

NASA's TESS Finds Intriguing World Sized Between Earth, Venus

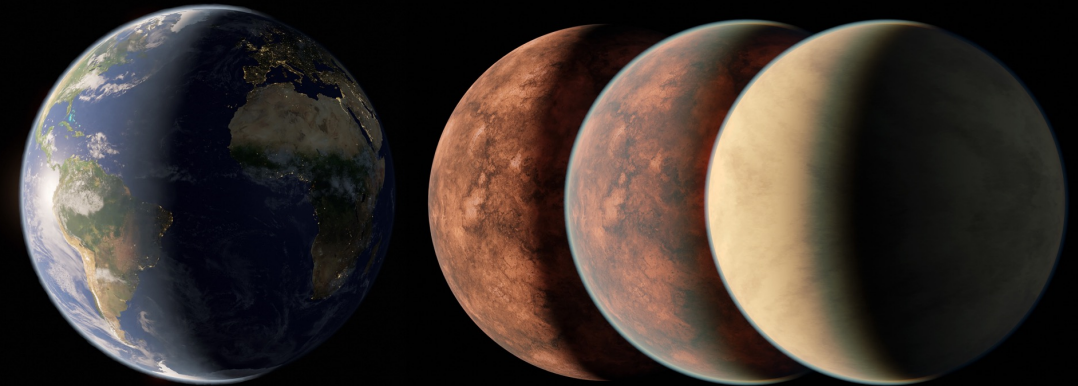


Using observations by TESS and many other facilities, two international teams discovered an exciting planet, called Gliese 12 b, between the sizes of Earth and Venus only 40 light-years away. It is the nearest, transiting, temperate, Earth-size world located to date.

Astronomers say it's a unique candidate for further atmospheric study. Earth remains habitable, but Venus does not due to its complete loss of water. If Gliese 12 b retains some atmosphere, it could teach us a lot about the habitability pathways planets take as they develop.

TESS stares at a large swath of the sky for about a month at a time, tracking the brightness changes of tens of thousands of stars. Capturing transits — brief, regular dimmings of stars caused by the passage of orbiting worlds — is one of the mission's primary goals.

During a transit, the host star's light passes through any atmosphere, effectively sampling it. Different gas molecules absorb different colors, so the transit provides a set of chemical fingerprints that can be detected by facilities like NASA's James Webb Space Telescope.



Earth

Gliese 12 b

Gliese 12 b's estimated size may be as large as Earth or slightly smaller — comparable to Venus in our solar system. This artist's concept compares Earth with different possible Gliese 12 b interpretations, from no atmosphere to a thick Venus-like one. Credit: NASA/JPL-Caltech/R. Hurt (Caltech-IPAC)

Papers: <https://iopscience.iop.org/article/10.3847/2041-8213/ad3642> and <https://academic.oup.com/mnras/article/531/1/1276/7679807?login=true>

News release: <https://science.nasa.gov/universe/exoplanets/nasas-tess-finds-intriguing-world-sized-between-earth-venus/>