Abstract: The identification of an exoplanet receiving the amount of incident radiation from its host star to lie within the star’s habitable zone has been the primary step taken in classifying a planet as “potentially habitable”. However, recent research and the history of our own planet has shown that many factors and processes other than orbital distance can affect climate and planetary habitability. Discovering a planet in the habitable or “Goldilocks” zone is therefore but a first step in the process of finding the next planet where life can survive. To identify habitable exoplanets, it is important to understand how both orbital and atmospheric properties affect the climate of exoplanets, and how these climatic effects might change for different stellar and planetary environments. I will share results from work performed using a hierarchy of models to simulate planets orbiting stars of different spectral types and with varied orbital architectures, and discuss the implications of these results for planetary climate and habitability. My methods can be used to assess the possible climates of potentially habitable planets as they are discovered. This work ushers in a new era of utilizing observational and theoretical techniques together to target the next planet where life exists.

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