# Estimating Thermal Maturity in the Eagle Ford Shale Petroleum System Using Gas Gravity Data

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GCAGS Explore & Discover Article #00214*
http://www.gcags.org/exploreanddiscover/2017/00214_birdwell_and_kinney.pdf
Posted October 30, 2017.

*Article based on an extended abstract published in the *GCAGS Transactions* (see footnote reference below), which is available as part of the entire 2017 *GCAGS Transactions* volume via the GCAGS Bookstore at the Bureau of Economic Geology (www.beg.utexas.edu) or as an individual document via AAPG Datapages, Inc. (www.datapages.com), and delivered as a poster presentation at the 67th Annual GCAGS Convention and 64th Annual GCSSEPM Meeting in San Antonio, Texas, November 1–3, 2017.

## EXTENDED ABSTRACT

**Basin-wide datasets that provide information on the geochemical properties of petroleum systems, such as source rock quality, product composition, and thermal maturity, are often difficult to come by or assemble from publically available data. When published studies are available and include these kinds of properties, they generally have few sampling locations and limited numbers and types of analyses. Therefore, production-related data and engineering parameters can provide useful proxies for geochemical properties that are often widely available across a play and in some states are reported in publically available or commercial databases. Gas-oil ratios (GOR) can be calculated from instantaneous or cumulative production data and can be related to the source rock geochemical properties like kerogen type (Lewan and Henry, 1999) and thermal maturity (Tian et al., 2013; U.S. Energy Information Administration [EIA], 2014). Oil density or specific gravity (SG), often reported in American Petroleum Institute units (°API = 141.5 /SG – 131.5), can also provide information on source rock thermal maturity, particularly when combined with GOR values in unconventional petroleum systems (Nesheim, 2017).**

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Originally published as: Birdwell, J. E., and S. A. Kinney, 2017, Estimating thermal maturity in the Eagle Ford Shale petroleum system using gas gravity data: Gulf Coast Association of Geological Societies Transactions, v. 67, p. 397–403.