

**Title:****Upper Permian Oil Shale Deposits of Northwest China: World's Largest?****Abstract:** (Your abstract must use 10pt Arial font and must not be longer than this box)

Upper Permian organic-rich lacustrine strata are distributed over an area of northwest China roughly equivalent in size to the modern Caspian sea. Thicknesses reach 1300 m in outcrops adjacent to the southern Junggar Basin, and may reach up to 2000 m in the subsurface. Most of this interval consists of sub-mm laminated, siliciclastic mudstone facies that commonly exceed 20% total organic carbon (TOC). Fischer Assay data are not available, but Rock Eval S<sub>2</sub> values for outcrop samples reach 226 kg/t. Biomarker distributions indicate that these deposits were the source of oil in the giant Karamay field and other fields located in the northwestern, central, and eastern Junggar Basin, and in the western Turpan Basin. Few detailed data constrain the total potential of the northwestern China oil shale, and the very existence of these deposits has often been overlooked. However, even a conservative estimate would place them among the world's leading oil shale occurrences. Assuming an average regional thickness of 400 m and average Rock Eval S<sub>2</sub> values derived from outcrop samples, the original oil potential would have been one to two orders of magnitude greater than the Eocene Green River Formation in the western U.S. Much of this original potential has been lost due to deep post-Permian burial beneath the southern Junggar Basin, and localized uplift and erosion related to post-Permian deformation. However, the remaining resource may still rank as the world's largest. The most prospective areas of preserved oil shale lie within outcrop belts adjacent to the southern Junggar and northern Turpan-Hami Basins, near rapidly-growing population centers and existing railroad lines. These areas are structurally complex due to Cenozoic thrusting, but thermal maturities remain low to moderate (~0.5-0.6 %R<sub>o</sub>). The detailed geology of these important deposits very poorly known, and much work is needed to fully map and assess them.

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