

Europa

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In news— Recently, the researchers from Stanford University have shown that there are similarities between the so-called double ridges in Greenland and their larger versions found on Europa.

What are the key findings?

- It is already known that Europa, whose surface is mostly solid water ice, contains water beneath it.
- The researchers are now saying that **the double ridges – the formations which are most common on Europa’s surface and are similar to those seen on Earth’s Greenland ice sheet** – are formed over shallow pockets of water.
- In Greenland they were formed by the refreezing of liquid subsurface water.
- The shallow water pockets beneath the double ridge, like surfaces seen on the Greenland ice sheet on Earth and those seen on Europa’s ice shell, increase the potential habitability of the moon.
- According to the new evidence gathered by the Stanford team, **the ice shell is believed to be less of a barrier and more of a dynamic system.**
- This means that the **ice shell does not behave like an inert block of ice, but rather undergoes a variety of geological and hydrological processes.**

About Europa-

- Europa is **slightly smaller than Earth’s moon** and its diameter is about one-quarter that of the Earth.
- It is the **sixth-closest to the planet of all the 80 known moons of Jupiter.**
- It is also the **sixth-largest moon in the Solar System.**
- Europa **was discovered in 1610 by Galileo Galilei** and was named after Europa, the Phoenician mother of King Minos of Crete and lover of Zeus.

- It is primarily made of silicate rock and has a water-ice crust and probably an iron–nickel core.
- Its surface is striated by cracks and streaks, but craters are relatively few.
- Even though Europa has a **very thin oxygen atmosphere**, it is considered one of the most promising places in the solar system to find present-day environments that are suitable for life beyond the Earth.
- It is also believed that **underneath Europa's icy surface the amount of water is twice that on Earth.**
- The scientists believe Europa's **ice shell is 15-25 km thick** and is floating on an ocean, which is estimated to be between 60-150 km deep.
- While its diameter is less than the Earth's, Europa probably **contains twice the amount of the water in all of the Earth's oceans.**
- **NASA is expected to launch its Europa Clipper in 2024.** The module will orbit Jupiter and conduct multiple close flybys to Europa to gather data on the moon's atmosphere, surface and its interior.