



Water Worlds

Why in News?

According to a new study, a team of astronomers have found **water worlds, two exoplanets orbiting a red dwarf star.**

What are the Key Findings?

▪ About the Exoplanets:

- These exoplanets are **Kepler-138c and Kepler-138d**, which were observed using [NASA's Hubble](#) and retired [Spitzer space telescope](#).
- It is the first-time planets are confidently identified as water worlds, a type of planet that was theorized by astronomers to exist for a long time.
- The exoplanets **are located in a planetary system that is 218 light years away** in the [constellation Lyra](#) and are unlike any planets in our solar system.
- The new planet takes **38 days to complete an orbit.**
- It is in the habitable zone, **meaning it is located in an orbit that receives just the right amount of heat from its star to allow water to exist** in a liquid form.

▪ Findings:

- Kepler- 138c and d are made up **of ingredients lighter than rock (rocky planets like Earth)** but heavier than hydrogen or helium (gas-giant planets like [Jupiter](#)).
- This **signals the presence of water**, up to half of the mass of the twin worlds should be water.
- The volume of the two is three times that of Earth and **mass twice as big, they calculated.**
- They are also **larger-scale versions of Enceladus (Saturn's moon)** and [Europa \(Jupiter's moon\)](#).
- The density of the twin **exoplanets is lower than Earth** but comparable to Enceladus and Europa.
 - Until now, worlds slightly larger than Earth would likely have rocky features.
- These twin planets of the same size and mass are **more massive than Earth but lighter than ice giants Uranus and Neptune.**
- But they are different from the planets in our solar system, which is chiefly composed of **rocky planets like Earth and gas giants like Jupiter.**

▪ Significance:

- It can help researchers address the **knowledge gap and find more water worlds in the future.**

[Source: DTE](#)