Geophysical Research Abstracts, Vol. 8, 07703, 2006
SRef-ID: 1607-7962/gra/EGU06-A-07703

Paleoenvironnemental evolution of the northern Tianshan piedmont (Northwest China) during the Neogene: preliminary results from organic matter and rock magnetism study of fluvio-lacustrine Junggar sediments

C. Di-Giovanni (1), J. Charreau (1), E. Lallier-Vergès (1), A. Gallaud (1), Y. Chen (1), S. Gilder (2)

(1) Institut des Sciences de la Terre d'Orléans, CNRS, Université d'Orléans

(2) Institut de Physique du Globe de Paris

The Tianshan range is among the Asia's largest mountain chains. It spreads over an E-W distance of 2500 km with summits higher than 7000 m. The range's geologic record attests to a complex history of Paleozoic subduction-related processes, but the living topography appears to be mainly due to a new phase of Cenozoic reactivation induced by the India-Asia collision. The Cenozoic uplift of the range has probably widely affected the Central Asia climate and environment of which the evolution might be deciphered from the sediment accumulation in the adjacent Junggar and Tarim basins.

In order to better constrain the Late Tertiary environmental evolution of Central Asia, we have studied Neogene sediments at the Kuitun He section and the Jingou He section in the northern flank of the Tianshan range. Both sections exposed upper Tertiary Junggar sediments that were folded in a ramp anticline. Sediments are mainly composed of fluvio-lacustrine sandstone and conglomerate that we previously dated using magnetostratrigraphy giving an age span from $\sim$3.1 to $\sim$10.5 Ma and $\sim$8.1 to $\sim$23 Ma for the Kuitun He and the Jingou He section respectively.

To track back time-transgressive changes in hydrodynamical conditions of the sedimentary record we performed a suit of rock magnetism experiments such as IRM, ARM and AMS analyses. Using the palynofacies method, we also analyzed the or-

ganic matter content of sediments that reveals the environmental evolution of both the watershed and the deposition area.

Preliminary results show that around 23 My the environment of the northern Tianshan was first probably arid and becomes progressively wetter with the onset of vegetal cover. By $\sim$20 My a climatic optimum may occur marked by a lacustrine environment as shown by a high contribution of autochthonous organic matter such as algae. By $\sim$15 My the runoff seems to rapidly increase. Latter (11 My ?) the northern Tianshan environment records a progressive aridification with a possible acceleration by $\sim$7 My.