The main argument is the report of an inverted metamorphic gradient across the shear zone. As it is described in the literature, however, this gradient remains difficult to interpret. In contrast, for other authors, top-to-SW shearing across the NSZ reflects extensional shearing. This view relies on the apparent structural continuity and the consistency of fabrics between the NSZ and a domain of Neogene ductile extension further southwest. Based mostly on K-Ar Hbl ages, it is usually argued that shearing across the NSZ persisted until ca. 37 Ma. If so, support to the second interpretation may be found in the growing number of studies suggesting that post-orogenic extension started in and around the RMC during the Eocene or before.

We carried out a structural, petrological and geochronological (U-Pb and ^{39}Ar-^{40}Ar) study of the NSZ. Inverted metamorphism is confirmed and is found to be coeval with top-to-SW shearing. The whole SU (including its base, overlapping with the NSZ) experienced the conditions of advanced partial melting at T > 650°C. Leucosomes that locally crosscut the main fabric crystallized between ≥ 50 and ca. 40 Ma (U-Pb zircon and monazite ages), just before cooling of the metamorphic pile. This shows that at least part of the migmatization is not an old event but is part of the syn-shearing metamorphic evolution. In contrast, rocks of the PU right beneath the SU do not show any evidence that they ever reached the conditions of anatexis. In orthogneisses, microstructures document amphibolite facies shearing. Although relatively rare, metabasites and Grt-bearing micaschists keep the record of a prograde metamorphic path culminating at T ≤ 620°C (at P ~ 8-10 kbar). Thus, higher-grade rocks were emplaced onto lower-grade rocks during top-to-SW shearing, attesting for synmetamorphic thrusting along the NSZ. Hornblende ^{39}Ar-^{40}Ar single-grain plateau ages from the NSZ are between 39 and 37 Ma, which we interpret as dating amphibolite facies shearing. Later strain increments have produced greenschist facies mylonites and ultramylonites subconcordant with the earlier fabric and with identical kinematics. White mica ^{39}Ar-^{40}Ar single-grain plateau ages from these rocks are between 36 and 33 Ma, which we interpret as dating mylonitization. With respect to peak conditions in the PU, this deformation occurred at lower grade conditions, therefore inverted metamorphism cannot be invoked in this case. Nevertheless, several lines of evidence indicate that this deformation reflects thrusting as well. Consequently, our study documents persistent synmetamorphic thrusting along the NSZ as late as ca. 33 Ma. This is consistent with results obtained from the Chepelare Shear Zone, in the Bulgarian Central Rhodope (Gerdjikov et al., this volume), and contradicts the view that post-orogenic extension was already active in pre-Oligocene times in the northern Aegean. Our analysis of the RMC further indicates that post-orogenic extension did not start before ca. 27 Ma. Hence, it started at about the same time than it did further south in the Cyclades and Menderes region, at variance with the statement in some recent geodynamic syntheses. The picture arising from the RMC is consistent with a change in the geodynamic setting of the whole Mediterranean at around 30 Ma, from strongly compressional (i.e. Alpine collision) to a situation dominated by trench retreat and post-orogenic extension.

Biostratigraphy and palaeoenvironment of the Upper Cretaceous flysch sediments of the Mestia-Tianeti Zone of the Greater Caucasus Fold System

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For the detailed stratigraphic division of the Upper Cretaceous sediments of the Zhinvali-Gombori subzone of the Mestia-Tianeti zone GCFS, and for specifying the volume and age of the formations, in the facies of Sadzeguri-Shakhveli and Zhinvali-Pkhoveli nappes the sections of the Ksani and Aragvi river basins (the rivers Aleura, Sakanaphe, Arkala, Didi

Jakha, Patara Jakha; near the villages Sadzeguri, Korinta, Ananuri, Muguda, Avenisi, Pavleuri) have been studied.

Detailed study of the assemblage composition of calcareous plankton contents (calcareous nannofossil and planktonic foraminifera) of the Late Cretaceous sediments of the Zhinvali-Gombori subzone of the Mestia-Tianeti zone of the Greater Caucasus fold system (GCFS) has been carried out for the first time in this region to define biozonation. Within the limits of the Cenomanian-Maastrichtian 9 small foraminiferal and 19 nannoplankton biostratigraphic units (zones and subzones) have been established. Here are specified volume and age of lithostratigraphic units (successions) composing the Upper Cretaceous of the Mestia-Tianeti zone of GCFS: the Ukughmarti succession – CC9 (Early Cenomanian); the Ananuri succession – CC9-CC11 (Early Cenomanian-Early Turonian); the Margalitisklde succession – CC12-CC13 and planktonic foraminifera zones Marginotruncana pseudolineiana-M. lapparenti and Marginotruncata sigali. (Late Turonian-Early Coniacian); the Eshmakishevi succession - CC14-CC19 (Late Coniacian-Early Campanian) and zones Archaeoglobigerina basquensis and Globotruncana arca (upper part of the succession); the Jorchi succession – CC20-CC25a (Middle Campanian-Lower Maastrichtian), in the sediments of CC22c is established the small foraminiferal zone Globotruncana ventricosa-Rugoglobigerina rugosa; the Sabue succession – CC25b-CC26 and foraminiferal zone Gansserina gansseri (Late Maastrichtian).

The analysis of the Late Cretaceous nannoplankton and foraminifers association of the Zhinvali-Gombori subzone of the Mestia-Tianeti zone of GCFS has shown the existence of four sedimentary cycles: Cenomanian-Early Turonian, Middle Turonian-Early Campanian, Late Campanian-Early Maastrichtian and Late Maastrichtian On the territory of Georgia contained in the Late Albian pool there were is established some large sites of a land, where the Cenomanian sediments with the washout rest on the underlying formations. In the Cenomanian-Early Turonian there was a basin of isolated, regressive sea in the southern part of the moderately cold-water belt. From the Late Turonian the boundary between the warm- and moderately cold-water belts moved to the north. Transgression that started in the Late Turonian lasted till the Early Coniacian. In the middle part of the Early Coniacian is outlined shoaling of the basin. From the Late Coniacian to the end of the Santonian sedimentation took place in the shallow, calm marine basin. The omission of the nannoplankton CC19, CC20, CC21 and CC22a, b zones from the sections of the Zhinvali-Pkhoveli nappe and the analysis of the redeposited forms enables to admit break in sedimentation caused by Early Campanian regression and Late Campanian transgression. At the end of the Middle Maastrichtian took place a short-term regression that was replaced by the Late Maastrichtian transgression.

A latest Anisian radiolarite event in the High Karst Nappe in the Dinarides (Montenegro)

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In the High Karst Nappe in southern Montenegro radiolarites of unknown age topped the Upper Anisian Bulog Limestones (Late Pelsonian to Illyrian) in the investigated sections Boljevici near Virpazar and Obzovica on the road Budva to Cetinje. Radiolarian faunas from the radiolarites as well as conodonts from the overlying red hemipelagic limestones prove an Illyrian age of the radiolarites. The time interval of the deposition of the up to 5 m thick radiolarite successions is relatively short and started and ended in the Illyrian.

In the section Boljevici the hemipelagic succession starts with red hemipelagic Bulog Limestone on top of shallow-water limestones equivalent to the Ravni Formation (Dedovici Member) in the Outer Dinarides or the Steinalm Formation in the Eastern Alps/West