

Provenance patterns in a neotectonic basin: Pliocene and Quaternary sediment supply to the South Caspian

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ABSTRACT

The South Caspian Basin has accumulated a sedimentary succession ~20 km thick. Roughly half of this was deposited in the last 5.5 Ma, mainly in the largely lower Pliocene, fluvio-lacustrine Productive Series, which is also the principal hydrocarbon reservoir succession in the basin. Heavy mineral data identify different sediment sources for both Productive Series sandstones and modern river sands. Lesser Caucasus sediment was supplied by the Palaeo-Kura into the western part of the South Caspian Basin. Productive Series strata in the north of the basin were supplied by the Palaeo-Volga, and represent a mixture of sediment from the Greater Caucasus and Russian Platform/Urals. Greater Caucasus sand input to the Palaeo-Volga increased at the start of deposition of the Pereriva Suite, which is an important reservoir subunit of the Productive Series. We interpret this provenance shift as indicating enhanced uplift and exhumation of the Greater Caucasus within the Pliocene, during regional re-organization of the Arabia–Eurasia collision, although late Cenozoic climate changes may have played a role.