In depth extension of the W Black Sea rifting processes is well revealed by the seismic tomography. Two major issues are well outlined by the geophysical information provided at various levels: the indent representing the lithosphere expelled towards the Carpathians (which is consistent with the two types of the Moesian Platform basement), and the splitting of the Moesian Plate (MoP) into several slivers by reactivation or creation of some deep crustal/lithospheric faults striking north-westward.

Some of the well known regional faults on the Romanian territory (e.g. Sfantu Gheorghe Fault (SGF), Peceneaga-Camena Fault (PCF), Intra-Moesian Fault (IMF)) may be seen as lithospheric boundaries deep to more than 100 km.

After the Black Sea opening ended, it seems that the geodynamic engine in the area became the active rifting within SW Arabian Plate, pushing the plate northward by about 48 mm/year. After accommodating about 15 mm/yr along the North Anatolian Fault, part of the motion is relocated to the Black Sea microplate, pushing the East Carpathians foreland encompassed between PCF and IMF towards NW. Evidence of this push are provided by the Quaternary (Walachian) folds in the bending zone of East Carpathians, and, more recently, by the stress revealed by borehole breakouts studies, or direct geodetic monitoring of the crust deformation along the PCF flanks.

It seems that under this stress, the above-mentioned MoP compartments advance towards the Carpathians kept together by friction. However, from time to time, when tectonic forces overcome the frictional forces the above-mentioned lithospheric slivers may relatively slip each other thus generating earthquakes within their brittle, upper part. This may explain the unusual intracratonic crustal seismicity of the eastern Moesian Platform.

Within the bending zone of East Carpathians, speed excess provided to MoP by the W Black Sea opening created circumstances for the occurrence of an unstable FFT (transform-transform-compression) unstable triple-junction between the three tectonic plates joining the area: MoP, East European Plate (EEP) and the Intra-alpine Microplate (IaP).

Results of a combined inversion of seismic and gravity data are fully consistent with the assumption, by revealing a prismatic triangularly shaped high velocity compartment collapsed into the upper mantle, having vertices parallel to the plate boundaries. Therefore, Vrancea unstable triple-junction (VTJ) might be responsible for the unusual intermediate-depth seismicity within full intra-continental environment. The sinking into the hotter upper mantle of a colder lithospheric compartment generates P-T disequilibrium to which thermo-baric accommodation phenomena (e.g. thermal stress, phase transform processes) may occur as seismic sources.

In depth distribution of the Vrancea intermediate-depth seismicity, with maxima located at the depths where the colder high velocity (seismic) body met the hotter asthenosphere of the surrounding tectonic plates is fully consistent with the assumption.

Top of geological maps creation in the last forty years in the Slovak Republic: a new general geological map 1 : 200 000

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Geological mapping in the territory of the Slovak Republic has a long tradition. The climax of production of geological maps in the last century was a complete edition of synoptical maps 1:200 000 at the beginning of 60-ies. The centre of gravity in the following period was shifted to systematic geological mapping in the scale 1:25 000. Mapping was organized in particular geomorphologic units – regions. These maps had utilized for compilation of regional maps 1:50 000 which were issued together with book explanations for public using. Hither-to the nearly whole Slovakian territory is covered by regional geological maps in scale 1:50 000. The first regional map 1:50 000 was issued in the 1972 and to the present day number of 47 regional maps from the total of 51 were issued. When compared with other countries it is relatively high per cent covering of the territory. On the basis of the

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