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CONSTRAINTS ON THE STRUCTURAL EVOLUTION OF THE SİVAS BASIN, CENTRAL TURKEY

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The Sivas basin is located at the easternmost wedge-like tip of the Central Anatolian Block. An evolution model for the basin should, at least, include the following characteristics: The basin started to develop on a Pre-Maastrichtian mosaic made up of continental metamorphics, Jurassic-Early Cretaceous platform carbonates and coloured ophiolitic melange derived from the closure of northern branch of Neo-Tethys oceanic realm. The basin dominated by a thick Maastrichtian-Tertiary fill resting unconformably on the basement is divided into several subbasins bounded by NE-SW trending oblique-slip faults with predominant strike-slip component. Each of these basins is characterized by a different stratigraphic succession composed of molassic continental to shallow marine facies alternation. Both the northern and southern margins of the basin include Late Eocene olistostromes with megablocks of various origins which are the records of second-order nappe emplacement into a shallow marine depositional setting. The basin fill is also characterized by local and regional unconformities, vertical to lateral facies changes and continental to shallow marine volcanics. The basin is asymmetrical in both the longitudinal and transversal directions with respect to its axis.

Based on regional framework and characteristics present above, a post collisional model may be preferable rather than other alternatives for the Sivas basin.

A STUDY OF TECTONIC UNITS OF THE AREA ALONG TURKISH-GEORGIAN BORDER

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The aim of this study is to map the border area as a whole and evaluate main geological characteristics of the region.

Two main tectonic units are respectively observed along the border area, which are the Adjara-Trialeti unit to the North and the Artvin-Bolnisi unit to the South. The lowermost part of these units, particularly in the study, is characterised by the Late Cretaceous arc association of the eastern Pondites.

Along the Adjara-Trialeti unit, the Maastrichtian-Paleocene hemipelagic limestones to turbiditic terrigeneous clastics overlie the arc rocks conformably and pass gradually upwards to the Eocene volcanic rocks. Middle Eocene volcanic rocks which follow from bottom to top as an alternation of turbiditic rocks and basaltic volcanics, dellenitic volcanics and also shallow marine basaltic volcanoclastic rocks appear to be at least 7 km. in thickness. This sequence is followed conformably by the Late Eocene shoshonitic volcanics.

Along the Artvin-Bolnisi unit, the Maastrichtian-Paleocene shallow marine limestone to turbiditic terrigeneous clastics overlie the arc rocks and pass upwards to the Eocene volcano-clastic rocks with local unconformaties. The Middle Eocene volcanics rocks show similar succession to that of the Adjara-Trialeti unit and appear to be 1.5-2 km. in thickness. This sequence is followed conformably by the Late Eocene shallow marine clastics.

In spite of the differences in terms of thickness, local unconformaties and type of rocks units noted above, the Maastrichtian-Eocene sequences of both tectonic units can be correlated and it could also be concluded that Artvin-Bolnisi block played a marginal role fort he Adjara-Trialeti basin.

Oligocene shallow marine to continental clastics overlie the both tectonic units conformably and can be interpreted as a regressional sequence.

All these rock units presented above were folded and in places thrusted at the end of Oligocene-Early Miocene, in NE-SW trend.

In the study area, Late Miocene-Pliocene continental clastics and volcanics and also Quaternary basalts and andesites overlie respectively all the former units unconformably and represent a molassic deposits of new tectonic period.

As a result of this study, the following conclusions are reached: 1) the facies Adjara-Trialeti units are traced along the Black sea coast in Turkey as well, 2) there is no any volcanic activity during Maastrichtian to Paleocene. So it can also be noted that the Late Cretaceous arc activity ceased before Maastrichtian time, along the border region.

2nd INTERNATIONAL SYMPOSIUM ON THE PETROLEUM GEOLOGY AND HYDROCARBON POTENTIAL OF THE BLACK SEA AREA

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MEZO-CENOZOIC PALEOGEOGRAPHY, STRUCTURE AND OIL/GAS PROSPECTIVES OF THE EASTERN BLACK SEA REGION

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The Eastern Black Sea Region is a part of the European-Minor Asia oil/gas bearing province. On the basis of the present tectonic subdivisionş this region situates between Eurasian continent to the north and the Pontian-Transcaucasian arc system to the South, representing a backarc basinal setting or a marginal sea during Late Mesozoic and Early Cenozoic; it contains a thick pile of black slates and turbiditic-volcanic sequence. But, along the southern edge of the Eurasian continent and the northern shelf of the arc, terrigeneous clastic and carbonic rocks were deposited. All these rocks units contain organic materials to some extent.

Immediately after the collision of the Eurasian continent and the Pontian-Transcaucasian arc system at the beginning of Oligocene, the intracontinental structures such as foreland and intermountain depressions and mountain chains started to have been formed along the Eastern Black Sea Region. Then, thick sedimentary sequences which are not deformed much have also been deposited in the Shell of Eastern Black Sea and Riom depression which contain oil-gas resources.

3 rd. International Turkish Geology symposium

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Neotectonic outline of the Turkish-Georgian border area

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The study area is located in both Turkish and Georgian sides of the border between north latitudes of $41^0$00'-$42^0$00 and east longitudes of $41^0$30'-$43^0$30', covering an approximate area of 10.500 km^2. This area is a characteristic example, which including structures of the neotectonic compressive regime of the Caucasus and strike-slip regime of Eastern Anatolia together, and is also more or less seismicaly active.

In the Georgian part, the neotectonic regime has been lasting since, at least, Oligocene and it is characterized by compressive structures such as the WNW- and W-E trending. Southward and/or northward high-angle thrust fault zones and intermountain basins such as the Ahaltsikhe depression.

In contrast to the neotectonic regime in the Caucasus, the prominent neotectonic regime in the Turkish part, is the strike-slip in nature. It is initiated in Late Pliocene, and is remarkably indicated by an angular unconformity separating the folded-thrust faulted Miocene-Lower Pliocene rocks, which are the youngest paleotectonic units in the study area.from the undeformed Plio-Quaternary sequences of dissimilar facies and settings. In the Turkish part, the strike-slip neotectonic regime is characterized by NE-to NW-trending sinistral to dextral strike-slip faults. The Şavşat-Posof fault zone and the Kura fault zone can be mentioned among the well developed strike-slip structures. In the addition, Posof, Hanak and Aktaş (Hozapine)-Ahalkalaki basins are developed under the control of strike-slip movements, which contain Plio-Quarternary basaltic eruptions with fluvio-lacustrine clastics.and/or fluvio-glacial and alluvial deposits.

After evaluating the data at regional scale and also present above, it is concluded that main neotectonic structures of the Caucasus and Eastern Anatolia appear to be active under the control of the N-S directed compressional processes, resulted from the convergence between the fragments of the Arabian and Eurasian plates.

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Structural correlation of the southern Transcaucasus (Georgia)-eastern Pontides (Turkey)

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Eastern Pontides and Transcaucasus belong to the same geological belt. representing active margin of the Eurasian fragments. According to paleotectonic-paleogeopraphic reconstructions based on the regional-geological, paleomagnetic, paleobiographical and petrological data. Eastern Pontides as well the major part of the Transcaucasus, situated to the north of the North Anatolian- Lesser Caucasian ophiolitic suture, comprise island are. foreare and back arc-intraarc basins.

The Southern Transcaucasus-Eastern Pontian segment of the belt consist of two structural units. These are Bayburt-Karabakh unit in the north characterized by Paleozoic granite-metamorphic basement and unconformably overlying Carboniferous-Permian molasse. Paleozoic granites reveal calc-alkaline tendencies and plot within the field of continental granophyres. In addition, the Artvin-Bolnisi unit is represent by arc association during Jurassic-Cretaccous, whereas the Bayburt Karabakh unit is represented by fore-arc association. which is characterized by intensively folded and imbricated structures. Elemental variations for Jurassic-Cretaccous volcanics of the region display clear northern polarity.

The Adjara-Trialeti-Eastern Black Sea and the Talish-South Caspian troughs are interare basins, separating the Southern Transcaucasus-Eastern Pontian arc from the Northern Transcaucasus arc, related directly to the opening of the Black Sea. But, it is necessary to stress that the Black Sea evolved during long time span and was formed as a result of successive events along back-are rifting within the Paleozoic, Mesozoic and Cenozoic times.