

We are also correlating the generation and development of these volcanic complexes by using the data obtained from seismic and drilled wells through the coastal plains of the Red Sea and the Gulf of Aden.

By using microprobe, optical analyses etc. we attempt to evaluate the chemical characters and the magma evolution of the investigated volcanics.

STRUCTURAL STUDY OF THE RHODOPE MASSIF

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The integration of microstructural observations, strain analysis and petrofabric studies within the mylonitic gneiss of the Rhodope Massif leads to the following conclusion:

1) Strain analysis indicates that gneisses essentially deformed in plane strain or in the constriction field.

2) Essentially non-coaxial deformation is indicated by both microstructural and petrofabric studies. The principal extension X direction can be taken as a kinematic direction as strongly supported by quartz c-axis fabrics.

3) Variations in both subhorizontal X direction and sense of shear suggest that the Rhodope Massif is a region of large-scale nappe tectonics with consecutive extension.

4) Fundamentally different deformation and metamorphic histories lead to distinguish several terranes. The lower and upper terranes are characterized by piling-up and south to southwestward (outward) flow of large-scale nappes that involved eclogites and oceanic crust. These events mark initial collision between two units followed by crustal thickening.

5) East-northeast-vergent, flat-lying and synmetamorphic shearing associated with low-angle normal faults and metamorphic to granitic domes are attributed to extension that occurred to lateral spreading of the upward rising high-grade terranes.

6) The Rhodope facies (pre-metamorphic ophiolites, calc-alkaline plutonic suite and eclogites) and first order structures (large tangential thrust movements and gravitational collapse accompanied by diapirism from deep crustal levels) are the result of plate tectonics. We consider this was closure of Thetys that has involved northward subduction before deformation of an active continental margin.