

Neutron porosity and the fundamental neutron characteristics of rocks

Ryšavý, F.¹

¹Karotáž a cementace, s.r.o., Velkomoravská 83, 695 00 Hodonín

Abstract

In this paper an attempt has been made to explain the theory of Neutron Logs. The basic relations between total porosity and the fundamental neutron characteristics are expressed in analytic way. This way of expression allows defining relationships for any rocks including also the chemically-pure limestone saturated with fresh water and drilled on condition that the diameter of the tool and the diameter of the borehole are identical. Such a model makes it possible to declare that total porosity equals neutron porosity, however, only for the above model. As the relations are rather complicated, it is convenient to use simpler relations of reciprocal type between neutron porosity and neutron characteristics. They are defined in a certain neutron porosity interval. All three simpler relationships enable a fast interpretation of neutron porosity.

Maps of seismic zones in recent Czech national codes

Schenk, V.¹ and Schenková, Z.¹

¹Institute of Rock Structure and Mechanics, Academy of Sciences, V Holešovičkách 41,182 09
Praha 8

Abstract

The map of seismic zones compiled by Dvořák for the Czech code ČSN 73 0036 "Seismic Loads of Buildings" was revised with respect to introducing all recent data. The paper contains an English version of a description prepared by the authors for the revised map (Schenk and Schenková, 1997). It is assumed that it will help designers and earthquake engineers, who are not familiar with the Czech language, to get acquainted with the revised map of seismic zones. Earthquake effects of the zones are given in the macroseismic intensity MSK-64.

Geophysical and geological exploration of the diatomite and alginite bearing Maar structure in South Slovakian basin

Puchnerová, M.¹, Kubeš, P.¹, Lanc, J.¹, Ravasz, Cs.³, Solti, G.², Šantavý, J.¹, Tóth, Cs.², and Zbořil L.¹

¹Geocomplex a.s., Geologická 21, 822 07 Bratislava

²Hungarian Geological Survey, Štefánia út. 14, 1143 Budapest

³ALGALIT, Kôztarsaság tér 16.1.9., 1081 Budapest

Abstract

Within the framework of a geophysical and geological investigation of South Slovakian basin an alginite and diatomite deposit has been revealed near the villages of Pinciná and Jelšovec, district Lučenec, representing an accumulation of significant ecological and building raw materials. The alginite deposit is the first discovery in Slovakia. Alginite can be applied for various purposes, namely in agriculture where it can substitute pesticides harmful to the environment. Alginite can also be very useful in pharmaceutical and cosmetic industry. Diatomite or diatomitic clay can be used for production of thermoinsulating materials. Layers of this raw material of better quality could be used as sorbents in ecology.

A contribution to the study of the basic geological structure on the contact of the West Carpathians and East Alps with the eastern margin of the Bohemian Massif

Šutora, A.¹ and Pospíšil, L.²

¹Višňová 6, 621 00 Brno

²Geofyzika a.s., Ječná 29a, 621 00 Brno

Abstract

The article deals with an analysis of the geodynamic development in the contact zone between the Bohemian Massif, the West Carpathians, the East Alps and the north-western parts of the Pannonian Basin during the period when the Carpathian orogen, part of the larger Alpine-Carpathian orogen finally shaped the West Carpathians (area north of Central Hungarian Line), and led to a short-lasting collision when the Carpathians contacted the passive margin of the European Platform (e.g. Royden and Baldi, 1988). The final results of the numerous orogenic processes that took place during that period are embraced and fixed in the geological and geophysical picture of this area.

Special attention is paid to the results of the geological and geophysical survey in the Vienna Basin, Danube Basin, Považský Inovec Mts., Malé Karpaty Mts., in the western part of the Pannonian Basin and eastern part of the Alps, which provide valuable information for indirect tracing of complexes in composition and degree of metamorphosis similar to Penninic rocks (Leško and Varga, 1980; Lesko et al., 1988; Šutora et al., 1988; Pospíšil et al, 1989; Rakús et al, IGCP 198 Series, 1990; Tollmann 1990; Gnojek et al, 1991; Plašienka et al, 1995).

With reference to Leško et al. (1988) and Plašienka (1995), some recent results are presented that can help to clarify the process the result of which is "a tectonic window (IW) of the Carpathian Penninic units in the environment of Austroalpine nappes (the Tatric and – "Sub-Tatric") as a unique exposure in the Carpathians".

Geological and geophysical models of the outer/inner West Carpathian contact zone

Pospíšil, L.¹, Stráník, Z.², Magyar, J.³, and Šutora, A.⁴

¹Geofyzika, a.s., Ječná 29a, 612 46 Brno

²Czech Geological Survey, Leitnerova 22, 658 69 Brno

³Nafta, a.s. Gbely, Priemysel'na' 6, 071 01 Michalovce

⁴Višňová 6, 621 00 Brno

Abstract

Despite the fact that geological and/or geophysical investigations have recently been considerably reduced the latest research works and reinterpretations of reflection seismic profiles have brought new results and fresh ideas that together with the current coverage of the area under study by a network of seismic profiles enable us to present new solutions of fundamental structural problems concerning the crust and/or lithosphere, respectively. The presented interpretation may be considered rather speculative because of a lack of sufficiently deep boreholes but the authors assume that the proposed solutions of both the setting of the Flysch Belt and the contact of the platform with the units of the West Carpathians at deeper levels bring a new methodological approach to the structural solution of such a complicated part of the Carpathians. The presented study summarizes information on the inner structure of the Flysch Belt and the Klippen Belt including the nature of the basement morphology along the section from the Vienna Basin in the west to the Transcarpathian depression in the east. It can be expected that the following phenomena will be confirmed:

- complexes of Penninicum including their relations to the Carpathian units of the West Carpathians;
 - contact of the Inner and Outer Carpathians across the lithosphere.
-