energy (Ypsarion, 1.204 m) dendritic patterns have been developed. A similar situation occurs in the NW-part of the island.

Contrasting the hydrographical situations in the NW and NE within the southwestern part of Thasos, long and rectangular catchment areas exist and dendritic patterns are restricted to the valley heads. Because of special morphological features, i.e. valley pediments and pleistocene talus cones, the tributaries are developed rather paraller and enter the main river almost at right angles.

According to the influence of faults to the river and valley development there is evidence that the paleo valleys have developed without tectonic control. During uplift along alpidic fault lines river capturing is obvious.

Whereas alpidic faults are responsible for the courses of some main rivers, the neotectonic faults striking N-S and W-E only control same courses of tributaries.

THE PHYLLIT - QUARZIT UNIT (PQ): STRUCTURAL EVOLUTION AND FLUID INCLUSION TRAILS - CONSTRAINTS ON THE TECTONIC HISTORY

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Crete is situated at the margin of the Aegean plate in the centre of the Hellenic fore-arc. The Hellenic arc is a convergent zone midway between mainland Greece and Turkey associated with northward subduction of the African plate under the Aegean plate. The Hellanide isopic zones form a nappe pile on the Cretan island and terminate at a major east-west orientated fracture zone which is suggested to be a transcurrent fault (Hall et. al. 1984). The island of Crete trends parallel to the arc and its morphology is controlled by recent regional extension.

The PQ Unit - part of the cretan nappe pile - sufferad a HP-LT metamorphism with maximum P-T conditions increasing from E-Crete (8kbar, 250°C) to W-Crete (10 kbar, 450°C) (Theye 1988). The HP-LT metamorphism was initiated by two different phases of compression which occurred between Palaeocene and early Miocene (i.e. Hall et al. 1984). These two compression phases are inferred from the structural evolution of the PQ.

The first phase of copression took place during the Paleocene/Eocene (D1, D2). At that time the continental margin experienced E-W compression, and detachment and stacking of the Cretan nappe pile occurred. The resulting structural elements in the metasediment of the PQ are a roughly N-S trending foliation, N-S trending pressure shadows (D1), N-S trending fold axes and N-S trending stretching lineations parallel the fold axes (D2). These structures are supposed to have been formed during burial, at nearly peak P-T conditions.

The second phase of compression took place during the late Oligocene/early Miocene when the compression direction changed from E-W to N-S. This phase of progressive deformation produced all structures (D3), that trend about E-W including fold axes, pressure shadows around pyrite and a stretching lineation.

Even younger deformation structures (D4, D5) developed as a result of Pliocene/Neogene extension (N-S trending fracture cleavage and kinkbands, deformation lamellae and fluid trails in quartz, N-S and E-W trending faults).

The change from the first to the second compression phase is related to a fundamental change in plate motion between Africa and Eurasia: At that time (Paleocene to Miocene), the relative movement changed progressively from eastward to northward and Africa had rotated ca. 63° relative to Eurasia (Dercourt et al. 1986).

The fluid inclusions in quartz crystals contain a brine, whose composition corresponds approximately to the systems H_2O-NaCl-$CaCl_2$ and H_2O-NaCl-$MgCl_2$/$FeCl_2$ (density = $0.8g{*}cm^{-3}$, based on microthermometric analysis). The orientation of transgranular frectures (inclusions treils) indicates NW-SE orientation of σ^3. During the exhumation of the PQ, the geothermal gradient changed from 14°/km at P-T peak conditions to on an everage of 42°/km which was inferred from isochores combined with petrological data.

THE SIGNIFICANCE OF THE AEGEAN REGION FOR EARTH-SCIENCE CONSERVATION IN EUROPE WITH EMPHASIS ON THE GEOLOGICAL HERITAGE OF MILOS

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Earth-Science Conservation is an absolute necessity for science and education. Two Greek sites are listed in e first provisional UNESCO-list of geological World Heritage Sites:

Lesbos Islend Petrified Forest end Pikermi.

But for concepts of Eerth-Science Conservation in Europe Milos and Thera must also play an important part. Both islands document the island arc volcanism in a unique way, especially in connection with their history.