

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

B. C. Papazachos and D. G. Panagiotopoulos

Geophysical Laboratory, University of Thessaloniki, P.O. Box, 352-1 GR 54006,
Thessaloniki, Greece.

Volcanic centers (volcanoes, fumarolae or solfatara fields), epicenters of strong shallow earthquakes (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, Nisyros) 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

B.C. Papazachos, A.A. Kiratzi and E.E. Papadimitriou

Geophysical Laboratory, University of Thessaloniki, GR-540 06, Greece

Reliable fault plane solutions of shallow earthquakes and information on surface