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C.E. Davies[1], S.J. Vincent[1], M.D. Simmons[1], D. J Hinds[2], M.B. Allen[1], E. Aliyeva[3] (1) CASP, Cambridge University, Cambridge, United Kingdom (2) CASP, Cambridge University, (2) ExxonMobil (formerly University of Aberdeen/CASP) (3) Geology Institute Azerbaijan Academy of Sciences, Baku, Azerbaijan

Climatic and Tectonic Controls on the Deposition of the Neogene Productive Series, Azerbaijan

Neogene Productive Series sediments in Azerbaijan are the focus of active exploration in the South Caspian Basin. Outcrop equivalents to offshore reservoirs occur on the Apsheron Peninsula and in the Kura Basin allowing the direct application of detailed outcrop derived depositional models.

Productive Series exposed on the Apsheron Peninsula records an overall fining-up trend from fluvial, reservoir quality, sandstones interbedded with alluvial/lacustrine plain mudstones, to rare fluvial sands within a fine-grained alluvial plain background. Overall fining is likely to represent a decrease in discharge and sediment transport ability of the palaeo-Volga system, also marked by the increased desiccation and palaeosol formation of the fluvial plain through time.

During deposition of dominantly fine-grained sediments in the uppermost Productive Series on the Apsheron peninsula, age equivalent strata in the Kura Basin record an overall coarsening-upward trend with extensive, amalgamated fluvial sheet sands and interbedded alluvial plain deposits. Sediments record rare desiccation and vegetated horizons. These strata, deposited from a palaeo-Kura system, record a dominant coarse sediment supply and high fluvial discharge.

New palynology data, collected along side sedimentological observations, allow a detailed understanding of the depositional setting for the Productive Series, providing vital clues about varying depositional environments on the alluvial plain, the periodicity of lacustrine incursions as well as the climate within the catchment areas of the South Caspian Basin through the late Miocene-Pliocene.

Variability in depositional setting between the palaeo-Volga and palaeo-Kura Productive Series fluvial sediments implies that their sediment supply and discharge are controlled primarily by the climate of their catchment areas.