical representations, maps, tables and other illustrating documents related to our study are presented in the form of posters.

References
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