Comments on, *Scaled Random Number Simulation of High Correlation Coefficients for Gasoline Range Compound Concentrations (unpublished results)*, disclosed in *EarthArXiv*, 5 April, 2019, by Lloyd R. Snowdon

An unpublished, and non-peer reviewed preprint submitted to EarthArXiv

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Snowdon, in his unpublished preprint "Scaled Random Number Simulation of High Correlation Coefficients for Gasoline Range Compound Concentrations" (Snowdon, 2019), discounts the correlation between isoheptanes disclosed in *Science* by Mango (Mango, 1987). He proposes unidentified "lurking variables" as the source. The coefficient of correlation $R^2 = 0.9999$ in Mango's Figure 2 (Mango, 1987) could be inflated from regressing concentrations in total oil. The correlation could be "largely due to a 'lurking variable', namely the total amount of gasoline within the sample…" (Snowdon, 2019). It should, in that case, diminish substantially with isoheptane concentrations normalized to light hydrocarbons. But, it doesn't diminish. It changes hardly at all. R^2 is 0.999 with the same data normalized to % wt. C_6-C_7 (Figure). The correlation disclosed in the *Science* publication is therefore a correlation between light hydrocarbons. It is quite real, and of high significance. If hidden variables lurk in the Sabine Parish oils, they are probably the catalytic intermediates X and Y proposed by Mango (Mango, 1987, 2000) and supported by Van Duin and Larter (1997).

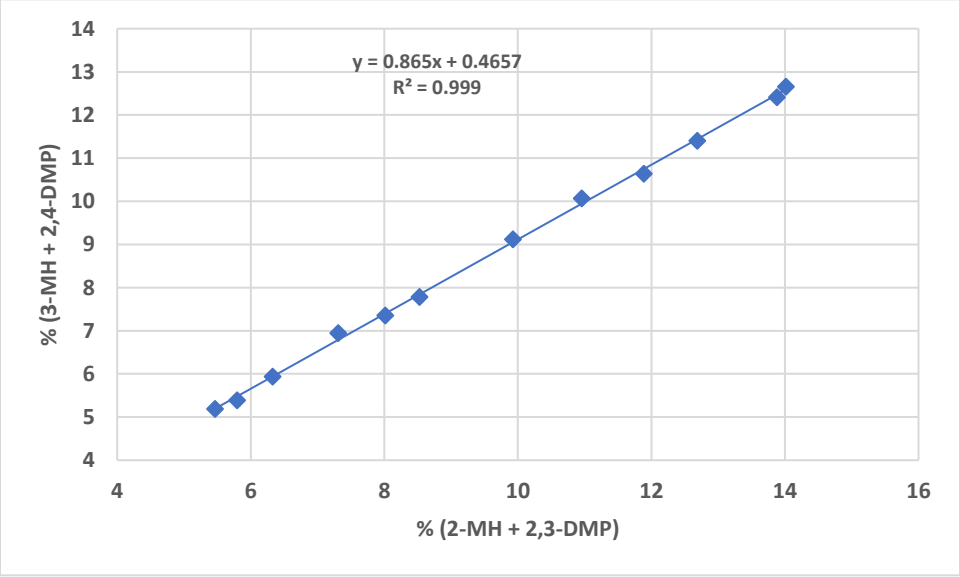

Figure. Concentrations of isoheptanes normalized to ($C_6 + C_7$), Sabine Parish oils in (Mango, 1987). 2-MH is 2-methyl hexane, 3-MH is 3-methyl hexane, 2,3-DMP is 2,3-dimethyl pentane, and 2,4-DMP is 2,4-dimethyl pentane. Concentrations are in % wt. C_6-C_7.

References

Mango, F.D. , **An invariance in the isoheptanes of petroleum**. *Science*. **237**, 514–517 (1987).

Mango. F.D., **The origin of light hydrocarbons**. *Geochim. Cosmochim. Acta.* **64**, 1265-1277 (2000).

Snowdon, L.R, **Scaled random numbered simulation of high correlation coefficients for gasoline range compound concentrations (unpublished results)**, *EarthArXiv,* 5 April (2019).

Van Duin, A.C.T, and Larter, S.R, **Unraveling Mango's mysteries: a kinetic scheme describing the diagenetic fate of C7-alkanes in petroleum systems**. *Org. Geochem*. **27**, 597-599 (1997).