

maps 1:50 000 a new “General geological map of the Slovak Republic 1:200 000” has been compiled, which should solve many interregional problems that emerged during the long period of mapping. The map is available in the aggregate form and in the individual sheets as well. The each sheet contents of geological sections, sketches of the tectonic units and the scheme of authors` contributions. The common legend to the General Map has been compiled. The legend to tectonic sketches was compiled in accordance with the principles of the Tectonic map of the Slovak Republic 1: 500 000. The General Map is prepared also in an electronic form, which enables interconnection among single sheets. Common explanatory text to the map was issued in the 2009.

The Slovak Republic is located in the Western Carpathians mountain range. On the new general map actual conception of the geological structure and division of the Western Carpathians is presented. This conception appears from tectonic evolution and succession of the tectonic unit's origin. Western Carpathians are divided into Outer and Inner as a result from the youngest Neoalpine tectonic processes between the European platform and the Inner Carpathian block. The outer Carpathians are represented by the Flysch belt. A splitting element from the Inner block is the Neoalpine structure of the Klippen belt which contents units from both zones. The inner block is composed of Paleo - alpine tectonic units on which Tertiary sediments and volcanics are deposited.

## **Aspects and significations of plagioclase disequilibria in the rocks of the Ditrau Alkaline Intrusive Complex (Romania)**

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The Ditrau Alkaline Intrusive Complex (DAIC) is exposed in the southern part of the Crystalline-Mesozoic Zone of the East Carpathians. It is a complex Mesozoic intrusive body, which was incorporated in the Alpine Bucovinian Nappe during the Mid-Cretaceous shortening (the Bucovinian shear plan cut the DAIC at a depth of about 1800 m).

In terms of petrography, DAIC is characterized by diverse rock types, lacking compositional constancy and gradual transitions from one petrographic type to another.

By universal stage (US) plagioclase feldspars from hornblendite, diorite and monzonite cropping out in the left side of the Jolotca valley and along the way Ditrau-Hagota, plagioclase feldspars of nephelinsyenite from the Ditrău valley and plagioclase feldspars from ultramafics cropping out in the right side of the Teasc valley were analyzed. As a result of these analyses we found that a great part of the studied crystals emphasis, zoning, corroding and varying degrees of structural disorder. These plagioclases are generally twin and the twins frequently are complex twin (57.6% of cases) supplemented by parallel and normal twins, equal among themselves in share (21.2% of cases). Contents in anorthite determined by US were verified and detailed by microprobe. They are in the range An 0.09% - An 55% and show numerous frequency peaks. This, in conjunction with succession relations observed microscopically highlighted the existence of several feldspar populations: First plagioclase population that appears in gabbro is represented by an up to An 50% plagioclase. In diorites only exceptionally is present: in zoning structures, or in armoured structures (just in plagioclase core). A second population of plagioclase has a maximum frequency around An 27% -An 30% and appears to be the centre of crystals or around the cores containing over An 40%. It is found in diorite mainly, but in monzodiorite, monzonite or syenite as well. The third plagioclase population has the content around An 20%. It is found mainly in monzonite, syenite, and granite. The fourth population of plagioclase forms a peak at around 14% anorthite. It is not represented in gabbros but since diorite and ending with syenite this is omnipresent. The fifth plagioclase population (albite/oligoclase) appears mainly in the nepheline syenite. Like in all other types of rocks, the nepheline syenite presents a progressive decrease in calcium of the plagioclase feldspars due to the presence of several plagioclase phases. Here, however, the difference in composition between the phases is much smaller. The nepheline syenite oligoclase, rarely exceeds the An 10% -An 12% content but remains at approx. six, seven percent away to the albite which came later. The sixth

plagioclases population (we consider the second plagioclase generation) has an albitic composition typically range between An 3% and An 8%. This albite is found in all the rock types from monzodiorite to syenite or nepheline syenite. The albite surrounds all other plagioclase crystals and edits the contact contour of early crystals.

The albite (the second generation of plagioclase) is in a microcline, perthite and sometimes nepheline association while the calcium plagioclase is in a hornblende, sphene and sometimes pyroxene association.

The process of reorganization of first plagioclase feldspars generation is developed to a high temperature level (between the “liquidus” and “solidus” lines of crystallizations diagram) so here an open system evolution process as magma mixing is. The existence of the high plagioclases (plotted on, or near the high temperature curves of the standard stereogram used in US determination) also the existence of the zoning structures, show that the process can not be a metasomatic one.

## **Measurements of personal UV doses at different human activities**

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Ultraviolet (UV) solar radiation plays a very meaningful role in many processes in the atmosphere and biosphere, strongly affecting life on the Earth, and human health in particular. A long term overexposure to UV radiation may cause photoaging, suppression of immune system, skin cancer and cataracts. On the other hand, UV radiation is required for vitamin D<sub>3</sub> synthesis and its lack may lead to rickets and other diseases.

Standard measurements of UV radiation are performed with the aid of radiometers situated on the roofs of buildings or masts at the uncovered places, put out directly to the Sun. Data from these measurements are used as a measure of UV radiation influence on human being. Nevertheless, the human body is not a stationary flat surface put out directly to the Sun, so doses of UV radiation obtained from standard measurements do not describe the total UV doses absorbed by human body.

The main objective of this study is to present the results from the comparison of stationary measurements of personal dosimeters Gigahertz-Optik X2000-10 and Solar Light UV-Biometer, and results of measurements of personal UV doses at different human activities. Both meters are designed to measure the erythemal UV radiation.

The comparison of personal dosimeters Gigahertz-Optik X2000-10 and Solar Light UV-Biometer was performed at Legionowo, at different solar zenith angles (SZA) and total ozone (TO). For comparison the reference Solar Light radiometer SL 935, calibrated during international comparison campaigns, was used. The results of dozens measurements at SZA in the range 25-65° and TO from 274 DU to 339 DU, showed a significant dependence of dosimeters correction factor from solar zenith angle.

The measurements of personal UV doses at different human activities have been performed in the Tatra Mountains, during a few excursions at altitude 1000-2000 m above sea level. Measurements were performed simultaneously by two persons and the detectors were fixed on their arms. Personal UV doses were compared with daily doses of UV radiation measured by Solar Light radiometer situated at the IMWM station in Zakopane (855 m a.s.l.). Personal UV dose absorbed by human body during 7-8 hours mountain excursion in clear day is approximately 50% less than daily dose of UV radiation measured by Solar Light radiometer.

Other measurements took place in the eastern part of Poland, during a walk with a child. One detector was fixed to the baby carriage, the other on the arm of the baby-sitter. Detectors fixed to the baby carriage measured the UV dose 50% greater than the other.