

**AAPG Annual Meeting
March 10-13, 2002
Houston, Texas**

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The Paleogene Evolution and Sedimentary Fill of the South Caspian Basin: Insights from the Talysh of Southern Azerbaijan

A ~ 10 km thick Paleogene clastic and volcanic succession is preserved in the Talysh, southern Azerbaijan. These deposits contain important information on the Early Tertiary evolution of the adjacent South Caspian Basin and Kura Depression.

Sandy debris flow and turbidity current deposits dominate the Paleogene succession which accumulated at water depths generally > 200 m. Within this sequence there are high-K alkali magmatic rocks of Paleocene to Middle Eocene age. The majority of our Ar-Ar dates for these rocks cluster tightly at around 39 Ma which we interpret as a response to a major extensional episode in the Talysh. If this event is linked to extension and oceanic spreading in the South Caspian Basin it suggests that extension was later than is predicted in many regional tectonic models.

Paleocene to Eocene volcanics pass laterally eastward into volcanogenic sandstone-dominated debris flow and turbiditic intervals. Palaeocurrent indicators suggest that these depositional systems are likely to have continued to the southeast and probably contributed to the fill of the South Caspian Basin. The sedimentary products of this system are likely to exhibit poor reservoir potential.

The early Oligocene aged section of the Maykop Suite is dominated by fine-grained sediments deposited after the termination of rifting and volcanism. Upper Eocene to Lower Oligocene mudrocks in the Talysh display a relatively poor source rock potential with TOC values below 3% and S₂ peaks up to 6 kg/tonne.

Upper Oligocene to Lower Miocene coarse clastic rocks are interpreted as the erosional products of localised topography created by compressional deformation following Arabia-Eurasia collision.