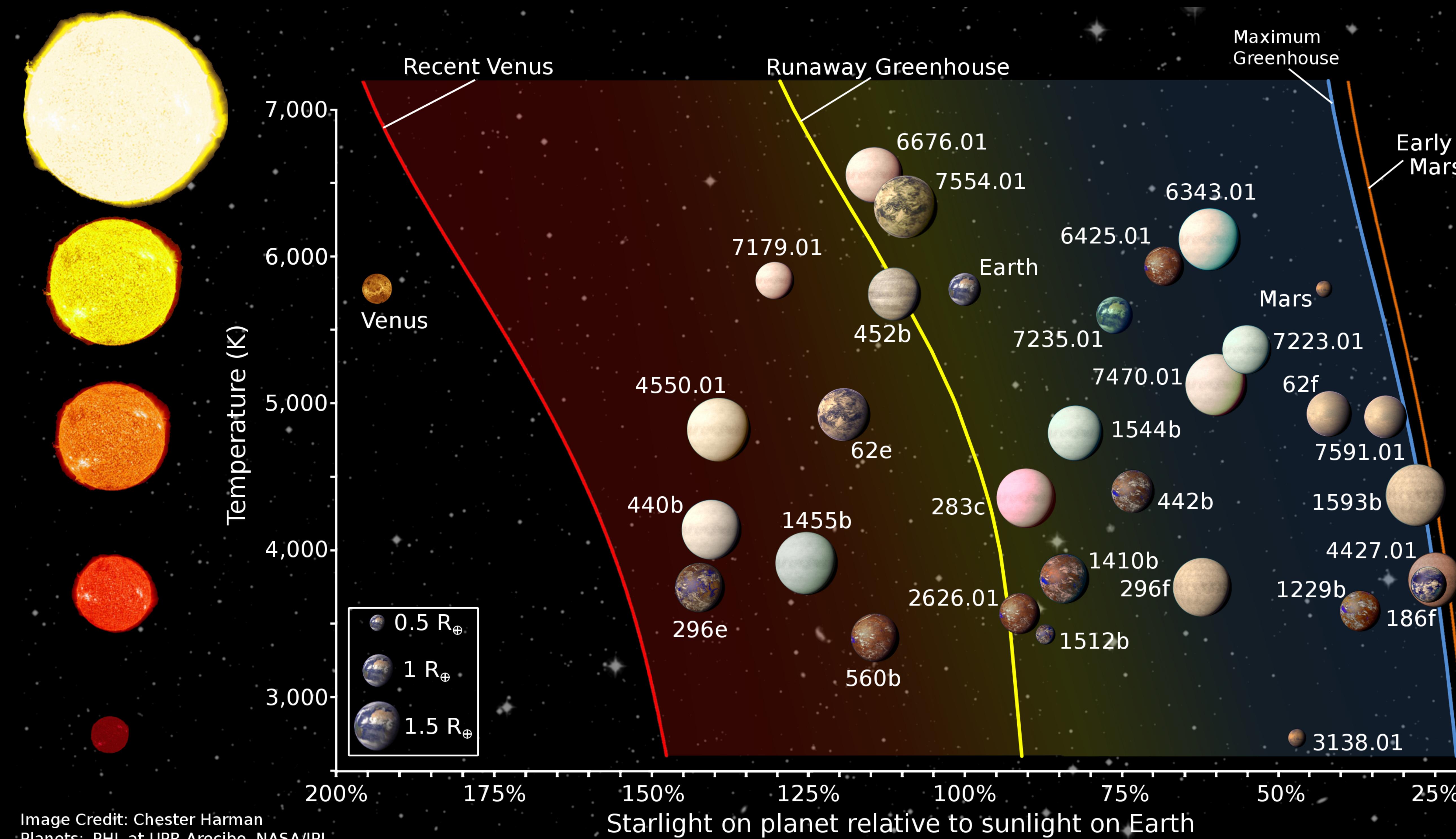


# A Catalog of Kepler Habitable Zone Exoplanet Candidates

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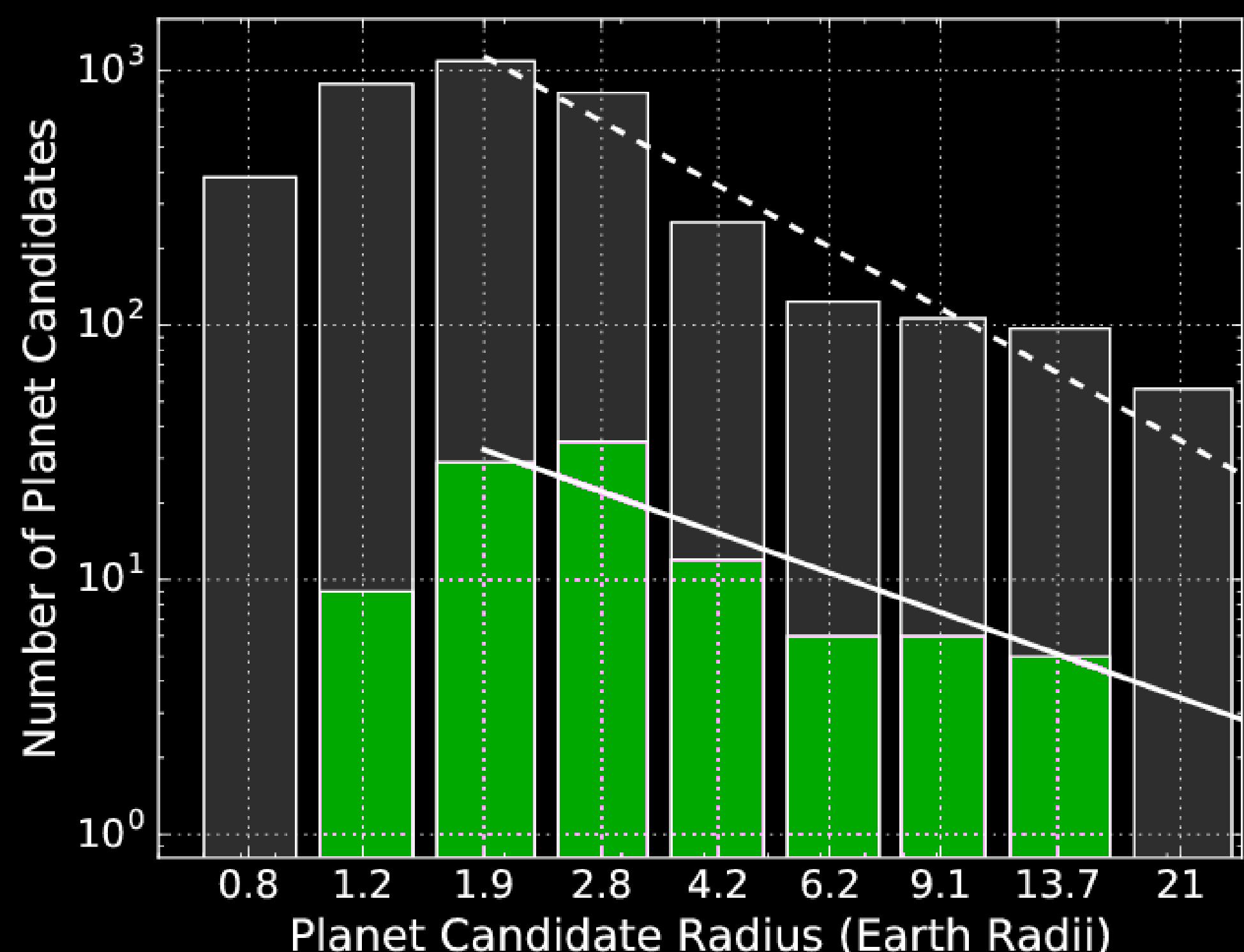
- The Habitable Zone (HZ) is defined as the region around a star where liquid water can exist on the surface of a planet with sufficient atmospheric pressure.
- We calculated the HZ for each of the Kepler candidates released in the DR24 catalog, and incorporating the stellar parameters from the DR25 table.
- Our methodology utilizes two main criteria to provide various HZ catalogs: planetary radius and the HZ boundaries.

## Criteria #1: Planetary radius relative to 2 Earth radii.



## Criteria #2: HZ boundaries for optimistic and conservative assumptions.

Using the above two criteria, we constructed four categories of Kepler HZ candidates. The second category, less than 2 Earth radii and within the optimistic HZ, consists of 29 candidates. These are depicted in the figure shown at left, where the optimistic HZ extends from Recent Venus to Early Mars.



- We further investigated the distribution of planetary radii inside and outside of the HZ boundaries. The figure at left shows histograms for the HZ candidates (green) compared with all of the Kepler candidates (gray). The bin sizes follow the standardization of occurrence rate bins specified by the NASA ExoPAG Analysis Group 13. A power law fit to both of these distributions (solid and dashed lines) show no statistical difference using a maximum-likelihood test. Thus, the overall distribution of planetary radii is representative of the radii distribution of HZ planets.
- Our final catalog of HZ planets is intended to provide a useful tool to the community, to inform follow-up observations and science objectives, ranging from optimal terrestrial planet targets to giant planets and exomoons.

## References:

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More information at the **Habitable Zone Gallery**  
<http://www.hzgallery.org>