

## The Utility of the Physical-Based Definition

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The geophysical definition of a planet—i.e., an object in space that is massive enough for gravity to make it approximately spherical but not so massive that it generates energy by nuclear fusion—nicely separates planets from both smaller bodies that “do not know they are large” and larger bodies that are brown dwarfs and stars. The geophysical planetary definition avoids difficulties associated with planet definitions based on dynamics, origin, and specific attributes (e.g., the presence of an atmosphere or satellites), and allows bodies to be reliably categorized based on a single, simple, robust observable property—their known or estimated mass. The geophysical definition does not bias the population of planets in a system based on their location or dynamical happenstance, or on non-scientific desires such as preference for a limited number of planets.