The Mt. Slatnik section starts with 75 m of mud-supported massive channelized slump breccias with laminated intraclasts and chert clasts, indicating an inner apron environment. They are followed by 19 m of medium-thick amalgamated, partly bioturbated beds of marly dolomite with parallel lamination and chert nodules. Non-dolomitized parts are represented by spiculite packstone. Slump breccias are rare. Deposition took place in an outer apron. The following 10 m of the succession are composed of several up to 1 m thick sedimentary cycles starting with thin-bedded cherty limestone and ending with more prominent marlstone layer. Limestone is texturally thin-shelled bivalve coquina pack- or wackestone, or very fine-grained peloidal and fine-grained peloidal-bioclastic packstone. In the latter grains are mostly of shallow-water origin. These beds are interpreted as distal turbidites intercalated within basin plain deposits. In the next 23 m the marly content markedly decreases. Beds are thicker. Among dolomite, limestone beds are preserved, texturally being mudstone or wackestone, with intercalated very fine peloidal and fine-grained peloidal-bioclastic packstone. Amalgamation is common as well as chert nodules and sedimentary structures, namely normal and inverse grading, parallel, cross and convolute lamination, geopetal structures and load casts. These beds were deposited in the outer apron. Massive clast-supported slump breccias in the next 13 m contain laminated dolomitic intraclasts and chert clasts. The first are concentrated near the lower bed-boundary and sometimes imbricated. Breccias indicate an inner apron environment. Next 20 m of medium-thick dolomite beds with subordinate laminated limestone with wackestone to packstone textures again mark the outer apron. They are followed by 17 m of dolomite with chert nodules, indicating deposition on a basin plain. Dolomite beds in the next 80 m thick interval in places exhibit convex lower boundaries, indicating occasional slumping in the lower part of this interval. Upwards, limestone predominates. Amalgamated beds show parallel, cross and convolute lamination, and grading. Texturally they are wacke- to packstone. This interval shows deposition in an outer apron. Mudstone in the uppermost part could indicate the beginning of the next deepening phase.

In summary, the bulk sedimentation of the Norian “Bača Dolomite” took place via slumps and sediment gravity flows. Two “retrogressive-progressive” (?) cycles can be deciphered, each with shifting of the place of deposition from an inner apron to basin plain environment.

Neoproterozoic and Paleozoic suprasubduction regional metamorphism, granitoid magmatism and geodynamics of the Caucasus

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The Caucasus represents complicated polycyclic geological structure involving mountain fold systems of the Greater and Lesser Caucasus and adjacent foredeeps and intermountain troughs. Paleomagnetic, paleokinematic and traditional geological data indicate that within the oceanic area of Tethys in geological past relatively small continental or subcontinental plates (terranes) were situated having various geodynamic nature and characterized by specific lithologic-stratigraphic section and magmatic, metamorphic and structural features. During the Neoproterozoic, Paleozoic and Early Mesozoic they underwent horizontal displacement in different directions within the oceanic area of Proto-, Paleo-and Mesotethys (Neothetys) and as a result of Variscan, Early Kimmerian, Bathonian and Austrian orogeny underwent mutual accretion and ultimately joined the Eurasian continent. South of the Scythian platform (Sp) the Greater Caucasian (GC), Black Sea-Central transcaucasian (BC), Baiburt-Sevanian (BS) and Iran-Afghanian (IA) terranes are identified in the Caucasian segment of the Mediterranean mobile belt, which in geological past represented island arcs or microcontinents.

In modern structure they are separated by ophiolite sutures of different age, which mark the location of small or large paleooceanic basins. All terranes of the East order (superterranes), as well as the southern edge of Sp are characterized by manifestation of polymetamorphism, though in various terranes, separate stages of regional metamorphism established by geological observation, but mostly confirmed by isotopic-geochronological data (K-Ar, Ar-Ar, Rb-Sr,U-Pb, Sm-Nd), became unequally apparent. For instance, Grenville regional metamorphism is observed only in GC (T-700-750C, P-3.2-3.5kbr), BC (T -600-700°C, P-3.2-3.5kbr) and IA (T -500-550 °C, P-3.8kbr) terranes, whereas the Baikalian - only in Sp (T-300-400°C, p-6_5-s_51<bf) and IA (T-460°C,P-4kbr) terrene. Late Baikalian metamorphism took place only in GC (T -430-540°C, P-3.3-3.5kbr) and BC (T -540-570°C, P-2.5kbr) terranes. Caledonian regional metamorphism strictly characterizes Sp (T 700+-50°C, P-17.8+-4kbr) and GC (T -500-620°C, P-2.2-2.8kbr) terranes. Early Variscan (Bretonian) metamorphism is observed almost in all terranes of the Caucasus: GC (T -350-630°C, P-1.35-2.7kbr), BC (T -320-380°C, P-1.5-1.8kbr), BS (T -330-550°C, P-1.5-2.6kbr) excluding IA terrene, and southem edge of Sp. Late Variscan metamorphism also comprises almost the whole Caucasus (T <4 30°C, P< 1.4kbr) excluding Sp and IA terranes. Within separate terranes, as well as in Sp, synchronously or almost synchronously with principal stages of metamorphism (connected with main phases of tectogenesis) formation of pre-syn- and postmetamorphic granitoids of different type took place. Based on a vast analytical material concerning the petrogenic and rare elements in pre-Alpine granitoids of the Caucasus, it is established that the Neoproterozoic granitoids, occurring in all terranes excepting SP, are represented mainly by the crustal and upper crustal formations of the subduction mantle-crust and mantle island arc categories.

The Late Baikalian granitoids are developed in GC and BC only. They are represented by the subduction mantle-crust and crust-anatectic categories. The Caledonian granitoids, cropping out only on SP, are represented by the subduction mantle-island arc formations formed with participation of the mantle and lower crustal material, and also subduction granitoids emerging due to melting of the immature continental crust. The Bretonian granitoids appear only in GC and BS. Granitoids of GC as whole correspond to the upper crustal granitoids of the other regions of the world, whereas the granitoids of BS are represented by the subduction formations of the mixed mantle-crust category; sialic part of the continental crust has an insignificant role during their formation. The late Variscan (Sudetian) granitoids are present in all terranes, excluding IA. The Sudetian orophase is the time of post-metamorphic potassium granitoid formation and consequently of true continental crust. The Sudetian granitoids of all exposures are characterized by similar composition, pelrogeochemical parameters and geodynamic conditions of formation. Their major part corresponds to the upper crustal formations, and the minor part - to the common crustal ones. The observed occurrence of different age and diversity of endogenic activity in various terranes of the Caucasus show asynchronism of episodic activity of subduction zones on different sides of oceanic basins separating these terranes.

Geomorphological and geological observations at the coast of Tripiti Hill (Heraklion Harbour, Crete), in relation to reported active faulting

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Heraklion is a fast-growing urban centre where knowledge of active faulting is necessary for city planning and infrastructure projects. Neotectonic faults (not all necessarily active at present) most probably traverse the built-up coastal part of Heraklion, but they require subsurface geological and geophysical studies to be precisely located and characterised. In the frame of a research project assigned to the Institute of Geodynamics by the Heraklion Municipality, we made detailed geomorphological and geological observations in the coastal area of the Tripiti Hill, where previous workers report a NNW-SSE trending, WSW-dipping, presently active normal fault crossing the port of Heraklion as well as a