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# QUO VADIS, DC RESISTIVITY ? New Ways in Direct Current Resistivity Field Acquisition Technology.

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**Abstract**

Collection of high quality DC resistivity data using conventional systems (VES, profiling) is time consuming, particularly where large areas are to be surveyed at small electrode spacing. Recently call for such detailed surveys came from engineering site, hydrogeological, environmental and archaeological studies and led to development of multi-electrode systems. Recent developments in DC resistivity imaging field acquisition instrumentation utilizing the capabilities of computer technology used in conjunction with multicore takeout cables and switched electrode arrays have resulted in production of resistivity imaging mirroring even subtle subsurface features more accurately than it is possible with conventional resistivity surveys. Thus this technique is particularly suitable for investigations where understanding complex subsurface structure in detail is important. Examples of its application obtained by ResiStar RS-100 with Multielectrode Cable System ME-100 (produced by Geofyzika, Czech Republic) are demonstrated (detailed determination of lithological boundaries, small scale tectonics study, engineering site investigation).

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# Non-conventional methods of satellite and geophysical data processing

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**Abstract**

The hardware and software used for processing of satellite images into digital form makes it possible to include in this process not only data describing the geophysical field of the Earth (gravity, magnetic, etc.) but also elevation data. In comparison with the conventional processing of geophysical data this brings about several advantages, mainly the possibility of comparing the characteristics of several fields and their representation on minor scales at the same time with a high resolution to limit main anomalities.

Moreover, this processing way gives a mutual verification of the most conspicuous anomality of geophysical data this brings about several advantages, mainly the possibility of comparing the characteristics of several fields and their representation on minor scales at the same time maintaining high resolution, which enables detection of their basic anomalities lies. On the other hand, this processing method enables verification of the major anomalous elements and structures.

These ways of processing Remote Sensing, geophysical and elevation data as well as other data files can be employed not only in the interpretation process, but also in compiling maps of all kinds.

Several examples of processing will be given and interpretation of geophysical, Remote Sensing and elevation data will be presented.

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# Monitoring of seismic activity in Northern Moravia by means of the seismic polygon Frenštát

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**Abstract**

Natural weak earthquakes in Northern Moravia and intensive seismic events induced by mine activities in the Ostrava-Karviná District (henceforth referred to as OKR) form a basic picture of seismic activity in the area under study. This seismic activity also creates a prevailing part of records in the network "Seismic Polygon Frenštát". A survey of recordings from 1992 to 1994 is presented in this paper. Seismic events are divided from the standpoint of localization into several groups, where the following analyses are made.

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# Regional geological division of the Bohemian Massif

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**Abstract**

Regional geological division has to obey the laws of typology, which however, respect neither the common regional geological divisions of the Bohemian Massif, nor the modern concept of the so-called terranes. The division of the crystalline units of the Bohemian Massif has to be based on distinguishing between structural levels which resulted from the last consolidation: Precadomian level, Cadomian level, Hercynian level. The platform cover forms a separate Saxonian or Alpine level. The inner division of these levels should take into account the stratigraphic and tectonic aspects. It is therefore necessary to analyse the position of marker beds (e.g. volca-nosedimentary groups, lithological layers) and their relation to both nappe tectonics (Silesicum, Proterozoic of the Barrandian) and fault tectonics (block structure, denudation levels). Properly defined geological units cannot end at the state boundary (Moravian Moldanubicum and Moldanubicum of Wald-viertel, Bavaricum). Neither can units with different tectonic position or stratigraphic content be joined in a single terrane (e.g. the Gföhl unit in the Moldanubicum and in the Lugicum).

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# The North-Tatra boundary / A structural – morphological element of the West Carpathians

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**Abstract**

The distinctive W-E striking boundary as a rule called "the North-Tatra boundary" is analysed. It is one of the elements best perceivable on satellite images. Our analysis is based on geomorphological, geological and geophysical data and is documented by reflection seismic profiles stretched across the selected parts of the area.

It is indicated that the boundary is accompanied on the surface by W-E striking faults observable also in the western and northern margins of the High Tatra Mts. However, they are not encountered in the sector intersecting the Klippen Belt. We consider the North-Tatra boundary a genetically heterogeneous structure, joined with different geological and/or geomorphological features. The age of individual sectors and portions of North-Tatra boundary is younger at the eastern end, and is post-Senonian, but pre-Middle Badenian.