

## ***Interactive comment on “The Depth Limit for the Formation and Occurrence of Fossil Fuel Resources” by Xiongqi Pang et al.***

**Ludden John (Referee)**

jl185@hw.ac.uk

Received and published: 30 September 2019

This manuscript is a useful contribution of data from numerous oil and gas wells in China and a world-wide compilation. It provides very useful data that is on-line in the PANGEA data-base. I would expect these data to be used by a number of users both from academia and industry and this is a good example of open data.

The only thing I struggle with is the static view of basins in these models. The oil and gas community model the source rocks as expelling gas and oil simply due to subsidence and compaction - as in Figure 9. This is largely because the oil and gas producers are mainly interested in the reservoir rather than the source - so they focus on the trapping process. Here the authors attempt to define limits for expulsion and

C1

these vary with heat flow of the basin as one would expect. However, there are fluxes of fluids, water rich and saline, traversing these basins and the role of these in dissolving organic matter and redistributing it has largely been ignored. I refer the authors to a recent paper which I was associated with in which we show that Pb- in oil comes from older and clearly deeper sources and is a mixture of components Lead isotopes as tracers of crude oil migration within deep crustal fluid systems Earth and Planetary Science Letters, Volume 525, 1 November 2019, Article 115747

There is some minor grammatical structuring that the authors should ensure for clarity in particular in the section - last paragraph on characteristics of ASDL.

---

Interactive comment on Earth Syst. Sci. Data Discuss., <https://doi.org/10.5194/essd-2019-72>, 2019.

C2