THE SKYROS LEFT-LATERAL FAULT AND ITS IMPLICATIONS FOR AEGEAN TECTONICS


(1) National Observatory of Athens, Institute of Geodynamics, P.O. Box 20048 GR 118 10, Athens, Greece, (2) Department of Geology, Aristotle University of Thessaloniki, Thessaloniki 54 124, Greece (Tel : ++30 210 3490186, Fax : ++30 210 3490180, aganas@gein.noa.gr)

On July 26, 2001 a strong earthquake of magnitude $M_w = 6.5$ hit the central Aegean Sea at 00:21:39 GMT. The event took place off shore of Skyros Island in a distance of 135 km NNE of Athens. A sequence of many aftershocks has followed with the magnitude of the largest of them reaching to $M_s = 5.4$. The aftershock sequence temporal and spatial characteristics are investigated as well as the focal mechanism of the main shock and of the 47 largest aftershocks. The fault plane solution determined by Institute of Geodynamics (National Observatory of Athens) implies that the main shock rupture is associated with left-lateral strike slip faulting. In contrast to the general NNE – SSW strike of the strong earthquakes in the North Aegean region, the strike of Skyros earthquake rupture zone has a NNW-SSE direction, supported from the distribution and the fault plane solutions of the strongest aftershocks. Therefore, the rupture zone of 26th July 2002 earthquake probably defines the western end of North Anatolian Fault. A model for the active tectonics of the area is presented. The mean, T-axis of the main aftershock has a N007 degrees azimuth, implying almost E-W compression and N-S extension of the crust. The model is consistent with clockwise, vertical axis rotation of Skyros island.