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Short Communication

Morphotectonic Nature of the South Moesian Morphostructural Zone

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ABSTRACT

Key words:

morphostructural zone,
transcontinental collision,
morphotectonic suture,
orthoplain, mountain uplifting

The article represents the author's contemporary mobility concept about the morphotectonic nature of the South Moesian Morphostructural Zone in North Bulgaria. The mentioned morphounit corresponds with the Moesian Continental Microplate South Margin between Timok River to the west and Kamchia River to the east. The north boundary of the zone coincides with fault bundle system along the Lower Danube River between Timok River Infuse to the west and the town of Cherna Voda to the east and between the towns of Cherna Voda and Constanta in Nord Dobrudzha. The south boundary of the zone is following on the north slopes of the Fore Balkan and Stara Planina Mountain Ranges. The short west boundary near the Timok River separates the zone from the Carpathian Continental Microplate. The east zonal boundary limits it from the Black Sea Oceanic Microplate. The South Moesian Morphostructural Zone is representing one of the most contemporary fragments from the large post Early Pleistocene Orthoplain in the Balkan Peninsula North-East Part. It plane-lowland zonal relief contrasts with the relief of the neighbor first-rare morphotectonic units. The internal zonal pattern includes the Lower Danube Morphostructural Area (with Lom and Lovech Morphostructural Regions) and Ludogorie Morphostructural Area (with Ispirih, Shumen and Dobrich Morphostructural Regions). The South Moesian Morphostructural Zone is a north part of the Maestrichtian-Early Neozoic Morphotectonic Suture between the Bulgarian and Moesian Continental Microplates during the New Europe Continental Massif Building. The till today continued Gondwana-New Europe Transcontinental Collision in the Mediterranean Region has bring very intensive Post Early Pleistocene Orthoplain Destruction and high mountain relief building (Rila, Pirin, Rhodope Mountain Massifs) in the Bulgarian Continental Microplate South-West Parts. The mentioned collision has causes the Fore Balkan and Stara Planina Syncinematic Uplifting in the suture zone between the Bulgarian and Moesian Continenta Microplates to. The South Moesian Morphostructural Zone has stay unaffected from those morphotectonic processes.

Introduction

The article represents the author's contemporary mobility concept about the origin and morphotectonic nature of the South Moesian Morphostructural Zone in North Bulgaria. It is lanced a mobility investigation about the zonal and regional morphostructural peculiarities in connection with the endogen earth crust geodynamic processes in the Balkan Peninsula East Part.

Regional situation and borders

The South Moesian Morphostructural Zone corresponds with the Moesian Continental Microplate South Margin between Timok River to the west and Kamchia River to the east (Fig. 1). The north boundary of the zone coincides with the fault bundle system along the Lower Danube River between Timok River Infuse to the west and the town of Cherna Voda to the east and between the towns of Cherna



Figure 1 Overview map of the Balkan Peninsula East Part. Atlas of Geography, 2002

Voda and Constanta in Nord Dobrudzha. The south boundary of the zone is following on the north slopes of the Fore Balkan and Stara Planina Mountain Ranges. The short west boundary near the Timok River separates the zone from the Carpathian Continental Microplate. The east zonal boundary limits it from the Black Sea Oceanic Microplate.

Morphotectonic position of the zone

The South Moesian Morphostructural Zone (Tzankov and Stankova (2013, 2015), Stankova and Tzankov (2016), Tzankov and all. (2016)) is representing the most contemporary fragment from the large post Early Pleistocene Orthoplain in the Balkan Peninsula North-East Part. The plane-lowland zonal relief contrasts with the relief of the neighbor first-rare morphotectonic units (Fig. 1). The internal zonal pattern includes the Lower Danube Morphostructural Area (with Lom and Lovech Morphostructural Regions) and Ludogorie Morphostructural Area (with Ispirih, Shumen and Dobrich Morphostructural Regions).

The South Moesian Morphostructural Zone is a north part of the Maestrichtian-Early Neozoic Morphotectonic Saturation between the Bulgarian and Moesian Continental Microplates during the New Europe Continental Massif Building. The till today continued Gondwana- New Europe Transcontinental Collision in the Mediterranean Region has bring very intensive Post Early Pleistocene Orthoplain Destruction and high mountain relief building (Rila, Pirin, Rhodope Mountain Massifs) in the Bulgarian Continental Microplate South-West Parts. The mentioned collision has causes the Fore Balkan and Stara Planina Syncinematic Uplifting in the suture zone between the Bulgarian and Moesian Continental Microplates to.

The South Moesian Morphostructural Zone has stay unaffected from those morphotectonic processes.

Internal zonal morphostructure

The plane-lowland relief of South Moesian Morphostructural Zone contrasts with the relief of the neighbor first-rare morphotectonic units. The internal zonal pattern (Fig. 2) includes the Lower Danube Morphostructural Area (Fig. 2) with Lom, Pleven and Lovech Morphostructural Regions (Fig. 3) and the Ludogorie Morphostructural Area with Ispirih, Shumen and Dobrich Morphostructural Regions (Fig. 4).

The Lom Morphostructural Region spreads all over the Lower Danube Morphostructural Area West Part (Fig. 2) between the Timok River valley to the west and Skomlya River valley to the east (Fig. 1, 2). It is composed by the Bregovo (Fig. 2 - 1.1), Kula (Fig. 2 - 1.2), Gramada (Fig. 2 - 1.3) and Dunavtsi (Fig. 2 - 1.4) Morphostructural Bloques. The Kula Syncline Traces were established in the Kula Morphostructural Bloque.

The Pleven Morphostructural Region corresponds with the Lower Danube Morphostructural Area East Part (Fig. 2). It includes the Drenovets (Fig. 2 - 2.1), Valchi dram (Fig. 2 - 2.2), Kozloduy (Fig. 2 - 2.3), Byala Slatina (Fig. 2 - 2.4), Oryahovo (Fig. 2 - 2.5), Gulyantsi (Fig. 2 - 2.6), Slavyanovo (Fig. 2 - 2.7), Nikopol (Fig. 2 - 2.8), Belene (Fig. 2 - 2.9), Svishtov (Fig. 2 - 2.10). Dve Mogili (Fig. 2 - 11) and Ruse (Fig. 2 - 12) Morphostructural Bloques.

The Lovech Morphostructural Region is disposed in the central south part of the Lower Danube Morphostructural Area, between Vit and Yantra River valleys (Fig. 3).

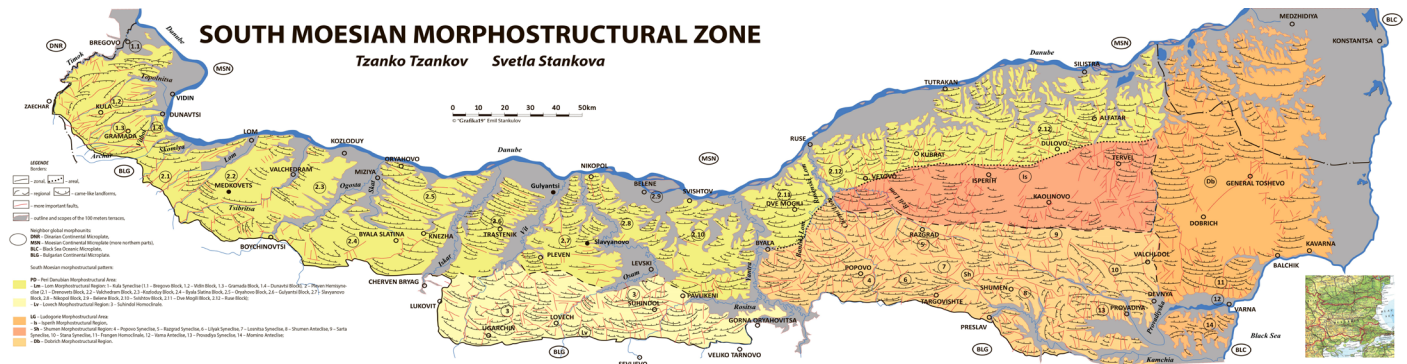


Figure 2. Morphotectonic map of the South Moesian Morphostructural Zone. Source: Map of the Republic of Bulgaria, 1983



Figure 3. Lower Danube Morphostructural Area: 3. Lv – Lovech Morphostructural Region. Source: Map of the Republic of Bulgaria, 1983

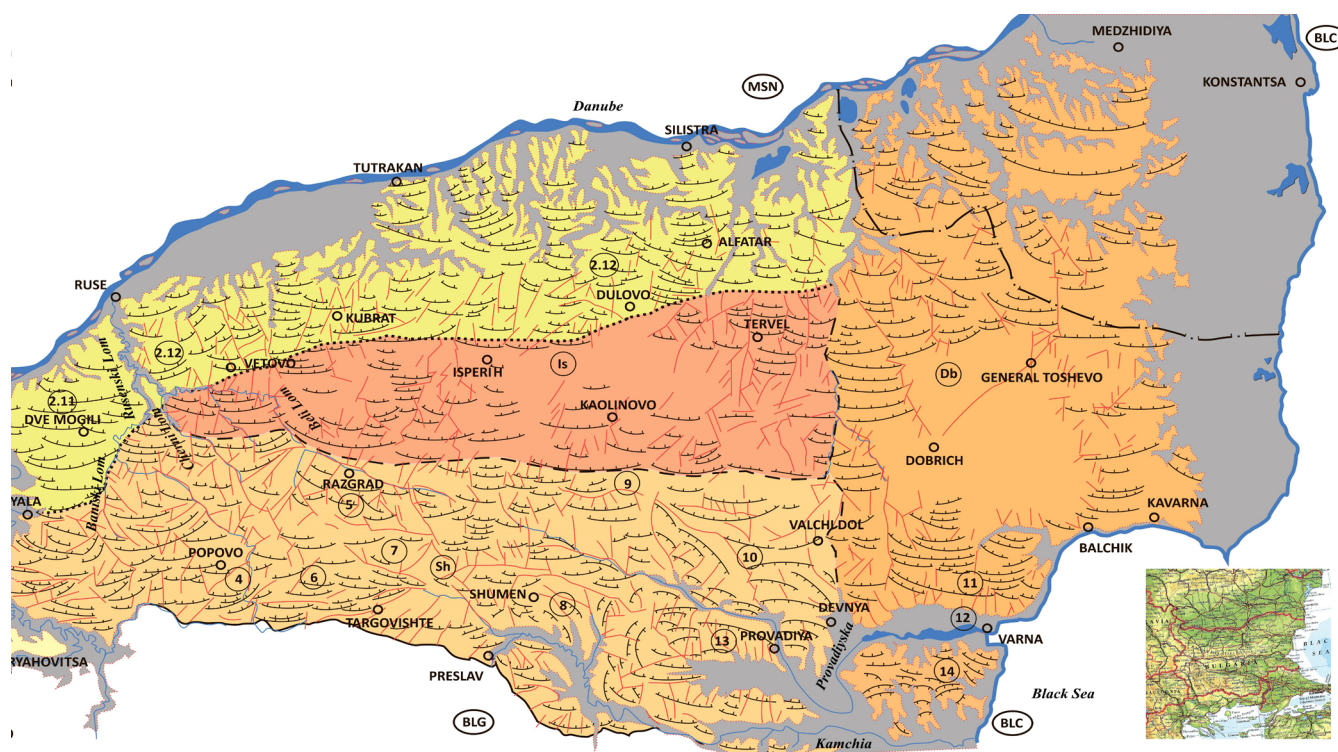


Figure 4. Ludogorie Morphostructural Area. Source: Map of the Republic of Bulgaria, 1983

The Ispirih Morphostructural Region of the Ludogorie Morphostructural Area (Fig. 4) is following between the Russenski Lom River valley to the west and the Venelin-Prut Fault Bundle to the east. It is the orthoplain part with out expressive internal block pattern.

The Shumen Morphostructural Region is disposed in the south and south-west parts of the Ludogorie Morphostructural Area between the Yantra River valley and the Vdnelin-Prut Fault Bundle (Fig. 4). The traces of the proto orthoplenal morphostructures – the Popovo (Fig. 4 – 4), Rasgrad (Fig. 4 – 5), Llyak (Fig. 4 – 6), Loznitsa (Fig. 4 – 7) Synclises, Shumen Antecline (Fig. 4 – 8), Sarta (Fig. 4 – 9), Stana (Fig. 4 – 10) and Provadiya (Fig. 4 – 13) Synclises were established in the territory of the region.

The Dobrich Morphostructural Region occupies the Ludogorie Morphostructural Area East Margin (Fig. 4), between the Venelin-Prut Fault Bundle and Black Sea. In the south parts of the region were established the traces of the proto orthoplenal Frangen Homoclinale (Fig. 4 – 11), Varna Antecline (Fig. 4 – 12) and Momino Synclise (Fig. 4 – 14).

Conclusion

The South Moesian Morphostructural Zone is the most fragment of the post Late Pleistocene Orthoplan in this part of New Europe. Its north, south and west boundaries - the Lower Danube, South Moesian and South Morava Fault Bundels – are elements from the global fault nets. The South Moesian flatland-plane zonal relief is characterized by different intensive regional block faulting and listric faults absence. The general superficial homoclinale inclination of the biggest zonal part is to the north. The mentioned homoclinale inclination in the most east zonal margin (Dobrich morphostructural Region) is to the east. This circumstance is connected with the normal gradual transition to the Black Sea Oceanic Microplate.

The South Moesian Morphostructural Zone corresponds with the north part of the Maastrichtian-Early Neogene morphotectonic suture between the Moesian and Bulgarian Continental Microplates during the New Europe Continental Massif Building. The to day prolonged transcontinental collision between Gondwana and New Europe has destructed big parts of the pre Late Pleistocene Orthoplan in Bulgarian Continental Midroplate, but don't tucked the investigated zone.

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