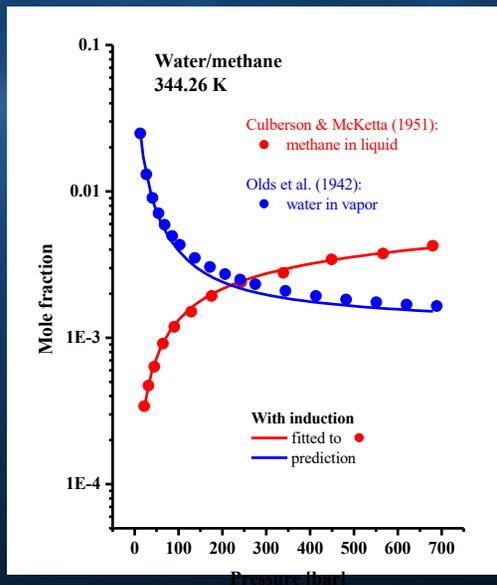
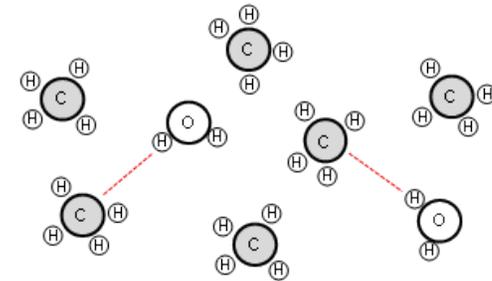


Water and Hydrocarbon Interactions on Titan

On Titan hydrocarbons exist in a liquid phase in lakes and seas, which are fed by hydrocarbon rain. It is likely that liquid hydrocarbons meet water at some depth, either forming nearly immiscible mixtures or solid clathrate hydrates.

This new model describes the presence of water in hydrocarbons, needed to compute the availability of water for possible life near Titan's surface. The model also describes the presence of hydrocarbon in water, needed for computing hydrocarbon transport between Titan's surface and its ocean, through its icy lithosphere.

New model with induction



These improvements in our understanding of the interactions between hydrocarbons and water will be useful for the assessment of the occurrences of potentially habitable water-poor and water-rich environments within the ice crusts and rocky crusts of extraterrestrial bodies.

S. P. Tan et al. (2019) Modeling Binary Mixtures of Water + Light Hydrocarbon using PC-SAFT with Induced Association: Improvement in Describing All Equilibrium Phases. *ACS Earth & Space Chemistry*, doi.org/10.1021/acsearthspacechem.9b00229.