

THE HABITABLE ZONE GALLERY 2.0:
THE ONLINE EXOPLANET SYSTEM VISUALIZATION SUITE

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ABSTRACT

We present the Habitable Zone Gallery 2.0 (HZG2), an online service that provides visualizations of known exoplanet systems. We pull all exoplanet data available from the NASA Exoplanet Archive and utilize the the latest climate models to compute and render planetary orbits, stellar parameters, and the Habitable Zone boundaries that indicate where liquid water could exist on the surface of a rocky planet. The HZG2 delivers new perspectives via interactive plotting and data analysis tools. We have crafted algorithms that intelligently discern the most appropriate view of an exoplanetary system, along with publication-ready vector-based plots that are available on-demand. Users can easily copy and modify any figure we host using tools that we provide. Anyone may download the plots in myriad file formats, or directly access the data in table form. The HZG2 supplies animated 3D visualizations of exoplanet systems with an aim to demonstrate orbital characteristics. Each exoplanet system has a dedicated webpage that, in addition to the plots, contains an integrated Aladin Lite module that summons actual imagery in an interactive view of the area of sky the exoplanet host system occupies. The HZG 2.0 upgrade promises to facilitate insights into the nature of exoplanetary systems while providing invaluable visualization tools and publication assets to the astronomical community.

Keywords: astrobiology – exoplanet habitability – data visualization