the degradation and deterioration phenomena. Also, for their analysis the nature and characteristics of the stone have been considered, along with the procedures of manufacturing, restauration, identifying some anomalies and inadequate interventions, already notorious.

Jurassic calc-alkaline granitoids associated with the East Vardar Ophiolites

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There are two major styles of Jurassic granitic magmatism associated with the Vardar Zone ophiolites: (1) strictly intra-ophiolitic intrusions dominating in the northern part and (2) magmatic bodies intruding both ophiolites and the basement in the southern part.

The intra-ophiolitic granitoids occur near Ždraljica and Kuršumlija (Serbia) and form dykes and small irregular bodies cutting gabbro-diabase ophiolite complexes. Geochemically, three subgroups are distinguished: (i) intermediate rocks, (ii) low-Sr_i granites and (iii) high-Sr_i granites. Intermediate rocks are represented by diorites, quartz diorites and quartz monzodiorites with Sr_i=0.70557 – 0.70746 and ε_{Nd}(T) -4.5 – -0.8. The low- and high-Sr_i granites are petrographically similar, but differ in isotope composition, i.e., Sr_i=0.70330 – 0.70767 and ε_{Nd}(T) -5.1 – 1.5 and Sr_i=0.70956 – 0.71602, ε_{Nd}(T) --6 – -5.1, respectively. Furthermore, the high-Sr_i granites have higher HREE and Y contents.

The southern granitoids in F.Y.R. of Macedonia and Greece (Fanos) form large bodies that intrude both the Vardar Zone ophiolites and metamorphic rocks of the Serbo-Macedonian Massif. The rock suite of F.Y.R. of Macedonia includes intermediate to acid members (diorite, quartz monzodiorite, granite) and shows a trend of decreasing radiogenic ε_{Nd}(T) -(3.3 – -8.9) and increasing Sr_i (0.70740 – 0.71588) with increasing silica content. In contrast, the Fanos granite is isotopically relatively uniform with Sr_i=0.70516 – 0.70559 and ε_{Nd}(T) -= -1.6 – -0.7.

Geochemical modeling suggests that the high-Sr_i granites derived from peraluminous magmas that were generated by obduction-induced melting of (meta) sedimentary rocks. The low-Sr_i granites and the intermediate rocks of Serbia formed separate, possibly small, magma chambers, partly related to obduction-induced melting of a low-Sr_i source, formed in part by subduction related volcanic arc magmatism.

Granitic magmatism in the southern part of the Vardar Zone is characterized by melting of slightly enriched mantle- and lower crustal magmas that were modified by AFC processes in F.Y.R. of Macedonia and FC processes in Fanos. Their emplacement was favored by collisional processes resulting in great crustal thickness and the post-collisional emplacement of mantle-derived magmas that provided the heat for partial crustal melting.

Paleoenvironmental setting of rudists in the Upper Cretaceous (Santonian-Campanian) deposits from Valea Neagră de Criş (Borod Basin)-Northern Apuseni Mts, Romania

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The Upper Cretaceous deposits located in the eastern extremity of Borod Depression represent, for the Northern Apuseni Mountains, a well-known cropping out area for Gosau-type facies with rudists which is similar to the typical Eastern Alps section. The investigated stratigraphic succession includes both carbonate and siliciclastic deposits. The carbonate deposits with rudists (hippuritids) bioconstructions crop out in the base of the succession. The upper part is dominated by siliciclastic sequences that contain, at various levels, bioaccumulations mainly consisting of radiolitids. The rudist assemblages identified from these deposits include species typical for the Gosau facies, as well as distinctive species (*Miseia, Gorjanovicia, Mitrocaprina)* characterising south-European, Mediterranean areas. These latter species are now first mentioned for the Upper Cretaceous deposits in the area under study.

Influence of air temperature and CO_2 concentration on C3 plants

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Adaptation ability of C3 plants was verified with regard to the expected climate changes. The measurement of carbon dioxide exchange was carried out and net photosynthesis (PN) was calculated in C3 species of white goosefoot (*Chenopodium album* L., Chenopodiaceae). The tested plants were grown in plant growth chambers (Sanyo MLR 350) with controlled temperature (20°C), light length (14 hours day) and illuminance (20000 lx). While testing, the air temperature was increased stepwise from 5 to 40°C. Similarly, CO_2 concentration was changed in leaf cuvette from 200 – 1500 ppm by built-in removable CO_2 regulator. Considering the assumed climatic changes relating a raise of the air temperature and CO_2 concentration, the values of carbon dioxide concentration based on the climate scenarios ECHAM4 (Germany) and HadCM3 (G. Britain) were classified as well. Optimistic carbon dioxide emissions scenario B1 assumed the CO_2 concentration to be 467 ppm and pessimistic one A2 to 535 ppm.

The exchange of carbon dioxide was measured after the plant adaptation on certain temperature and CO_2 concentration in the light as well as under dark conditions. The adaptation to the given temperature and CO_2 concentration took approximately 45 minutes. Except for the carbon dioxide concentration and air temperature setting, in the clamp-on chamber the photosynthetically active radiation (PAR) value was programmed to automatically control light intensity at the level of 500 µmol m-2 s-1 being the optimum for C3 plants. Measurements were taken with the CIRAS2 (PPSystems, UK) supplied with universal leaf cuvette type U RICE having the measured leaf area of 1.7 cm^2.

The C3 plants examined are best adapted to temperature ranging from 20 to 25°C in light. Nevertheless, at high concentration of CO_2 the C3 plants have proven to cope better with higher temperatures than with low ones. At 5°C the calculated values of PN achieved approximately 4 µmol m-2 s-1 regardless the carbon dioxide concentration. Conversely, at 40°C the influence of CO_2 concentration was more significant. Therefore, we suppose that with increasing CO_2 concentration C3 plants are able to tolerate rise in temperature. Net photosynthesis rate at 1000 ppm CO_2 reached at least the value of 10 µmol m-2 s-1. When dark adapted, there is a better ability to cope with a higher CO_2 concentration at lower temperatures. In the dark the PN values were often negative, because the energy required for plant survival exceeds the energy amount obtained by photosynthesis.

Considering these facts, the climate changes will have significant influence on C3 plants. As a response to the rising CO_2 levels and air temperature, the rate of photosynthesis will increase and plants will accumulate more aboveground biomass. It can be assumed that climate changes will influence the competition ability of crops as well as weeds. Additionally, climate changes could influence the ecosystems composition and plant morphology.