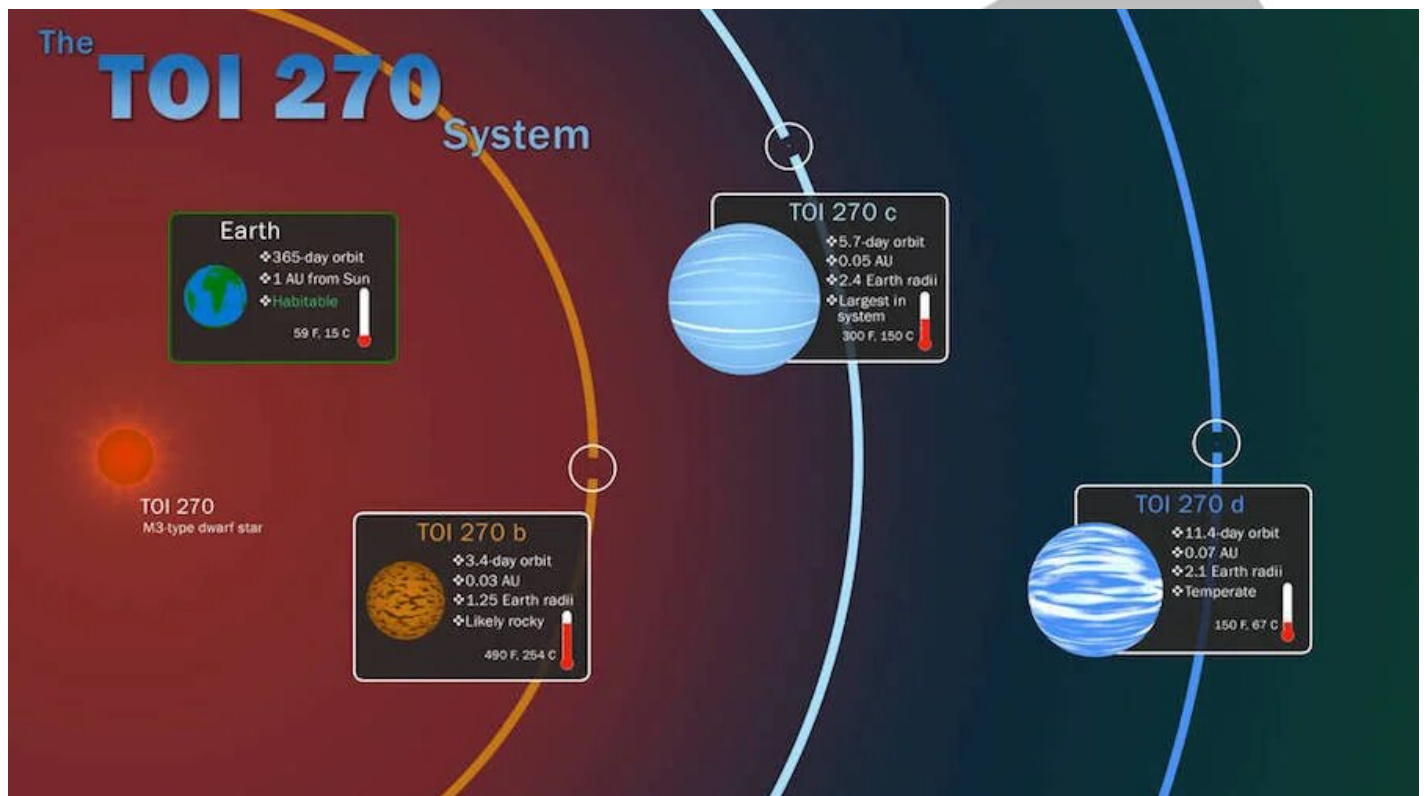




TOI 270 System

[The National Aeronautics and Space Administration's \(NASA\)](#) Transiting Exoplanet Survey Satellite ([TESS](#)) has discovered a new **planetary system** called **TESS Object of Interest (TOI) 270**.

- TOI 270 is about **73 light years** away from Earth, and is located in the constellation Pictor (Pictor is a constellation in the southern celestial hemisphere).



//

- TOI 270 system** comprises of the **dwarf star** (TOI 270), which is 40% smaller than the Sun in size and mass and three new **exoplanets planets** (planets outside the solar system):
 - TOI 270 b:** It is the **innermost planet**, and is likely a **rocky planet** about **25%** larger than Earth.
 - It orbits the TOI 270 (dwarf star) every **3.4 days** at a distance of about 13 times closer than that of Mercury orbiting the Sun.
 - TOI 270 b has a mass of around **1.9 times** greater than Earth's mass.
 - Due to its proximity to the star, planet b is an oven-hot planet and is **not habitable**.
 - TOI 270 c:** It is **2.4** times larger than Earth, orbits the star every **5.7 days** and weigh around **7 times** Earth's mass.
 - TOI 270 d:** It is **2.1** times larger than Earth, orbits the star every 11.4 days and weigh

around 5 times Earth's mass.

- TOI 270 c and TOI 270 d both may be similar to **Neptune** in our solar system, with compositions dominated by **gases** rather than rock.
 - They might best be described as **mini-Neptunes**, a type of planet not seen in our own solar system.
- All of the planets in the TOI 270 system are expected to be **tidally locked** to the star, which means the planet's period of rotation on its axis is same as its period of revolution around the star and keep the same side facing the star at all times, just as the Moon does in its orbit around Earth.
- TOI 270 system will provide better understand about the **formation** and **evolution** of planetary systems.



- The TOI 270 system is so compact that the orbits of Jupiter and its moons in our own solar system offer the closest reasonable comparison.

[Source:IE](#)

PDF Refernece URL: <https://www.drishtias.com/printpdf/toi-270-system>