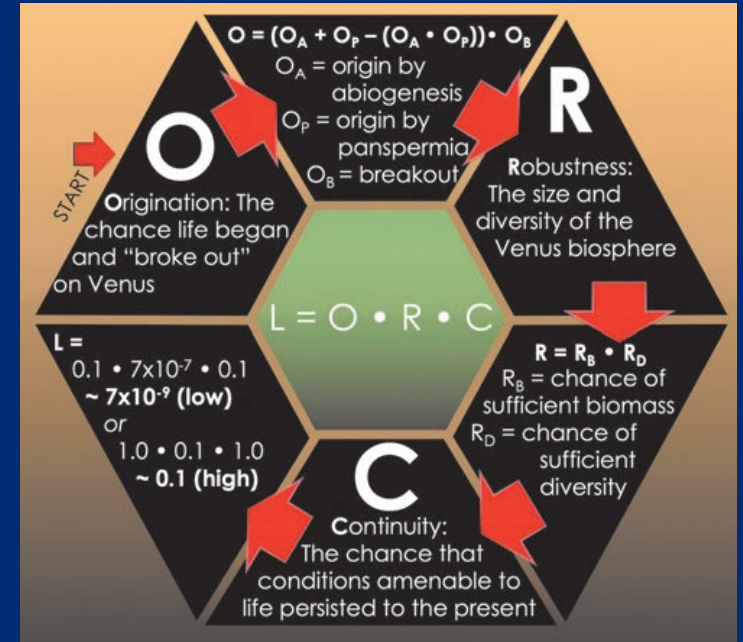
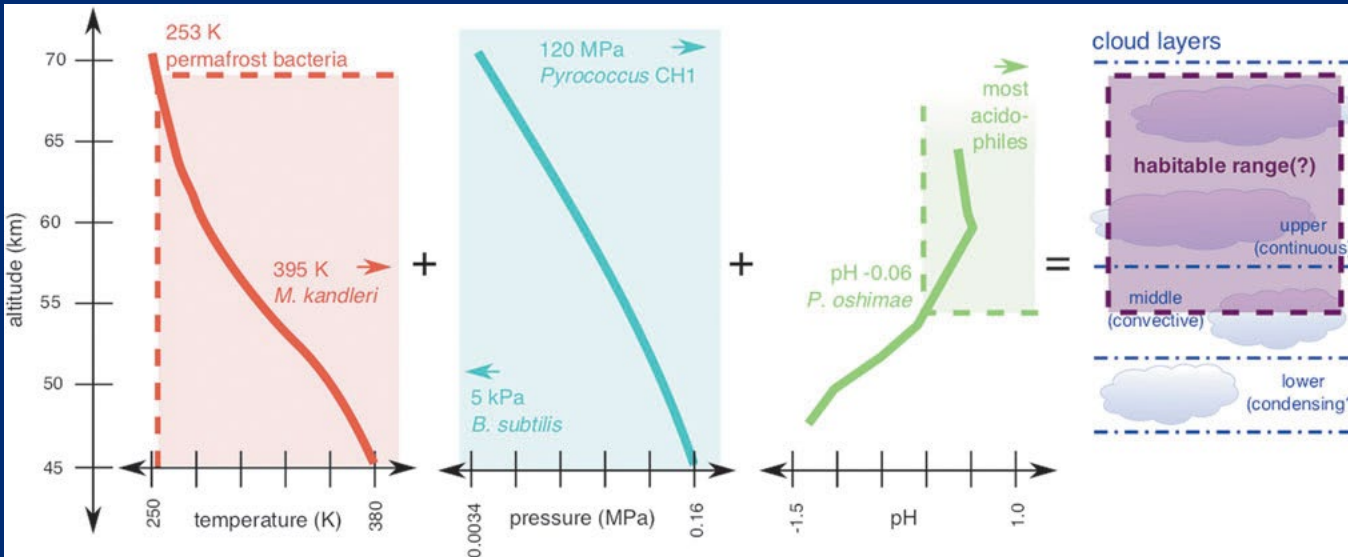


# The Venus Life Equation

- The chance of life existing today in the clouds of Venus is estimable from what we know about life on Earth and the history of Venus.
- We define and consider Origination, Robustness, and Continuity factors, and conclude that the chance life exists on Venus today is non-zero.
- Better understanding of Venus' history and current conditions through new missions including in-situ investigations would constrain the Venus Life Equation, even in absence of direct detection of life.



Schematic of the Venus Life Equation. The final estimate for L in this figure represents an example low and high range of estimates for each factor.



Three factors for which reasonable constraints exist that may point to favorable habitability conditions in the middle Venus atmosphere. Shown are upper and lower limits of temperature, pressure and pH prevailing in Venus clouds in the height range 45-70 km from its surface in the context of selected limit values for terrestrial life. Future missions may help to constrain additional major habitability variables such as water availability and ultraviolet radiation flux in this altitude range.

Venus Life Equation factors are estimated to be non-zero, yielding a probability for extant life of  $\leq 0.1$ .