hills are found to be associated with the sides of these ridges and sand gizeras as save sites against the high floods.

On the other hand, the Holocene Nile silt and clay has thicknesses ranging from 0.8 to 27 m with an average of about 7 m. It thickens in deeper parts in between the ridges and gizeras of the Pleistocene bedrock, while thins above these features.

It is interesting that the burried historical Nile branches in the studied area are traced. A part of Zisostrees Canal (12th Dynasty) is delineated. Also a part of the Pelusiac Branch is delineated in three stages of its evolution and westward migration (since 12th Dynasty, Herodotus, Btolmee and silting up before George the Syprous). Also a part of the Tantic Branch is traced.

Due to the fact that the Nile agricultural silt and clay cover in this province is relatively thin, the underlying Pleistocene aquifer is essily affected with the general land use. Therefore, the agricultural, industrial and municipal development of this province is very critical for both the main aquifer and the overlying agricultural layer.

It is recommended that deep or shallow sewage disposal must be considered through suiteble ways, as well as irrigation-drainage processes. The use of dangerous pestisides and excessive chemical fertilizers must be reduced. However, heavy and chemical industrial plants in the region must be avoided to save the Nile Delta particulary its eastern side.

GEOPHYSICAL STUDY OF THE UPPER CRUST STRUCTURE IN ORESTIAS AREA, EASTERN RHODOPE

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The aim of this paper is to study the inner structure of the crystaline basement in Orestias basin, E. Rodope.

The data that have been processed and interpreted are one seismic line and one gravity profile, both running N.S.

The principal axis of the basin is oriented N-NW – E-SE.

The gravity and seismic profiles are not coincided and have been chosen to cut the axis of the basin in the vertical sense.

The method used to manipulate the data is described bellow step by step:

1. Digitization of the main horizons (Oligocene – Eocene – basement) from the migrated seismic section.
2. Derivation of a geological model using image rays technique.
3. Estimation of the densities from three well logs in the area.
4. Calculation of the theoretical gravity profile.
5. Comparison of the observed gravity values with the calculated ones.
8. Revision of the model adding sporadic reflections from the crystalline basement.

7. Repeation of the steps until the best fit between observed and calculated gravity profiles is achieved.

In conclusion, from the intregraded study of the available geophysical, geological and well data, a final geological model of the Orestias basin has been deduced.

According to this model the maximum depth of the basin is about 4 Km. The sedimentary formations are Plio-Quaternary, Oligocene and Eocene. The crystalline basement consists mainly of leucocratic and mafic gneiss and on top of that exists a serpentinite – amphibolite unit. The estimated max. thickness of the above unit is 1-2 Km.

GEODYNAMICS OF THE AEGEAN AREA

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The basic seismotectonic features of the Aegean and aurrounding areas are described. Compressional tectonics along the external part of the Hellenic arc (Zante, S. Peloponnesus, S. Crete, S. Rhodos) due to oceanic – continental collision (subduction) is connected with continental – continental collision along the Adriatic coast by a transform strike-slip dextral fault in the central part of the Ionian islands (Cephalonia). Normal faulting is observed in the whole inner part of the Aegean area, from Crete in the south to Bulgaria in the north and from eastern Albania and central Greece in the west to all western Turkey in the east. However, in the northwestern part of Turkey and in the northernmost part of the Aegean Sea strike-slip dextral faulting is observed. The tensional field (axis T) in the Aegean has an almost North-South trend but close to the boundary with the outer thrust zone in the western part of the area it changes direction and the T axis has an almost east – west direction. The most importent geodynamic models which have been proposed to interprete this stress pattern are described.

It is concluded that the forces acting on the Aegean lithosphere are of two kinds: a) Compressional forces due: to the northwestern relative motion of the eastern Mediterranean lithosphere, Σ_1, to the counterclockwise rotation of the Apoulian (Adriatic) lithosphere, Σ_2, and to the westward motion of the Turkish lithosphere, and b) Tensional forces, E_φ, acting in the Aegean lithophere mainly in the north-south direction.