Constraining Timing Of South Caspian Basin Isolation And Source Rock Deposition Using Re-Os Geochronology On Black Shales Of The Maikop Series, Eastern Azerbaijan

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ABSTRACT

The Oligocene-Miocene Maikop Series of Azerbaijan records a critical change in the regional paleogeography relating to the evolution of the Paratethys Sea. The deposition of discreet, organic-rich intervals of claystone within the Maikop Series directly relate to increased restriction and periodic isolation of the Paratethys Sea and its basins from open marine waters. Constraining the time of basin restriction would allow scientists to attribute basin restriction to the continued tectonic movement of the Arabian Plate to the northeast, or to the fall of sea level during the Messinian Salinity Crisis. The Maikop Series is also a key petroleum source rock interval for basins of the Paratethys Sea. Increasing the resolution of Maikop stratigraphy, specifically in relation to the preservation of organic matter, will aid in the development of predictive subsurface models. Timing constraints on the Maikop are notoriously difficult because it is primarily composed of clay-rich rocks that are largely devoid of diagnostic microfauna. While recent chemostratigraphic divisions of this 3 km thick package have been proposed and are effective in a rough division of the Maikop into individual members, new advances in Re-Os geochronology on black shales offer the hope of a more quantitative division of this strata. This study seeks to employ Re-Os geochronology on the discreet, organic-rich intervals of black shale in the Maikop Series of the Kura Depression in Eastern Azerbaijan with the hope of resolving the paleogeographic conditions of the Paratethys Sea and the effects on the preservation of organic matter in the Maikop Series.