# Abstracts of Acta Montana, ser. A, No. 14(114), Prague 1999

| R.ČÍŽ, J.HOLEČKO, V.RUDAJEV | Analyses of acoustic emission and underground tremor time series from rockburst hazardous areas of Ostrava-Karviná mines | 5 |
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Abstract

When mining coalface No. 14736 at ČSA mine in Ostrava-Karviná (south part of upper Silesian basin - North Moravia, Czech Republic) bituminous coal district a number of methods and measures aimed to prevent triggering of rockbursts were introduced. These concern primarily applications of coal seam destress blasting, no break blasting in overburden and wetting of a coal seam. Improving blasting accuracy was based on data from geophysical survey and also test hole drilling in this district was assessed. The main geophysical methods were seismological (SL) monitoring and measuring of seismo-acoustic (SA) emission in coalface foreground. From data collected by these two methods a time series characterizing seismic activity in the coalface area were compiled. Mining technology was characterized by mining advance data and data regarding blasting in coal seams and also in overburden. All these data were jointly processed by a neural network, which had to be able to predict future seismic activity and especially to signal a possibility of strong events on basis of "learning capability" using part of the input data.

| Pavel KALENDA | Heuristic model of multimodal energy-frequency distribution in multistratified environment in primarily strain--homogeneous areas | 25 |
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Abstract

The parameter changes of theoretical distributions (Paretto, Weibull) are often used for short-term prediction of strong mine tremors (Lasocki, 1993a). The real observed data of energy-frequency (E -F) distribution are interleaved with these theoretical distributions. Such statistical prediction provides good results in simple conditions, but in the multilayer environment with alteration of strong and weak layers in the hanging wall, these results are unambiguous.
All parameters of E-F distribution were analysed in this work: the lower and upper limitations and E-F distribution slope. It was shown that the lower and upper limitations of E-F distribution have not any prediction ability for strong mine tremors, but they are connected with the apparatus sensitivity and thicknesses of the hanging wall layers respectively. The development of E-F distribution slope was modelled in case of coalface advancement in the strain-homogeneous area and it was shown that the periods of increasing and decreasing slope values were interchanged. Such a development of E-F distribution slope resulted in the activation of individual layers. The influence of individual layers depended on the proportion between their seismic activity and that of the whole coalface area.

| Petr KOLÁŘ | Energy of Seismic Waves Radiated by Finite Circular Source - Numerical Approach | 39 |
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Abstract

We used a method, which allowed determined energy radiated in seismic waves from a seismogram recorded at one station only. In present work we compared how the results can differ if final source was neglected and replaced by a point source. The investigation was performed by numerical experiments. To be able to evaluate synthetic seismograms we developed a suitable model of the kinematic finite circular source. We investigated the influence of take-off angle, distance, rake and rupture velocity. We found that omitting a finite source can affects a final seismic energy, but the difference is less than an order of magnitude. The influence of the take-off angle was found to be the most significant, the influence of other investigated parameters distance, rake, rupture velocity is of less importance. The dependency of determined energy on take-off angle is monotonous in general, however some irregularities for S waves energy were discovered.

| Miloš RENÉ | Radioelement distribution and heat production of two-mica monzogranites from the Moldanubian batholith of the Bohemian Massif (Czech Republic) | 55 |
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Abstract

The two-mica granites of the Eisgarn type of the Moldanubian batholith are peraluminous granites generated by partial melting of metapelites under the conditions of the lower to middle crust. The U and Th contents are controlled in these rocks either by the presence of accessory minerals (apatite, xenotime, monazite and zircon), or, in the case of uranium, also by adsorption of muscovite at the surface. The variability in the partial melting degree of the granites is reflected by a higher variability in both the concentrations of U, Th and K, and by the variability in heat production values. This variability is displayed not only among the individual defined subtypes, but also within the subtypes themselves.

| Jiřina TRČKOVÁ, Ladislav ANGER , Irena VČELOVÁ | Experimental modelling methods of stress analysis for determination of underground structure stability | 67 |
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Abstract

Verification possibility of experimental model methods and the usage of their results for numerical
solutions in geotechnics has been carried out. 3-D physical models have been constructed. In these models the stress state changes in front of the tunnel heading and around the robbed space were studied. The results of experiments were each other compared. On the basis of these results the input parameters for mathematical models were determined.

| Miloš RENÉ | Petrogenesis of granitoids of the Červená type (Central Bohemian Plutonic Complex) | 81 |
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Abstract

The Červená type granitoids are a part of a composite magmatic complex of Variscan age emplaced in a ductile shear zone on the boundary of the Bohemicum and the Moldanubian terranes. By their chemical composition, they are closest to the hybrid granites (H-granites). Their origin is associated with the processes of mixing of the differentiated, high-potassium, mantle-derived magmas, assimilation with metavolcanics and metasediments of the upper crust and with subsequent extensive homogenisation of the granitic melt.

| Jiřina TRČKOVÁ - SKOŘEPOVÁ, Josef HANZLÍK, Ladislav ANGER | Hydrogeological and geotechnical changes in Sokolov Basin caused | 99 |
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Abstract

Mining of brown coal in Sokolov Basin interferes with thermal gas rich water with the water level under the pressure. Since beginning of this Century the thermal water at Marie Mine has been pumped to make underground mining feasible. In the last decade thermal water at Jiří coal open-pit mine was pumped to provide geotechnical safety. This paper includes data based on evaluation of borehole routine measurements in area influenced by pumping, changes in water chemistry regarding to dewatering and results of geotechnical research.

| Blahoslav KOŠŤÁK | Model and Field Studies into the Dynamics of Block Slope Structure Formation | 125 |
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## Abstract

The dynamics of block-type slope movements on travertine hills of Spiš Region in Eastern Slovakia have been studied by means of fissure monitoring and physical photoplastic models. A new interpretation of the investigated deformations is given. The models show the process in which different block structures of the marginal zones of the hills originate as the effect of inclination in the underlying beds of flysh strata. It is either
a fan-like structure of towering blocks in the process of toppling like that found at the eastern slope of Dreveník Hill or block towers slipping at their base while toppling inwards, like those at the opposite slopes of the same hill. Monitoring of the Spiš Castle rock and masonry fissures provides present rates of the movements and/or data about stable hill sections showing present deformations in a phase of a long-term deformation process which can be studied in physical models successfully.

| Miroslav COUBAL, Jiří MÁLEK | Analysis of movements in brittle shear zones | 141 |
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## Abstract

Two basic groups of shear faults are distinguished in this paper: non-determined faults and determined faults. In non-determined faults, the orientations of the movement directions depend exclusively on their orientations relative to the regional stress tensor. Some faults within the brittle shear zones are referred to as determined. Movement directions on determined faults depend on the geometry of the shear zone deformation. Non-determined faults can be used for the computation of paleostress tensor parameters while determined faults can be used for the estimation of the orientations of the shear zone wall and of the movement on this wall.