maps covering the area from Megalopolis basin to Lakonikos gulf and the Global Elevation Model (GDEM) derived from Advanced Spaceborne Thermal Emission and Reflection Radiometer (ASTER) imagery. The GDEM has a nominal 30 meter cell size, but its effective spatial resolution is estimated between 100 and 120 meters. All these data were integrated in a GIS environment using the Greek coordinate system EGSA 1987.

The kinematic analysis based on field observations shows the following multiple reactivations with a dip-slip movement of the entire fault zone since Pliocene: 1) an E-W extension during upper Pliocene 2) a NE-SW extension during lower Pleistocene and 3) a NW-SE extension during middle Pleistocene to the present. Assessment of the seismicity associated with this fault zone and the seismic potential based on its geometric and kinematic characteristics shows that it is a seismically dormant fault zone segmented into at least 3 segments of a length of about 20-25 km.

The strong earthquakes of VI and V century BC which struck Sparta town seem to be associated with the central segment of the zone known as Sparta fault. Based on morpho-structural analysis, the average slip rate since Early Quaternary could be estimated as 0.5 mm/yr, which allows us to characterize the fault as of moderate activity. Mmax for the fault of 20 km length could be estimated as M=6.5 and the corresponding Recurrence Time as 2,000 years average.

The results of the estimated fault potential (Mmax, RT) using calculations of slip-rate model (slip rate 0.5 mm/yr) and EZ-FRISK software (Risk Engineering, 2005) fit to the parameters derived from empirical relations.

The great destruction that Sparta town suffered at 550 B.C. and 464 B.C. could be attributed to high values of acceleration due to the close proximity to seismogenic fault (near field effect) as well as to the amplification of the strong ground motion due to loose quaternary deposits lying under Sparta town.

Variscan transpression and related voluminous magmatism in Central Strara Planina Mountain, Bulgaria

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In the area of Central Stara Planina Mountain and northernmost parts of Central Sredna Gora the pre-Mesozoic basement of Balkanides is largely exposed. Despite Alpine tectonic overprint the area provides unique chance to deciphering the Variscan history. Of greatest interest is the contact juxtaposing two contrastingly different units (terrains): i) the basement of Central Sredna Gora, comprising high-grade metamorphites (paragneisses, amphibolites, minor orthogneisses, and schists as well as isolated bodies of metagabrros and eclogites) migmatized at 336.5 ± 5.4 Ma; ii) the basement of Central Stara Planina Mountain consisting of Early Paleozoic low-grade metasediment-dominated complex (locally named Diabase-Phyllitoid Complex). Recently, we carried out detail structural observations along this E-W trending contact designated as the Stargel-Boluvanya Tectonic Zone. All features suggest it is related to transpressive crustal-scale deformation. The zone is traced for about 40 km and its general thickness reaches up to 4 km. It accommodated an intense ductile deformation, which is prograde for the low-grade metamorphites and retrograde for the high-grade rocks. The detail mapping of continuous profiles across the zone, where indications of Alpine overprint has not been established, clearly demonstrates that the syn-metamorphic shearing caused a juxtaposition of both contrast metamorphic units or an emplacement of the high-grade on to the lower-grade rocks. Within the zone, a W-SW trending foliation is ubiquitous, moderately to steeply dipping to the south or sub-vertical. This fabric associates with less pronounced S-SW-plunging or sub-horizontal stretching lineation. The observed sense of shear criteria indicate: i) top-to-north tectonic transport in sectors where the foliation is moderately dipping to the south and the lineation is SW-plunging; ii) dextral (?) shearing in sectors of the zone where the foliation is sub-vertical and the lineation is sub-horizontal. The observed field

relations suggest that the zone was active shortly after the thermal peak of metamorphism of the gneiss-migmatite basement of Sredna Gora at 336.5 ± 5.4 Ma, but before the post-tectonic emplacement of one of the largest Late Carboniferous (314 ± 4.8 Ma) granitoid pluton (the Vezhen pluton), which sealed the zone-related fabric of the low-grade metamorphites.

The continuation of the Stargel-Boluvanya Tectonic Zone eastwards (in the area of Karlovo, Central South Bulgaria) is problematic due to the emplacement of Late Variscan syn- to post-kinematic granitoids as well as the Late Alpine thrusting. Nevertheless, in this segment the geometry and kinematics of the penetrative deformation fabric, again suggest transpressive shearing. Here, no direct contact between the high- and the low-grade metamorphites has been observed. It is "obscured" by voluminous granitoid magmatism represented by batholitic-scale, foliated to isotropic granitoid bodies. The foliated bodies (Karlovo-Ribaritsa granitoid suite) represent NW- to W-trending granite sheets concordantly emplaced into low-grade metamorphites. The granitoids exhibit a steady S-dipping solid-state foliation and very rarely magmatic layering and foliation. The stretching lineation is dominantly strike-parallel - E-wagnerW to SW-NE oriented. Along the contacts of the bodies evidences of a "lit-par-lit" emplacement have been observed. In the immediate host rocks, widespread granitoid dykes are intensively mylonitized. Meso- and micro-scale observations indicate mid- to high-temperature greenschist facies conditions of the solid-state overprint. Up to now none of these bodies have been precisely dated but the preliminary results of U-Pb dating of zircons (oral communication, Albrecht von Quadt) point to Late Carboniferous emplacement. Rather similar is the age of the unfoliated granitoid bodies post-tectonically emplaced into both the low-grade and high-grade metamorphites.

On the bases of the available structural and age data we can speculate that during the Mid and Late Carboniferous the transpressive shearing along the Stargel-Boluvanya Tectonic Zone led to: i) final exhumation of the high-grade basement of Central Sredna Gora shortly after the migmatization process; ii) formation of the syn-metamorphic fabric of the low-grade metamorphites; iii) creation of pathways for emplacement of voluminous magma batches. The zone played a major role during the amalgamation of two pre-Mezozoic terrains with contrastingly different evolution.

First report of Stromatocystites (Echinodermata) from the Middle Cambrian of Turkey: Palaeobiogeographic implications

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Stromatocystites is one of the oldest and most primitive known echinoderms. This genus is relatively common in early to middle Cambrian deposits of Baltica (Sweden) and Gondwana (Australia, Bohemia, Newfoundland, Spain). It possibly also occurs in younger (Late Cambrian) strata of Montagne Noire (S. France). *Stromatocystites* is characterised by rounded to slightly pentagonal outlines, a flattened, biscuit-shaped body consisting in 1) a domed, polyplated, oral (upper) surface bearing five ambulacra and numerous respiratory openings (sutural pores); and 2) a slightly concave aboral (lower) surface. Such a morphology is extremely plesiomorphic within echinoderms. *Stromatocystites* differs from basal blastozoans (e.g., *Lepidocystis*) by the absence of free ambulacra (brachioles), from basal crinoids (e.g., *Titanocrinus*) by the absence of body wall expansions (arms), and from basal edrioasteroids (e.g., *Cambraster*) by the absence of a well-differentiated marginal ring. We report here on the recent discovery of two well-preserved specimens of *Stromatocystites*, collected within a shale interval in the upper part of the Middle Cambrian (Drumian) Koruk