TO Seminar, February 4th, 2014, Mortaza Pirouz

Foreland basin kinematics and orogen-parallel wedge geometry variations:

The Neogene Zagros fold-thrust belt

The Zagros Mountains are the part of the Alpine-Himalayan chain at the northern margin of the Arabian plate. This region comprises a Neogene-Recent sedimentary basin that is forming in response to ongoing collision between the Arabia and Eurasia. Compared to the intensely studied foreland basins in other parts of the Alpine-Himalayan chain, relatively little is known about the Zagros foreland basin. In this talk, I will present new chronostratigraphic sections of the western and eastern sectors of the Zagros Mountains using Sr isotope stratigraphy, and show how the Zagros foreland basin migrated trough time and space. These results enable us to show that the foreland basin migrated laterally at rates of 18 to 50 mm/yr throughout the Neogene, exceeding the migration rates known from the Alps, Pyrenees, Apennines and Himalayan foreland basins. Our study highlights the major role played by basement faults in the Zagros in controlling sedimentation in the foreland basin, something that would not be expected on the basis of surface geology that is dominated largely by thin-skin deformation. I will also introduce our ongoing project on the Zagros foreland-fold-thrust belt, which includes investigating sediment flux variation, kinematic and wedge geometry change. The results will shed light on the important question whether the Zagros wedge development occurred as a regular coulomb wedge growing under a varying climate or required non-stationary deep dynamic processes.