

Our report presents the results of the last two-year research on the tellurium resources hosted into three waste dumps (Sectors I, II and III – at Sacaramb area) and into the “Iazul Avariati/Damaged Tailings Dam” at Certej. The tellurium contents have been determined using ICP-MS on the previously analyzed samples where Au-AA26 method for Au- and Ag-contents was made. Based on the resulting data the Au/Te ratio was obtained and the tellurium resources were estimated. Concerning the Au/Te ratio, it should be mentioned that this is ~ 0.25 in the case of the damaged tailing dam and it is averaging 0.35 in the three waste dumps; these values are different from the above mentioned theoretical values. The explanation of the existence of a higher Au/Te ratio in the damaged tailing dam is that the tailings originate from the processing plant where gold has been recovered, but tellurium has not. Consequently, the Au/Te ratio changes for Te. There is a difference in the content of useful elements in all four investigated zones, meaning that the waste dumps have higher Au and Te contents in comparison with the ore deposit. According to the new data, accepting that the Au/Te ratio is 0.3, it would result in a resource of ~ 85.7 t of tellurium for all the perimeters of Sacaramb.

Regarding the correlation degree, tellurium is directly well correlated with gold and silver respectively, confirming that tellurium is related to gold and silver mineral compounds. Actually, the Au, Ag and Te distribution map into the tailings dam area and waste dumps area indicates an overlap of the enrichment zones for all these elements.

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Biostratigraphic zonation based on foraminifera and algae in the Triassic deposits of the north sector of the Eastern Carpathians

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Triassic carbonate deposits which represent the topic of our research belong to a system of Alpine nappes (Median Dacides) that form the Crystalline Mesozoic Area of the Eastern Carpathians. From bottom to top, these tectonic units are the following: the Infrabucovinian Nappes, the Subbucovinian Nappe, the Bucovinian Nappe and the Transylvanian Nappes. The Bucovinian Nappe has the highest extension among the Central-East-Carpathian Nappes system, supporting the remains of the Transylvanian Nappes that occur only as isolated klippe floating within the Hauterivian-Albian wildflysch Formation of the Bucovinian Nappe. The lower tectonic units of the Bucovinian Nappe, respectively of the Infrabucovinian Nappes and of the Subbucovinian Nappe, occur discontinuously, outcropping in several halfwindows. Triassic sedimentation started by an Induan detrital level, consisting of conglomerates and sandstones. The Induan deposits are overlain by Olenekian-Rhaetian carbonate deposits. The detrital Induan completely lacks microfauna and subsequently, the zones approached in our research are only defined in the overlaying carbonates. The Anisian-Ladinian dolomites and limestones that form almost exclusively the Infrabucovinian and Subbucovinian Nappes offer little micropaleontological information, and with no stratigraphical significance. The limestones of the Bucovinian Nappe and especially those of the Transylvanian Nappes have revealed a paleontological content, rich enough to define Triassic zones. As a result, the biostratigraphic zonation in the studied area especially relies on biofacies data, achieved by microscopic studies of carbonate Triassic deposits of these two last units. Six zones on foraminifera and algae assemblages are defined in the Olenekian-Rhaetian. The *Meandrospira pusilla* Zone characterizes the Olenekian stage. The zone occurs in Bucovinian and Transylvanian facies. It was separated in the stratified limestone level, overlying the detrital Induan in Haghimas Syncline (Bucovinian facies). The massive dolomites of the Bucovinian Nappe provided a poor paleontological content consisting of a few foraminifera of no stratigraphical value, which makes impossible the definition of the zone in the lower Anisian. The *Meandrospira dinarica* Zone corresponds to Pelsonian and Lower Illyrian of the

Bucovinian Nappe. It characterizes the lower half of the algal limestones, overlying Lower Anisian massive dolomites. The *Diplopora annulata* Zone characterizes the Upper Illyrian substage and Ladinian stage of the Middle Triassic. The zone has been identified in both Bucovinian and Transylvanian Nappes. The mentioned zone defines the upper half of the white algal limestones in Bucovinian facies and the white-gray limestones in Transylvanian facies. The *Ophthalmidium exiguum* Zone corresponds to Carnian and was only separated in Transylvanian limestone facies. The *Glomospirella friedli* and *Miliolipora cuvillieri* zone characterizes the Norian. The zone was separated only in the Transylvanian Nappes of the Rarau Syncline, where it occurs in two distinct lithologies: nodular red limestones and white limestones. The *Angulodiscus tenuis* Zone corresponds to Rhaetian Transylvanian facies. It was established in the red and grey limestones of the Rarau Syncline. Comparing the zones established by various authors in the Tethysian domain with the zones separated in this study in the Triassic carbonate deposits of the Eastern Carpathians, one will notice similarities and identities, especially at the Olenekian and Anisian stage. Starting with the Upper Triassic, the index-species here proposed are completely different of those that define the zones of the West Carpathians, Bulgaria, or the entire Carpathian-Balkan region. This proves the existence of some particular conditions, specific to sedimentation, within the north region of the Eastern Carpathians.

Biogeographic connections between Thracean-Aegean region and Eastern Paratethys

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The Thracean-Aegean region was an area with mainly continental deposition during long time from the Late Oligocene to the Early Miocene. Sedimentological evidence from the roughly terrigenous sediments testifies intensive uplift environments in the South Balkanids. Marine connections with the Mediterranean took place via the Pre-Alpine and Slovenian corridors during this time (Rögl, 1998; Popov et al., 2004).

The marine Middle Miocene sedimentation is very restricted in this region: S. Gillet (1957) illustrated Lower Sarmatian (Volhynian?) cardiiids and Rückert-Ülkümen (1993) found foraminiferal assemblage with Sarmatian endemic species (such as *Elphidium hauerianum*) from the area west of İstanbul. The upper Sarmatian (Khersonian) Beds with *Macra caspia*, *M. bulgarica* were described from the same area (Pamir, 1933; Erentoz, et al., 1953; Arıç-Sayar, 1957; Sayar, 1989). Probably, the region was a brackish water gulf of the Eastern Paratethys, extending to the Çanakkale region (Taner, 1997), but without continuation into the Aegean area. Data about the presence of Sarmatian and Maeotian in Macedonia (Stevanovic in Pontien, 1989; Stevanovic, Ilyina, 1982) are erroneous. Lagoonal fauna, of composition very similar to the Maeotian one, is alternated here with the real marine facies bearing *Arca*, big pectens and corals. Similar marine-brackish alternating facies are known in the Alçitepe Formation outcropping in the northern Aegean, Gelibolu and Çanakkale regions (Sakınç & Yalıtırak, 2005, Çağatay et al., 2006, 2007).

Brackish sediments with the Pontian-like mollusk and ostracod fauna are recognized in the whole Aegean Depression from the Northern Greece to Athens area. These deposits of the Choumnikon Formation are characterized by normal polarity and correspond to C3An.1n Subchron (6.30-6.04 Ma). The Choumnikon fauna includes numerous taxa with Paratethyan affinity: endemic lymnocypridines, *Congerina* and ostracods, but also euryhaline marine genera such as *Cerastoderma* and *Macra* among mollusks, which were absent in the Pontian of Eastern Paratethys as well as in the Pannonian Basin. We believe that the origin of the Choumnikon brackish elements is related to the oldest Pannonian biota. This formation is 40-50 m thick, underlain and overlain by sediments with marine Mediterranean fauna. At the