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PLIOCENE AGE OF THE ETCHEGOIN GROUP, SAN JOAQUIN BASIN, CALIFORNIA

The lithostratigraphy of the Etchegoin Group and its members has been understood for nearly 100 years but its chronostratigraphic position has been problematical for nearly as long. Historically the Etchegoin Group age assignment has been either Pliocene or Late Miocene-Pliocene depending biostratigraphic interpretation of its microfossil and macrofossil faunas. Subsurface biostratigraphy has favored assignment to the late Delmontian and younger California provincial foraminiferal stages. Previously unpublished diatom floras from the subsurface in southeastern Lost Hills oilfield and from outcrops in the San Emigdio Range, as well as published floras from the subsurface of Elk Hills oilfield, unequivocally place the Etchegoin Group as Pliocene (5.4-2.3 Ma). Radiometric and stable isotope numerical age dates are generally at odds with Etchegoin Group biostratigraphy and lithostratigraphy. New $^{40}Ar/^{39}Ar$ age dates from tuff outcrops in the Kettleman Hills North Dome oilfield show effects of excess Ar and suggest that previous K-Ar dates suffer from the same effect or the similar effect of mobilized K. $^{87}Sr/^{86}Sr$ age dates from the Etchegoin Group suffer from the ambiguity of ages derived from the Neogene $^{87}Sr/^{86}Sr$ seawater curve and brackish waters in the Pliocene San Joaquin Basin. Correlative formations in coastal basins include the Purisima Formation, upper Sisquoc to Careaga Formations in the Santa Maria Basin, and the San Diego Formation.