Sequence stratigraphy ,facies assocations and Petroleum system of Maastrchtian - Selandian-Thanetian - Yepressian and Lutetian succeccions ,from Kurdistan Region ,NE- Iraq

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The Middle Paleocene- Middle Eocene successions in Sulaimanyiah area (NE- Iraq represents by Kolosh ormation (Selandian Thanetian, Flysch- Siliciclastics)- Sinjar reefal(shallow marine carbonates and Nummulitic limestone) ,then overlain by red Moallse siliciclastics of the Gercus formations . The sequence stratigraphic analysis Based on Facies associations , Planktonic and Shallow benthic Zones points to one 2nd order cycle and six 3rd order cycles and with ten 4th order cycles. The Kolosh marine siliciclastics and mixed siliciclastics- carbonates provide a record of two 3rd order cycles. The first 3rd order cycle, manifests the early to late Selandian- TST., of retrogradditional, aggraditional stacking pattern. The MFS of Pg10 at the selandian /Thanetian boundary overlies the first cycle. The 2nd order reflects early and late HST,of aggraditional to progradditional ,aslo reflect PETM events . The ypresian 3rd order cycle (TST and HST) reflects synsedimentary tectonic activities, were divided into two 4th order cycle .The Lutetian 3rd order cycle of carbonates ramps setting mostly pass from retrogradditional -aggraditional to progradditional stacking patterns, also subdivided into two 4th order cycle ,passing through startup, keep up pace and sudden give up stages in carbonates factory . The red molasses indicates low stand fan deposit points to the 5th order cycle ,while the last third order represent by the evaporites and carbonates of sagerma formation and points to climatic changes on the studied area. The Paleocene basin mostly show a progressive tectonic evolution of the Arabian-Iranian plate convergence ,that provides a better record of the relative sea-level change, basin geometry, dispersal of siliciclastics mixed carbonate- siliciclastics sequence, subsidence rates and the orogenic belt activity .The conjucates line of evidances indicates that the Nummulite sequence represent a good reservior for oil in this region.