UNIVERSITY at ALBANY
State University of New York

DEPARTMENT OF
EARTH & ATMOSPHERIC SCIENCES

Geological Map of the Detachment fault of the North Area of Kythera Island

Antonios E. Marsellos

Geological mapping by A. E. Marsellos.
Contour elevation digitized
from Hellenic Topographic map, original scale 1:50,000.
Contour isodepth data (shapefile) derived
by National Centre for Marine Research. Isobaths (50m-interval) calculated from point data derived by
a blending of depth soundings. Soundings collected by ships with detailed gravity anomaly information.
Gravity information obtained by the Geosat and ERS-1 satellite altimetry missions.
Point data was obtained by NOAA Office of Research and Applications, Oceanic Research and Applications Division,
Laboratory for Satellite Altimetry through the lab's bathymetry data extraction website.

Map created in ESRI ArcInfo, composite satellite image RGB (1,2,3)
created in ERMAPPER, physiographic map and 3D Models created
in Global Mapper. The 3D Models combine SRTM elevation data
and a composite (5,3,1) Landsat image.

SCALE: 1:15,000
Elevation Contour Interval 40m
Isodepth Contour Interval 50m

0 1,650 3,300 6,600 Feet
0 0.4 0.8 1.6 Kilometers
0 0.15 0.3 0.6 Mile

TECTONO-STRATIGRAPHIC COLUMNS

TERTIARY SEDIMENTS — CARBONATE ROCKS — METAMORPHIC ROCKS HP-LT

Neogene — Pindos Unit — Tripolis Unit — Phyllites-Quartzites Unit

a: extensional detachment of pre-Late Miocene age, recognized by this search thesis
b: major thrust contacts of Oligocene-Miocene age
c: Neogene sedimentary rocks unconformably overlie all tectonic units of Kythera

- Normal Fault
- Normal Fault (Inferred)
- Overthrust fault
- Detachment fault
- Detachment fault (Inferred)
- Top shear sense displacement
- Sinistral shear sense
- Dextral shear sense
- Lineations
- Mineral lineation
- Strong stretching lineation
- Intense stretching lineation
- Strike, Direction of Dip and Dip Angle
- Outcrop
- Outcrop, probably displaced by landslide
- Samples Location
- Villages - Toponyms
- Contour line, 40m contour interval
- Depth Contour (isodepth, 50m contour interval)
- Coastline
- Main road network
- Dirt road
- Dirt track/path

Quaternary sediments

Pleistocene sedimentary series in brackish or marine water deposition environment.

N. Quaternary sediments
Sands and pebbly gravels . Red coloured breccias of limestones pieces, cemented by calcitic material or of shale pieces, cemented by terra rossa.

Neogene sediments

Pliocene sedimentary series in fresh or brackish water deposition environment (lacustrine or fluvial).

M. Red Conglomerates
Sandy pebbly gravels, loam, talus slopes and dunes. Red coloured breccias of limestone pieces, cemented by calcitic material or of shale pieces, cemented by terra rossa.

L. Regressive Conglomerate

K. Transgressive Conglomerate
cemented by calcitic material, without fossils. Gravels (of limestone, crystalline rocks, flysch, chert.)

J. Marls
with marine fossils, mammal bones, sandstones, yellow marls, sandy limestones.
(Clypeaster pliocenicus, Balanus sp., Chlamys scabrella, Pecten jacobaeus, Flabellipecten flabelliformis, Ostrea crassissima, Amusium cristatum, Spondylus crassicosta.)

Pindos Unit

Sedimentary series originally overthrust on to the flysch and rarely on to the limestones of the Tripoli unit. Marked folding, sometimes with recumbent folds.

I. Limestones with chert layers (Cretaceous)
Marly limestones. They contain coloured chert in nodules, and lenses. Fine-grained limestones looking like lithographic limestones, cut almost always by calcite veinlets. Within these limestones there are iron oxide rinds.

H. Cherts (Upper Jur)
Brown-red, red-black, green chert and shales segregated in thin planar beds.

G. Clastic sediments (Triassic)
Clastic Triassic, sands and shaly sediments

Tripolis Unit

Sedimentary units overlying the metamorphic rocks with a tectonic/structural contact contact (Potamos area).

F. Flysch (Late Eocene)
consisting usually of gray-green sandstones and sometimes of green-brown shales

E. Limestones (Eocene)
Black, grey, dense limestones, containing Nummulites and other neritic fossils.

D. Limestones with dolomites (Upper Creteceous)
Blue-black, dense, containing numerous Cladocoropsis (Kimmeridgian)

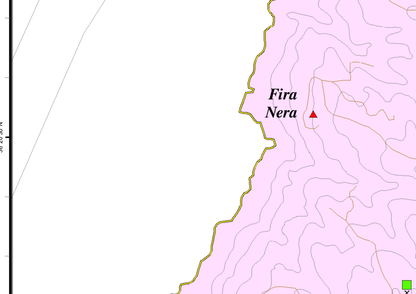
Arna Unit

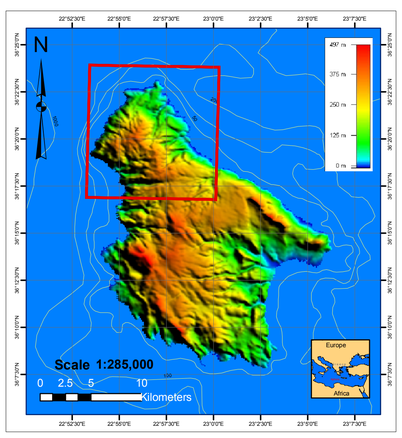
Forming the "basement" of the island

C. Semi-metamorphic marbles
Semi-metamorphic limestones, marbles, light, blue-gray, pink, in places well jointed to several directions. Dolomites containing sugarlike gypsum.

B. Metamorphic Unit
Gneiss, mica schist, phyllites and mylonites. Locally, blue-gray-white marble is encountered.

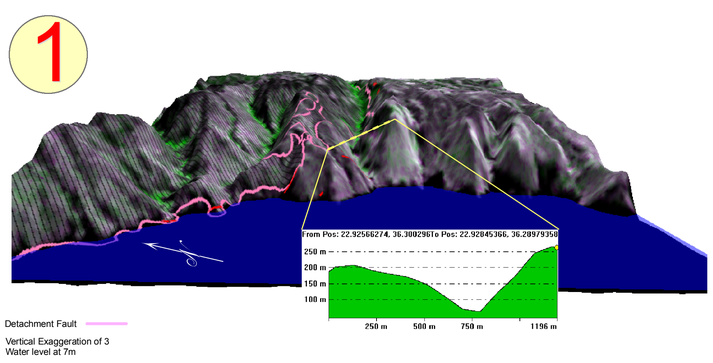
A. Serpentinite Unit
Serpentinite with chlorite and magnetite. One outcrop-North of Agia Pelagia area.





3D MODELS OF DETACHMENT FAULT AREAS

PART OF THE DETACHMENT (WEST ISLAND AREA)



PART OF THE DETACHMENT (EAST ISLAND AREA)