good indicator of the high fracture permeability zones which constitutes the geothermal reservoir.

NORMAL FAULTS ASSOCIATED WITH VOLCANIC ACTIVITY AND DEEP RUPTURE ZONES IN THE SOUTHERN AEGEAN VOLCANIC ARC

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Volcanic centers (volcanoes, fumarolae or solfatara fields), epicenters of strong shallow eartquakes (with focal depths up to 20 Km) and epicenters of intermediate depth strong earthquakes (with focal depths between 120 Km and 160 Km) in the southern Aegean volcanic arc are spatially grouped in five well defined linear clusters trending in an about N59°E direction. This delineations of the shallow earthquakes and volcanic activity is attributed to five corresponding normal faults which are named, here, according to the five corresponding volcanic centers (Sousaki, Methana, Milos, Santorini, Nisyros). This is supported by similar trending of geomorphological features (grabens, islands) and of geophysical features (Bouguer anomalies) as well as by other seismological data (fault plane solutions, tsunamogenesis) and geological information on the caldera of Santorini. The higher volcanic activity in the eastern volcanic centers (Santorini, Nysiros) in respect to this activity in the western volcanic centers (Sousaki, Methana, Milos) is attributed to the higher rate of extensional crustal deformation in the eastern part of the volcanic arc (26mm/yr) in respect to the western part of this arc (2 mm/yr). The delineation of the epicenters of the intermediate depth earthquakes along the same five lines indicate the existence of five corresponding rupture zones in the lower (leading) part of the descending lithospheric slab (at depths 120 Km-180Km). These deep zones are probably the sources of hot material which is ascending vertically upwards and is intruded in the crust along its fracture zones. The orientation of these zones explains well the focusing of the macroseismic results of these shocks at narrow regions of the sedimentary arc (Peloponnesus, Crete, etc).

ORIENTATION AND TYPE OF ACTIVE FAULTING IN THE AEGEAN AND THE SURROUNDING AREA

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Reliable fault plane solutions of shallow earthquakes and information on surface

fault traces have been used to determine the orientation of active seismic faults in the Aegean and the surrounding area. The distribution of the focal mechanisms of the earthquakes declares the existence of thrust faulting, having a NW-SE strike, following the coastline of southern Yuogoslavie, Albania and western Greece extending up to the island of Cephalonia. Along the convex side of the Hellenic arc thrust faulting also occurs, as a result of the subduction of the African lithosphere under the Aegean. In the area of Cephalonia island strike-slip faulting is observed that connects these two zones of compression. The inner part of the mainland of Greece as well as western Turkey is dominated by normal faulting. Active faulting in these areas have an approximately EW orientation. The area of the Northern Aegean is dominated by strike-slip faulting that has an NE-SW trend, in accordance with the existence of the strands of the North Anatolia fault into the Aegean. However, some of the focal mechanisms exibit stronger or weaker normal component. There is also a zone of active normal faulting, with a NS strike, that lies between the outer zone of thrusting and the inner part of normal faulting. This is considered as a suture zone connecting two major systems of thrust faults from one side and major normal faulting from the other.

RATES OF ACTIVE CRUSTAL DEFORMATION IN THE AEGEAN AND SURROUNDING AREA

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Active crustal deformation is estimated for 26 shallow seismic zones of the Aegean and the surrounding area. The "size" of the deformation is estimated by the use of all available complete samples of instrumental and historical data (magnitudes, epicentres) for each seismic zone, and the "shape" of the deformation is determined by all reliable fault plane solutions for each of 8 broader seismic belts.

Crustal shortening occurs all along the western and southern coast of the area (Adriatic, Ionian, east Mediterranean). Along the western coast of Yugoslavia, Albania and central Greece the shortening rate is around 2mm/yr in a direction perpendicular to the coast line (N47°E). In the Ionian islands (Leukada, Cephalonia, Zante) shortening of 9 mm/yr in an almost east-west direction (N83°E) together with extension of 11 mm/yr in an almost north-south direction (N6°E) occurs. The upper crust along the convex side of the Hellenic arc (south of Peloponesus, Crete, Rhodos) is compressed at a rate of 5 mm/yr in a direction of N34° E.

In the Aegean Sea and the surrounding lands (mainland of eastern and northern Greece, southern Yugoslavia and Bulgaria, western Turkey) extension dominates, with an active expansion rate of 4 mm/yr in an about north-south direction (N5°E). In the