

## **AUB research team uncovers new basin along the Yammouneh fault**

Tuesday, November 2, 2010

Recent research in the Marjahine area in Hermel has uncovered a previously unstudied segment of the Yammouneh fault- one of three major fault lines in Lebanon. The discovery, explained Ata Elias, Assistant Professor at AUB's Geology Department, will help create a more precise calendar for past earthquakes along the Yammouneh fault line.

The research conducted by Dr. Elias along with Dr. Yann Klinger from the Institute for Physics of the Globe – Paris (IPGP) with the help of two AUB students- Ramy Farhat and Samy Sheikh Hussein, was funded by the French National Research Agency (ANR). The participation of AUB students was central to the research given

that one of its objectives was to encourage students to get involved in research, particularly in the domain of earth sciences.

The two week long excavations in Marjahine uncovered a major fault that is not presented on existing geological maps. The Yammouneh fault is the Lebanon segment of the Levant fault, one of the biggest faults on earth extending from the Gulf of Aqaba to Turkey. It is the boundary between two pieces of the earth's surface: the Arabian plate to the East and the African or Sinai plate to the West.

The area for excavation was chosen carefully by the research team, who wanted to study areas rich in new sediments given that recent deposits would have witnessed all recent earthquakes as opposed to older ones. The researchers dug a trench in Marjahine and studied the sedimentary layers uncovered. Radiocarbon dating of samples from these sediments will allow for a more accurate dating of previous earthquakes and recurrence patterns along the fault.

Given these recurrence patterns, a more precise calendar of previous earthquakes will also help geologists come up with a more robust estimate for when future earthquakes might be expected.

“The more we know about previous earthquakes, the better we can anticipate for the future,” said Dr. Elias, adding that this is important information given that Lebanon is located in an active earthquake zone.

A more detailed calendar of events obtained from this site, when compared with results of studies from the two other main faults in Lebanon, would also provide a better understanding of how all three faults function and how they communicate with each other.

Dr. Elias also hopes the recent research will also reveal information about earthquakes that have happened in Syria but have thus far not been recorded. “I hope we will be able to pin out earthquakes that happened along segments of the fault that are in Syria, given that this fault continues all the way up to Syria, and that were not powerful enough to rupture the rest of the fault in Lebanon.”

