Geochemical heterogeneity in lake-type control nonmarine basins from North China and West Africa

FENG XU[1] DINGSHENG CHENG[1] JIAN HU[2] YUTAO DING[3] MENGFEI LIU[3]

[1] Research Institute of Petroleum Exploration & Development, CNPC, No.20 Xueyuan Road, Haidian District, Beijing, China Code:100083, chnxufeng@petrochina.com.cn;chengdingsheng@petrochina.com.cn

[2]Institute of Geology and Geophysics Chinese Academy of Sciences(IGGCAS), No.19 West Beitucheng Road, Chaoyang District, Beijing, China Code:100029, hujian@mail.iggcas.ac.cn

[3]CNODC, PetroChina, No.6 FuChengMen North Street, Xicheng District, Beijing, China Code: 100034, dingyutao@cnpcint.com; liumengfei@cnpcint.com

Emphasis and reevaluation of applied geochemcial study on deposits of nonmarine sedimentary basins account for a growing segment of current petroleum exploration and exploitation opportunities, especially in areas of rapid market growth such as China, Western Africa, Southeast Asia and South America. Source rocks characterization buried post-Cretaceous in lacustrine environment has been proposed here based on numerous empirical observations of lacustrine basin strata, Cretaceous formations in Jiuquan Basin (China), Eocean formations in Bohai Bay Basin (China), and Cretaceous formations in West and central Africa Basin (Chad). Heterogeneity in geochimcal properties are incompleted delineated.

(1)Organic matters richness and pyrolysis results vary in layers of the same basin strata,showing fluctuations of depostional environments and turbulences of preservation. Correlations in listed basins imply common sense that heterogeneity outcomes all the sedimentay and geochemical processes.

(2) Source rocks in relatively mature stage contribute to the major discovery plays in current understanding of petroelum accmulation. Sapropelic kerogen observed and recognized commonly roles in world-class , even humic type input and mixtures frequently occurred. Shales layers in maturity (Ro%<1.3) are envaluated rich in shale oil based on the avaiable parameters, while commercial exploitation seldom seen.

(3)Ways to break out the complexity in lacustrine exploration are advsed in geochemcial perspectives.

This abstract is too long to be accepted for publication. Please revise it so that it fits into the column on one page.

Organic richness and maturity prioritize in source rock evaluation. Isopach and contour delineation usually determines the distribution of plays. Make sure fractures and carrybeds string the oil and gas pools for geologists. For unconventionals, maturity should be first determined and heterogeneity will make production favorable.