Incised valley in the Upper Paleocene carbonate sediments of the Kopet-Dagh Basin, NE Iran

[1]MAHBOUBI, A., [1]MOUSSAVI-HARAMI, R., and [2]LASEMI, Y.
[1]Department of Geology, faculty of Science, Mashhad University, Mashhad, Iran; [2]Department of Geology, Faculty of Science, Tarbiat-Moallem University, Tehran, Iran.

Kopet-Dagh is a petroliferous basin that is located in NE Iran. The Upper Paleocene interval in this basin is mainly composed of carbonate with minor amount of siliciclastic and evaporatic sediments. Field and pertographic studies of this interval showed that they were formed in shallow carbonate ramp. Sequence stratigraphic analysis reveals that the Upper Paleocene interval consists of 3 depositional sequences (DS), separated by 2 sequence boundries SB_1 and SB_2. Each depositional sequence was developed as a third order cycle and is composed of several shallowing upward parasequences (fourth-fifth order cycles).

In the easternmost parts of the study area, a conglomerate unit is present at the base of DS_3 which is about 7 meters thick and about 100 meters in width. It filled a paleovalley or paleochannel and it cross-sectional profile is relatively asymmetric. The base of this paleovalley forms an irregularly erosional surface that downcut into the upper part of DS_2 and shows reddening, indicating pedogenic modification of the surface. This basal surface was subaerial exposed and weathered prior to deposition of the overlying valley fill conglomerate. Petrographic study of pebbles have shown that they are mainly composed of carbonate fragments of older sedimentary rocks such as the Jurassic Mozduran dolomite and the Cretaceous orbitoline grainstone carbonates. Based on this evidence, it appears that paleovalley incision took place as a response to eustatic sea level fall during the Upper Paleocene time in the Kopet-Dagh Basin.