PRELIMINARY PALAEOSEISMOLOGICAL RESULTS FROM THE KAPARELLI

S. Pavlides (1), I. Koukouvelas (2), A. Ganas (3), S. Kokkalas (2), I. Tsodoulos (2), L. Stamatopoulos (2), C. Goyntromichou (4) and S. Valkaniotis(1)

(1) Department of Geology, Aristotle University of Thessaloniki, GR-54006, Thessaloniki, Greece (pavlides@geo.auth.gr/0032310998482) (2) Department of Geology, University of Patras, 26500 Patras, Greece (3) Institute of Geodynamics, Athens Observatory, Thession, Athens. (4) Earthquake Planning and Protection Organization of Greece.

The roughly E-W trending Kaparelli-Plataees Fault is an on-shore normal fault segment located at the eastern end of the Gulf of Corinth Rift. The fault is a segment of the greater Plataeas-Avlon fault zone (Beotia-Attica). It was activated during the third event of the February-March 1981 Alkyonides seismic sequence (Ms 6.7; 6.6; 6.4). The ground offset was 70cm, although some values of more than 1m have been reported too. The slip vector was 200-220 o/60-70 o (azimuth, rake). This presentation is a brief account of our efforts to search the seismic history and to resolve slip of the Kaparelli normal fault, in terms of trenching techniques, tectonostratigraphy of fault-related colluvial deposits and dating palaeoevents. Three (3) trenches have been excavated across the 1981 fault trace during May-June 2002. They are oriented perpendicular to the fault strike, and are located in Holocene deformed sediments (colluvium), in contact with bedrock limestone. Trenches have lengths of 15 to 30 m and depths of 2-4 m and their walls were mapped in scale 1:20. The KAP1 comprises a sequence of clay, sand, colluvial wedges and
soil. In this trench the last (1981) event is clearly shown within a greater fault zone of 3m width. The hangingwall block of the reactivated fault strand during the 1981 event comprises a strongly rotated (>60°) sedimentary sequence corresponding with cumulative fault deformation.

KAP2 and KAP3 trenches constitute of typical colluvium (unconsolidated angular limestone fragments and soil), which includes occasionally tile fragments, some charcoal and pottery fragments. We have identified at least three (3) seismic events based on a) colluvium tectonostratigraphy mainly, b) deposition of sedimentary layers, c) formation of soil, and d) small displacement of few horizons. Although previous works have suggested that the fault was activated approximately 3 times during the last 20 ka years and remained quiet for 10 ka years our preliminary results from the trenches KAP1 and KAP2 show that colluvium sedimentation is 8,330 ± 50, 6,280 ± 40, 4,870 ± 40, 1,410 ± 40, and 1,250 ± 40 yr YBP+1 (Radiocarbon analysis results and Stable Isotope Ratio analysis -13C) and they are associated with colluvial earthquake-related wedges. We suggest that the dated colluvium represents successive horizons of earthquake wedges. Sediment thickness of L2 is about 2.7 m and calibrated age is B.C. 7540-7300 (86.8% 2sigma interval) suggesting an average slip rate at 0.28 mm/year.

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