

December 6, 2019  
MSE 2101 topics

- The concept of a habitable zone
- Will Earth freeze or burn if it moved  $\pm 1$  mile?
- Being in the habitable zone does not guarantee habitability
  - ... and vice versa!
- Habitable zones evolve
- Are Venus, Earth and Mars in the habitable zone?
- Why is Venus so hot? (yes, I know you know this already!)
- Why did Venus keep its carbon dioxide?
- Ok, but why does Venus not have water?
- The runaway greenhouse effect – a broken CO<sub>2</sub> cycle!
- Sooo... could young Venus have had oceans and even life?
- The boundaries of the habitable zone today
- The time evolution of the habitable zone
- The *continuously* habitable zone
  - ... until the CO<sub>2</sub> cycle breaks down (or is broken down)
  - how long do we have?